THE DEVELOPMENT, IMPLEMENTATION, AND EVALUATION OF "THE EMPOWERED AIDE MODEL" (T.E.A.M.)

by

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A thesis
presented to the University of Waterloo
in fulfilment of the
thesis requirement for the degree of
Doctor of Philosophy
in
Health Studies

Waterloo, Ontario, Canada, 1998

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Despite the abundance of research that demonstrates the negative effects that caring for individuals with Alzheimer's disease and related dementias (ADRD) can have on the health and well-being of family caregivers, relatively little research has been conducted with formal caregivers to determine whether similar effects exist. As well, there have been few interventions aimed at reducing the possible deleterious effects of caregiving among formal caregivers, such as health care aides (HCAs) in long-term care facilities. This thesis describes "The Empowered Aide Model" (T.E.A.M.), a model of care developed to improve the quality of the long-term care work environment for HCAs who care for residents with ADRD. It is hypothesized that the implementation of T.E.A.M. will lead to decreased levels of burnout and improved perceptions of the work environment among HCAs. A study was undertaken to examine the effects of implementing T.E.A.M. on HCAs in four long-term care facilities. T.E.A.M. was implemented in two of the facilities; the other two facilities served as controls. Three types of data were collected from the HCAs: (1) self-reported questionnaire data, (2) physiological stress response data, and (3) qualitative interview data. The questionnaire data indicated that after the implementation of T.E.A.M., there were significant differences between HCAs in the treatment and control facilities in terms of job burnout and their perceptions of the work environment. However, there were no significant differences found between HCAs in the treatment and control groups on the physiological stress response measures. The qualitative data provided detailed information about the HCAs' impressions of T.E.A.M. and its effect on their work environment. Overall, the results from this study suggest that T.E.A.M. was successful in reducing job burnout and improving HCAs' perceptions of their work environment. Consequently, T.E.A.M. appears to be a feasible and effective means of improving the quality of work life among HCAs in long-term care facilities.

ACKNOWLEDGEMENTS

There are numerous people who have helped me in a multitude of ways throughout this journey. To each of you, I am indebted.

First, I would like to thank the health care aides who participated in this study, along with the registered staff and management of the participating long-term care facilities. Without their time, assistance, and commitment, this thesis would not have been possible. I would also like to express my gratitude to the family member of the residents within these facilities who shared their time and personal experiences in order to provide me with a better understanding of their situations.

I also would like to thank my thesis committee. In particular, I would like to thank my supervisor, Dr. Michael Stones, for his unconditional and enthusiastic support of me and my work. I am also grateful for the advice and assistance I received from Dr. Laurie Hoffman-Goetz, Dr. K. Stephen Brown, and Dr. Olga Malott. Thank you, as well, to Dr. Jim Curtis for his input and suggestions. Finally, I would like to thank the external examiner, Dr. Dorothy Pringle, for her thoughtful comments and encouragement.

I would also like to express my appreciation to the Alzheimer Research and Education Project for providing financial support for this project. As well, I am grateful to Dr. Michael Sharratt and Mrs. Beverly Brooks for their continued interest and confidence in this work. I am also sincerely grateful to the personal support received from Mr. Ken Murray, founder of the Alzheimer Research and Education Project. Financial assistance for this project was also provided by a Canadian Association on Gerontology-Donald Menzies Bursary, the Ontario Graduate Scholarship Program, and Extendicare Canada.

I am sincerely grateful to Dr. Christine Zaza who shared her knowledge of qualitative research as well as her time and patience. Thanks also go to Yoga Arumugam for her technical expertise in the laboratory and to Wendy Slak for her assistance in transcribing the qualitative interviews.

My thanks are also extended to Donna Kellendonk, Julie Cassaubon, Wendy Rose, and Nancy Poole for the help and support they have given me throughout the years.

Thank you as well to my friends who have always supported me and provided balance to my life. In particular, I would like to thank Jennifer Yessis, Dr. Paul Stolee, and Steve Kingston who have not only provided personal support but have helped with this thesis in numerous ways.

Finally, I would like to thank my family for their love, encouragement, and faith in me. I would especially like to thank my Mom, without whose support I would not have been able to achieve this goal.

To you, Dad, my biggest fan.

I miss you.

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CHAPTER 1: INTRODUCTION

"First time on any floor you worked, there was always the RN, the RPN, and the aides were way at the bottom of the barrel. Now, they treat us like people. I mean, we have brains. We can use 'em too. They never used to treat us that way. We have an opinion."

Christine (332-8)

1.1 Statement of the Problem

Providing care to individuals who suffer from Alzheimer's disease and other dementias (ADRD), whether as a family member or as a staff person in a long-term care facility, is considered stressful. While there has been an abundance of research into the deleterious effects of caregiving among family caregivers (i.e., informal caregivers), relatively little research has been conducted with formal caregivers (i.e., paid caregivers) to determine if similar effects exist.

Because the proportion of Canadians over the age of 65 is expected to increase from 10.6% in 1991 to 21.8% in 2031 (Statistics Canada, 1989), the implications for the long-term care resident population should be considered. First, innovations in long-term care such as dementia Special Care Units (SCUs) (i.e., units designed to provide specialized programming, staffing, and environmental designs to individuals with ADRD), have been implemented across North America in response to the needs of cognitively impaired residents (Maslow, 1994). Second, financial constraints within long-term care have resulted in staff layoffs and down-sizing in long-term care facilities (Pitters, 1995) which, in turn, have meant heavier workloads for the staff who remain. Third, assuming that the prevalence rate for dementia does not change, the number of elderly individuals suffering from dementing disorders is expected to almost triple by the year 2031 (Canadian Study of Health and Aging Working Group, 1994). Consequently, there will be a greater number of individuals requiring specialized dementia care. Finally, the individuals currently admitted to long-term care facilities tend to be older, more frail, and more cognitively impaired than in the past, and this trend is expected to continue (Chappell & Novak, 1994; Havens, 1995). It can therefore be concluded that there is an imperative need to understand the effect that

caring for individuals with ADRD has on long-term care staff. Further, effective means of alleviating job stress and improving the work environment for long-term care staff are required.

1.2 Purpose and Outline of Thesis

The purpose of this thesis is to describe the development, implementation, and evaluation of a new model of care entitled "The Empowered Aide Model" (T.E.A.M.). The overall goal of T.E.A.M. is to improve the work environment for health care aides (HCAs) who care for individuals with ADRD in long-term care facilities.

The thesis begins with a review of the literature on the effects of caregiving among informal and formal caregivers and presents the results from the few intervention studies that have been conducted with long-term care staff. The development and rationale behind T.E.A.M. are then described. The remainder of the thesis focuses on the study involving T.E.A.M. The study design and methodology are described, followed by a chapter that outlines the details regarding the implementation of T.E.A.M. in the treatment facilities. The methods and results for each type of data collected (i.e., self-report questionnaire data, qualitative interview data, and data from two physiological indicators of stress) are presented in separate chapters. In the final chapter of the thesis, the results from the three data sources are discussed along with their implications, and suggestions are made regarding future research directions.

1.3 Terminology

In the stress literature, authors use various terms to describe stress including burnout, burden, eustress, and distress. Each of these terms can have different meanings and implications for different individuals. For the purpose of this thesis, a *stressor* is defined as an external stimulus or source of stress; *job stress* refers to a situation where job demands have exceeded an employee's resources; and *burnout* refers to a situation involving prolonged and excessive job stress (Maslach & Schaufeli, 1993).

CHAPTER 2: LITERATURE REVIEW

2.1 Overview of Dementia and Alzheimer's disease

Dementia refers to a syndrome of disorders characterized by a sustained decline in intellectual functioning, which interferes with one's work, home, and social activities. Included are disorders that are reversible, such as nutritional deficiencies and adverse drug interactions, and disorders that are irreversible, such as Alzheimer's disease (AD) and multi-infarct dementia. AD is the most common form of dementia; it is estimated to account for approximately 70% of identified cases (Mayeux, Foster, Rosser & Whitehouse, 1993). The term Alzheimer's disease and related dementias (ADRD) refers to a group of disorders (that includes AD) with cognitive and behavioural symptoms that are similar to AD.

2.1.1 Stages of Alzheimer's disease

Alzheimer's disease can be characterized as a series of stages (Edwards, 1993). In the first stage, deficits in memory occur, followed by impairments in judgement and orientation, and difficulties in work and social environments. At this stage, the individual and family may deny that something is wrong. In the second stage, cognitive abilities continue to deteriorate; for example, recent memory may be lost and the individual may have difficulty recalling words or expressing thoughts. In addition, the individual may become agitated, begin to pace, engage in repetitive behaviours (e.g., asking the same question repeatedly), and wander (during both the day and night). New situations or changes to routines may result in catastrophic reactions, such as aggression or severe agitation. The unpredictability and severity of such behaviours, and the potential for harm, often take a substantial toll on family caregivers. It is during this stage where caregivers are most likely to place their impaired relative in a long-term care facility since they are no longer able to cope with their loved one (Shapiro & Tate, 1985).

Table 2.1
Estimated Number of Individuals in Ontario with Dementia and Alzheimer's Disease

DEMENTIA		
Age	**Prevalence Rate (%) ***	**Estimated Number of Individuals in Ontario**
65 - 74 years	2.4	19,043
75 - 84 years	11.1	46,145
85+ years	34.5	43,092
TOTAL		108,280

ALZHEIMER'S DISEASE		
Age	**Prevalence Rate (%) ***	**Estimated Number of Individuals in Ontario**
65 - 74 years	1.0	7,935
75 - 84 years	6.9	28,685
85+ years	26.0	32,475
TOTAL		69,095

* Prevalence rates from the Canadian Study of Health and Aging
** Population data from the 1996 Canada Census

During the third stage of AD, the cognitive impairments may become so great that the individual may have difficulty remembering how to dress, use eating utensils, and control his/her bladder and bowel. The changes in personality may also become more severe. Extreme mood swings can be common, levels of aggression and agitation may increase, and the individual may experience hallucinations and intense paranoia. The fourth stage is terminal. Individuals at this stage require total care including dressing, feeding, toiletting, and bathing. The individual is normally bedridden and may be completely unresponsive to the environment (Edwards, 1993; Mace & Rabins, 1991).

While these four stages illustrate the deterioration that typically occurs with the disease, the specific behaviours exhibited and the rate of progression through the stages varies from individual to individual. The heterogeneity of the disease is not only difficult for caregivers, but complicates diagnosis.

2.1.2 Prevalence of Dementia and AD

Substantial variability exists in the prevalence estimates for dementia and AD (Forbes & Barham, 1991; Rockwood & Stadnyk, 1994). Inconsistencies in the estimates may be the result of differences in: the age of the group being studied, the diagnostic criteria and diagnostic tools used, the geographic area being assessed, and whether the study population includes community-dwelling residents only or both community-based and institutionalized residents (Rockwood & Stadnyk, 1994). Another reason for variability in prevalence rates is differential non-response rates among studies. Because individuals with cognitive impairment may be less likely to respond to surveys, prevalence estimates from studies that have a high non-response rate may be biased resulting in figures that underestimate the actual prevalence rate of dementia or AD (Forbes & Barham, 1991).

The Canadian Study of Health and Aging (CSHA) produced the first national-based prevalence estimates for dementia and AD in Canada. According to the CSHA, 8% of individuals over the age of sixty-five suffer from dementia; among those over the age of eighty-five, the percentage increases to 35%

(Canadian Study of Health and Aging Working Group, 1994). Table 2.1 provides an estimate of the number of individuals in Ontario with dementia and AD, by age group. According to these estimates, over 108,000 individuals in Ontario suffer from dementia and almost 70,00 have AD. Data from the CSHA also indicate that if the prevalence rate remains constant, the number of individuals with dementia will almost triple by the year 2031 (Canadian Study of Health and Aging Working Group, 1994).

2.1.3 Impact of ADRD

Dementia, and AD in particular, can have a substantial impact on the individual and society. Given the projected increase in the number of individuals suffering from ADRD (Canadian Study of Health and Aging Working Group, 1994), it is imperative that society understands the potential consequences of this change and that planning for support and treatment services begin.

One of the primary concerns for society is the economic impact of ADRD. Data from the CSHA were used to calculate the net economic costs associated with dementia. 'Net economic costs' referred to the difference in costs for those with dementia and those without dementia. Included were costs associated with diagnosis, medications, hospitalization, institutionalization, research, and care from family members and friends. Not included were costs related to the decline in an individual's quality of life or the impact on family members (i.e., opportunity costs and costs associated with the emotional effects of caregiving). Based on this data, Canada's annual net economic cost for dementia is in excess of $3.9 billion (Ostbye & Crosse, 1994). Thus, the economic impact of ADRD in Canada represents a substantial burden on society.

The costs to caregivers in terms of emotional and physical consequences are also profound. In the remainder of this chapter, the research literature on the effects of caregiving among informal caregivers will be briefly summarized, followed by a more extensive review of the research that has been conducted with formal caregivers.

2.2 Impact of Caregiving on Informal Caregivers

There has been a considerable amount of research conducted on the effects of caring for individuals with ADRD among informal caregivers. Despite some methodological shortcomings (Mortimer, Boss, Caron & Horbal, 1994), this research has consistently shown that caring for individuals with ADRD can have a negative effect on the health and well-being of informal caregivers. For example, caring for an individual with ADRD has been found to be associated with significantly higher levels of depression (Canadian Study of Health and Aging, 1994; Baumgarten, Battista, Infante-Rivard, Hanley, Becker, & Gauthier, 1992; Kiecolt-Glaser, Dura, Speicher, Trask, & Glaser, 1991; Schulz & Williamson, 1991; and Pruchno & Potashnik, 1989), higher levels of negative affect (Pruchno & Potashnik, 1989), excess burden (Canadian Study of Health and Aging, 1994), and more physical ailments (Canadian Study of Health and Aging, 1994; Kiecolt-Glaser, Dura, Speicher, Trask, & Glaser, 1991; Schulz & Williamson, 1991; and Pruchno & Potashnik, 1989). The extent of the impact of caregiving, however, has been found to be moderated by various factors, including the characteristics of the care recipients (Vitaliano, Russo, Young, Teri, & Maiuro, 1991), gender (Borden & Berlin, 1990), physical health (Pratt, Schmall, Wright & Cleland, 1985), personality factors (Vitaliano, Russo, Young, Teri, & Maiuro, 1991), social resources (Morycz, 1985; Pratt, Schmall, Wright & Cleland, 1985), and psychological resources (Vitaliano, Russo, Young, Teri, & Maiuro, 1991; Borden & Berlin, 1990).

2.3 Impact of Caregiving on Formal Caregivers

Despite our knowledge regarding the deleterious effects that caregiving can have on informal caregivers of individuals with ADRD, relatively little research has been conducted with formal caregivers to determine if the effects are comparable.

The research that has been conducted with long-term care staff has generally fallen into one of four categories: (1) factors that affect job satisfaction and employee turnover, (2) the evaluation of

educational training interventions in long-term care, (3) factors that affect job stress and burnout, and (4) the implementation of interventions (other than educational training) in long-term care. Overviews of studies within each of these categories are provided in Tables 2.2 through 2.5, respectively. Studies within the first two categories are not as relevant to the current study as those within the other two categories and will, therefore, not be reviewed here. Studies dealing with factors that affect stress and burnout and those dealing with interventions in long-term care, are of relevance and are reviewed below. The review is followed by a summary of some of the methodological issues that arise from these studies and a discussion of the research results and their implications.

The studies reviewed include those that were published in 1985 or later, written in English, conducted in long-term care settings, and focused on, or included, HCAs (also referred to as nursing aides, NAs) (regardless of whether the aides cared only for residents with ADRD or those with and without ADRD). While the studies reviewed in this chapter and in Tables 2.2 to 2.5 do not include all of the research that has been conducted with this population, they are representative of the respective areas.

2.3.1 Factors That Affect Stress and Burnout Among Long-Term Care Staff

The first set of studies (see Table 2.4) include those that have been conducted to determine which factors predict stress and burnout among long-term care staff. Other studies have examined factors which may moderate the effect of stressors.

In a study by Hare, Pratt & Andrews (1988) nursing staff from three acute care hospitals and seven nursing homes were surveyed in order to examine the relationship between burnout and interpersonal (i.e., social support), intrapersonal (i.e., coping strategies), and situational (i.e., demographic and work) factors. Surveys were distributed to 600 professional and paraprofessional nurses, of which 312 responded (i.e., 52%). Among those who did respond, 58% were registered nurses (RNs), 8% were licensed practical nurses (LPNs) and 34% were nursing aides (NAs).

Table 2.2
Studies Related to Job Satisfaction and Turnover among Health Care Aides

Study	Purpose	Respondents: Number, Type & Response Rate	Method	Selected Findings
Anderson, Aird & Haslam (1991)	- to determine the level of job satisfaction among staff and identify reasons for satisfaction and dissatisfaction	- 212 HCAs, RNs, RPNs - response rate not provided	- survey	- RPNs were the most satisfied, followed by HCAs and RNs - HCAs had the highest absentee rate
Brennon & Moos (1990)	- to examine the relationship between job turnover and staff and resident characteristics, physical features of the facility, and social climate	- 117 nursing homes and 57 veteran LTC facilities - response rate not provided	- data from 2 U.S. surveys of nursing homes and LTC facilities	- staff and resident characteristics are associated with turnover; for example: younger, less experienced staff and facilities where residents have few social resources have higher turnover rates - aspects of the social climate are also associated with turnover
Caudill & Patrick (1989)	- to identify factors related to job turnover and to determine the relationship between satisfaction and turnover	- 74 facilities (30% response rate) - 996 HCAs (24% response rate)	- survey	- length of employment was related to: salary and benefits, staff-to-resident ratio, consistency of care, peer cohesion, and self-reported nursing skills
Cohen-Mansfield (1989)	- to identify attitudes of staff toward their jobs and to identify factors that affect job-related stress	- 1 facility; 30 HCAs, RPNs, RNs - response rate not provided	- survey and log book of events	- staff enjoyed their jobs; relationships with residents and co-workers were given as reasons; relationships with co-workers were also a source of stress, as was work overload
Garland, Oyabu & Gipson (1988)	- to determine whether there are differences in the attitudes of HCAs who stay, versus leave, a facility and to examine the reasons for staying/leaving	- 79 stayers (100% response rate), 35 leavers (27% response rate)	- survey	- stayers are more likely to be minority women with little education, have previous experience in LTC & caring for an aging relative, positive attitudes towards LTC facilities, & are rewarded by relationships at work; they stay because of the intrinsic rewards they receive and because of job security

Table 2.2 (cont.)
Studies Related to Job Satisfaction and Turnover among Health Care Aides

Study	Purpose	Respondents: Number, Type & Response Rate	Method	Selected Findings
Mullins et al., (1988)	- to examine the relationship between job satisfaction and organizational and management characteristics	- 46 facilities (88%); 439 HCAs, RPNs, RNs (73%)	- survey	- job satisfaction was related to employee recognition and rewards; there was some evidence which suggested that decision-making may increase satisfaction
Rublee (1986)	- to determine the relationship between job turnover and leadership behaviour, rewards and satisfaction	- 5 facilities; 397 and 340 at Times 1 & 2; staff: nursing, clerical & technical	- survey	- factors associated with turnover were: age, length of employment, job satisfaction, contemplation of quitting and intention/probability of quitting
Wagnild (1988)	- to determine the relationship between job turnover, HCA characteristics, and management factors	- 11 facilities (85%); 119 HCAs (100%)	- interview	- factors associated with turnover were: low wages, understaffing, little opportunity for advancement, minimal knowledge of aging, and inadequate orientation
Wagnild & Manning (1986)	- to identify the characteristics of those employed as HCAs for 1 year or more and those who leave within 1 year	- 11 facilities (85%); 119 HCAs (100%)	- interview	- stayers were more likely to be: older, less-educated, and have a more stable work history

Table 2.3
Studies Related to Training Health Care Aides

Study	Purpose	Respondents: Number, Type & Response Rate	Selected Findings
Cohn, Horgas & Marsiske (1990)	- to assess the impact of a 5 session skills training program on HCAs' knowledge and skills in behaviour management	- 2 facilities: 29 (58%) & 48 (67%)	- knowledge improved - increased use of skills
Hyman (1993)	- to determine the effect of an educational intervention (three 3-hour sessions) on burnout	- 1 facility; 188 nursing and support staff; 42 (82%) of those asked participated in evaluation	- enhanced perceptions of the work environment; increase in personal accomplishment, decrease in emotional exhaustion; staff reported improvements in their ability to manage stress, and in self-esteem and communication
Monahan (1993)	- to assess the effects of an education intervention (six 2-hour sessions) on resident characteristics and behaviours	- 1 unit; 45 residents, 22 HCAs, RPNs, RNs (100%)	- cognitive function and overall functioning decreased among residents - decrease in the most frequently occurring behaviour problems and in the problems staff considered most difficult
Smith et al. (1994)	- to evaluate a train-the-trainer intervention in terms of satisfaction, knowledge, and attitudes	- 42 trainers, 329 trainees	- knowledge increased among trainers and trainees - both groups were satisfied with the intervention, although provided suggestions regarding changes - attitudes toward the elderly improved

Table 2.4
Studies Dealing with Factors Related to Stress and Burnout

Study	Purpose	Respondents: Number, Type & Response Rate	Method	Selected Findings
Astrom et al. (1990)	- to compare burnout, empathy, and attitudes towards residents with dementia among nursing staff in a nursing home, somatic LTC clinic, and psychogeriatric clinic	- 358 HCAs, RNs, RPNs - 64.3%	- survey	- HCAs had significantly lower levels of empathy and higher burnout scores vs. RNs - proportion of staff at risk of burnout was highest amongst HCAs - HCAs in nursing homes had the poorest attitudes and poorest ability to feel empathy vs. other staff and facility combinations
Chappell & Novak (1992)	- to determine if social support moderated the negative effects that stressors had on HCAs' feelings of stress	- 245 HCAs - 78%	- interview	- social support at work and at home can help HCAs deal with burnout and work pressure
Chappell & Novak (1994)	- to examine the relationship between characteristics of LTC residents and physical health of the HCAs	- 245 HCAs - 78%	- interview	- caring for more residents with gross mental impairment, and for more residents who are restless, uncooperative, and who constantly cry are related to the physical health of HCAs; caring for more residents with AD is not related
Hare, Pratt & Andrews (1988)	- to examine the relationship between burnout and interpersonal, intrapersonal and situational factors	- 312 HCAs, RNs, RPNs - 52%	- survey	- both personal and organizational factors contribute to burnout; specifically, the most important predictors of burnout were work relationships (e.g., supervisor support) and tension-releasing and instrumental or problem-focused coping strategies

Table 2.4 (cont.)
Studies Dealing with Factors Related to Stress and Burnout

Study	Purpose	Respondents: Number, Type & Response Rate	Method	Selected Findings
Hare & Skinner (1990)	- to determine which aspects of the work environment were most predictive of burnout	- 40 staff in nursing, dietary, housekeeping and office staff - 50%	- survey	- none of the WES dimensions were significant predictors of emotional exhaustion or depersonalization; the personal growth dimension was a negative predictor of personal accomplishment
Melchior et al. (1997)	- to examine the relationship between burnout and work-related factors among nursing staff in psychiatric LTC settings	- 35 wards - 361 HCA, RNs, RPNs, unit managers - 73.4%	- survey	- environments in which workers were supported, provided with feedback, autonomous, had job clarity, and where managers used a social leadership style were associated with low levels of burnout
Novak & Chappell (1994)	- to examine how appraisals of events affect feelings of burnout among HCAs caring for residents with cognitive impairment	- 245 HCAs - 78%	- interview	- burnout is affected by both stressors and appraisals - for example: frequency of disturbing behaviours was the best predictor of decreased personal accomplishment; reaction/appraisal to residents' behaviours best predicted emotional exhaustion and contributed to personal accomplishment; time providing care and appraisals of work tasks and residents' behaviours best predicted depersonalization
Novak & Chappell (1996)	- to determine how burnout is affected by shift and the proportion of residents with cognitive impairment among HCAs	- 245 HCAs 78%	- interview	- caring for residents with cognitive impairment increases burnout, regardless of the shift one works; however, working the day shift and caring only for residents with cognitive impairment leads to the greatest levels of burnout

Table 2.4 (cont.)
Studies Dealing with Factors Related to Stress and Burnout

Study	Purpose	Respondents: Number, Type & Response Rate	Method	Selected Findings
Schaefer & Moos (1996)	- to examine how work stressors and climate were related to staff's job morale and functioning	- Times 1 & 2: 435 & 405 HCAs, RNs, RPNs and non-nursing staff - 74% & 93%	- survey	- work stressors and work climate have independent effects on morale and functioning - for example: greater job satisfaction, intent to stay on the job, and less job distress were related to work environments with more autonomy; good relationship with supervisors was related to higher job morale and less job distress

Table 2.5
Intervention Studies Involving Health Care Aides

Study	Purpose	Respondents: Number & Type	Intervention	Selected Findings
Mobily et al. (1992	- to compare the level of stress experienced by SCU and non-SCU staff	- 1 SCU; 1 non-SCU - HCAs, RNs, RPNs	- implementation of an SCU	- stress related to staff's knowledge, abilities, and resources and to residents' verbal and physical behaviours was reduced after the SCU was implemented
Teresi et al. (1993a)	- to determine the effect of implementing a primary care nursing model on residents' behaviours, affect, and social activities	- 2 LTC facilities - tmt: 4 units, 153 residents - ctrl: 3 units, 107 residents	- implementation of a primary care nursing model	- implementation of the primary care model resulted in improved behaviour and affect among residents, although more so in one facility (i.e., urban) than the other (i.e., rural); participation in social activities increased somewhat in the rural facility
Teresi et al. (1993b)	- to determine the effect of implementing a primary care nursing model on staff and residents' satisfaction, attitudes, and morale	- 2 LTC facilities - tmt: 4 units, 42 HCAs - ctrl: 3 units, 32 HCAs	- implementation of a primary care nursing model	- implementation of the primary care nursing model positively affected staff morale and attitudes; although caring for residents with behavioural problems was difficult - residents preferred primary care nursing
Smyer, Brannon & Cohn (1992)	- to determine the effect of skills training and/or job redesign interventions on HCAs' performance	- 4 facilities - skills: N=57 - redesign: N=45 - both: N=49 - control: N=40	- implementation of: skills training, job redesign, and skills training and job redesign	- significant increase in knowledge and non-significant increase in motivation in treatment groups; no significant change in performance - trend towards greater improvement among HCAs involved with job redesign

* 'tmt' refers to the treatment facilities; 'ctrl' refers to the control facilities

Stepwise multiple regressions were conducted using six dimensions of burnout (i.e., emotional exhaustion frequency and intensity, depersonalization frequency and intensity, and personal accomplishment frequency and intensity). The results indicated that the two factors most predictive of burnout were work relationships (i.e., a variable comprised of peer cohesion, supervisor support, and work involvement) and two types of coping (instrumental problem-focused and tension-releasing). The work relationships variable was negatively predictive of burnout (i.e., individuals who perceived less support in their work environment were more vulnerable to burnout). Tension-releasing coping included coping strategies which aim to regulate distressed emotions (e.g., smoking, cursing, withdrawing from the stressful situation). The function of instrumental problem-based coping was to alter the source of the stress (e.g., examining a problem objectively, trying to have some control over a situation). Tension-releasing coping was a positive predictor of emotional exhaustion whereas instrumental coping was negatively predictive of personal accomplishment (Hare, Pratt, & Andrews, 1988).

The analysis did not examine the relationship between these factors and burnout separately for nurses in acute and long-term care, or between professional (i.e., RNs and LPNs) and paraprofessional (i.e., NAs) staff. However, these variables were entered into the regression analysis as part of a block variable, along with work demographic variables, such as shift and hours worked per week. This block variable was not significant in any of the regression models (Hare, Pratt & Andrews, 1988).

Hare & Skinner (1990) surveyed long-term care employees (including staff in nursing, dietary and housekeeping, and office personnel) in order to determine which aspects of the work environment were most predictive of burnout. Work environment was assessed using the three domains from the Work Environment Scale (i.e., relationship, personal growth, and system maintenance and change) and burnout was determined by the three dimensions of the Maslach Burnout Inventory (i.e., emotional exhaustion, depersonalization, and personal accomplishment). Forty out of the eighty employees surveyed responded (i.e., 50%). Stepwise multiple regression analysis revealed that the work

environment domains were not predictive of either the emotional exhaustion or depersonalization dimensions of the Maslach Burnout Inventory. However, the personal growth dimension of the Work Environment Scale significantly predicted personal accomplishment. Specifically, work environments characterized by enhanced autonomy and efficiency and reduced work pressure predicted increased levels of personal accomplishment among staff (Hare & Skinner, 1990).

Schaefer & Moos (1996) conducted a study to examine the relationship between long-term care staff's job morale and functioning and work stressors and work climate. They were particularly interested in determining whether work climate had an effect on staff's morale and functioning that was independent of the effect of work stressors. Staff from fourteen facilities participated, including RNs, LPNs, NAs, and non-nursing staff (e.g., doctors, social workers, physiotherapists, and occupational therapists). The results indicated that both work stressors and work climate had an independent effect on job morale and functioning. In terms of work stressors, staff who had poorer relationships with supervisors and doctors and who experienced stress as a result of their workload were less satisfied with their jobs, less intent on staying in their job, and were more likely to experience job distress, depressed mood, and physical symptoms (e.g., poor appetite, nervousness, and indigestion). Staff who perceived their work environment to be positive (i.e., characterized by higher levels of cohesion, autonomy, and clarity) were more likely to report have higher levels of job morale and job satisfaction, and were less likely to say that they were thinking about leaving their jobs (Schaefer & Moos, 1996).

Melchior, van den Berg, Halfens, Abu-Saad, Philipsen & Gassman (1997) surveyed 361 nursing staff (i.e., unit leaders, psychiatric nurses, practical nurses, and NAs) in thirty-five psychiatric long-term care wards in order to examine the relationship between burnout and work-related factors. The results revealed that lower levels of burnout were associated with work environments in which staff were provided with support and feedback, were autonomous, and where there was a social leadership style (i.e., managers were concerned about the well-being and level of satisfaction of staff).

Chappell and Novak conducted a series of studies based on a sample of NAs working in long-term care facilities in Winnipeg, Manitoba. Of the twenty-six facilities in Winnipeg, twenty-five agreed to participate in the study. From each of these facilities, ten NAs were randomly selected and invited to participate in the study. Two hundred and forty-five (245) NAs were interviewed. The refusal rate was 22%.

In the first study, Chappell & Novak (1992) investigated whether the stress experienced by NAs was moderated by social support either at work or away from work. The dependent variables in this study were burden, burnout, and job pressure. 'Burden' referred to the negative effects of caring for individuals with cognitive impairment; 'burnout' referred to one's level of emotional exhaustion, depersonalization, and personal accomplishment; and 'job pressure' referred to the way that one's job affected other aspects of one's life. Two stressors, 'workload' and 'rewards and motivations', were included as independent variables. Support at work and support external to work represented intervening variables in the analysis; a number of control variables were also included (e.g., demographic characteristics of the NAs, patient characteristics, and work characteristics). Because the buffering hypothesis for social support was being tested in this study, interaction variables were included in the regression models. Multiple regression analyses were conducted for each of the three dependent variables.

In the final regression model for burden, only workload was found to be significantly related to burden. NAs who perceived their workload as greater were more likely to feel burdened than aides who perceived their workload as being lighter. When burnout was used as the dependent variable, three variables were found to be significant: the stressor variable representing rewards and motivations, support external to work, and training to work with the cognitively impaired. NAs who had more sources of support outside of work or who had training in caring for the cognitively impaired were less likely to feel burdened. Individuals who lacked rewards in their jobs were more likely to experience burden. Finally, when work pressure was used as the dependent variable, four variables were found to be significant: the

workload stressor, the rewards and motivations stressor, the number of supportive family members, and the number of people in one's household. NAs who had more supportive family members and fewer people living in their household experienced less work pressure. In addition, individuals who experienced a greater workload and who lacked rewards in the workplace, were more likely to report work pressure. Chappell and Novak concluded that it was the nature of the work of a NA, rather than the characteristics of the population being cared for (i.e., the proportion of patients with cognitive impairment that NAs care for, or the proportion of patients with various behaviour problems) that contributed to burden (Chappell & Novak, 1992).

In a second study, Novak and Chappell examined how stressors and NAs' appraisals of events affected their feelings of burnout (Novak & Chappell, 1994). The authors concluded that burnout was affected by both stressors and appraisals. Specifically, they found that the stressor, frequency of disturbing behaviour, best predicted decreased personal accomplishment and that NAs' reaction (i.e., appraisal) of residents' behaviours predicted emotional exhaustion and contributed to personal accomplishment. The results also indicated that time spent providing care (i.e., a stressor) and NAs' appraisals of their work tasks and the residents' behaviours predicted depersonalization.

Chappell and Novak also examined the relationship between resident characteristics and the physical health of NAs (Chappell & Novak, 1994). Resident characteristics were based on information reported by the NAs on the number of residents with AD and with other cognitive impairment. Behavioural problems among the residents cared for were also assessed. Physical health of the NAs was assessed by the NAs' self-reported number of days sick in bed, number of days missed from work, and medication use. The results indicated that the physical health of the NAs was not related to the number of residents with a diagnosis of AD, but was related to the number of residents with other cognitive impairment and with the existence of behaviour problems (e.g., uncooperativeness, constant crying, and restlessness).

In the fourth study, Novak and Chappell sought to understand the effects that shift (day versus other) and proportion of residents with cognitive impairment had on burnout. The findings revealed that caring for residents with cognitive impairment increased burnout, regardless of the shift one worked. However, the highest levels of burnout was among NAs who worked the day shift and only cared for residents with cognitive impairment (Novak & Chappell, 1996).

2.3.2 Interventions in Long-Term Care

Despite the limited number of studies conducted with long-term care staff, there have been some studies which have examined the effects of implementing an intervention in long-term care facilities (see Table 2.5). For example, a study by Mobily, Maas, Buckwalter, & Kelley (1992) described the effects of implementing a special care unit (SCU) on long-term care staff. (SCUs are units designated for residents with ADRD. The units are deemed to be "special" because they may have special training for staff, specialized programming for dementia residents, and higher staff to resident ratios.) The study utilized a repeated measures design to compare the level of stress over time among SCU and non-SCU staff (i.e., staff in a unit which integrates residents with and without cognitive impairments). Changes in stress levels within the SCU group were also examined over time. The dependent measures included stress, as measured by the Caregiver Stress Inventory, and burnout, as measured by the six subscales of the Maslach Burnout Inventory (i.e., frequency and intensity of: emotional exhaustion, depersonalization, and personal accomplishment). The results indicated that staff in the SCU were less stressed after the SCU had been implemented, whereas stress among non-SCU staff increased over time. With respect to burnout, there was a trend toward decreased burnout (i.e., in the frequency and intensity of emotional exhaustion and depersonalization) over time among the SCU staff, although this was not significant. The only significant change over time was found among SCU staff who exhibited a decrease in the frequency of depersonalization.

In another study, Teresi, Holmes, Benenson, Monaco, Barrett, Ramirez, & Koren (1993a) described the effects of implementing a primary care nursing model in four long-term care facilities. The primary care nursing model involved three components: (1) permanent assignment of NAs to residents, (2) NAs working in pairs of two, and (3) enhanced communication among the staff through the implementation of weekly staff meetings, a communication book for NAs, and computerized communication system to improve the sharing of information between shifts. It was hypothesized that the implementation of this model would result in increased knowledge of the residents and their family members among the NAs. This, in turn, would enhance communication among the NAs and increase the amount of individual attention received by residents. It was further hypothesized that these changes may lead to fewer behaviour problems and greater affect among the residents, and would enable the NAs to be more efficient in terms of completing their jobs (Teresi et al., 1993a).

Two facilities participated in the study: one located in an urban area and the other in a rural area of New York State. Four units within the two facilities (three from the urban and one from the rural) implemented the primary care nursing model and three units (two from the urban and one from the rural) served as controls. The first article described the effect of implementing the model on residents' behaviour, affect, and social activities (Teresi et al., 1993a). The results suggested that implementation of the primary care nursing model had beneficial effects on resident's behaviour, affect and to some extent, their participation in social activities. Overall, the effects of the model were stronger in the urban facility. The authors indicated that this may have been due to the larger sample size in this facility.

In the second paper on this study (Teresi, Holmes, Benenson, Monaco, Barrett, & Koren, 1993b), the treatment and control facilities were compared to determine the effects of the primary care model on staff and residents' satisfaction, attitudes, and morale. Implementation of the model was found to have positive effects on staff's morale and attitudes. For example, a higher percentage of NAs in the treatment groups were in favour of the permanent assignment of staff to residents compared with the control group.

As well, among the NAs in the treatment group, there was an increase in the percentage of NAs who indicated that they had a better understanding of the residents, were able to identify changes in the physical and emotional status of the residents, and were closer to the residents because of primary care nursing. However, some negative aspects of primary care nursing were also identified by the NAs. Namely, that permanent assignment to residents was difficult when the residents being cared for exhibited behavioural problems and that certain resident assignments were too physically and/or emotionally demanding for the NAs (Teresi et al., 1993b).

In terms of the effects of the primary care nursing model on resident attitudes and the level of satisfaction among residents, the results indicated that the majority of residents in both the treatment and control facilities preferred to have the staff permanently assigned to residents. It was also reported that residents in the treatment groups of the urban facility were more satisfied with care and more positive about primary care nursing than residents in the control units. These differences were not found among residents in the rural facility (Teresi et al., 1993b).

Finally, Smyer, Brannon & Cohn (1992) conducted a study which compared the implementation of three interventions in three different facilities: (1) skills training, (2) job redesign, and (3) combined skills training and job redesign; a fourth facility served as a control. It was hypothesized that the implementation of both skills training and job redesign would have a positive effect on the level of knowledge, ability, and motivation among NAs; it was further hypothesized that the effects of the combined intervention (i.e., skills training and job redesign) would be greater than those from skills training alone.

The skills training intervention involved five 1 & 1/2 hour monthly sessions on behaviour management techniques. In terms of job redesign, a consultative group problem-solving approach was utilized. Thus, the redesign changes were specific to each facility. However, the job redesign process was standardized in three ways: (1) the same consultant was used in both facilities, (2) a job redesign

handbook was used to guide the process, and (3) information from the research literature was used to guide the type of job changes made (i.e., the changes focused on enhancing skill variety, task significance, task identity, autonomy, and feedback within the job). In the job redesign only facility, the job change involved the development of a program to deal with residents with behaviour problems. NAs were instrumental in the identification, design, and implementation of the program. In the combined skills training and job redesign facility, two changes were made: (1) team nursing was implemented and (2) there was an attempt to increase NAs' involvement in care planning (Smyer, Brannon, & Cohn, 1992).

Data were collected on the NAs' knowledge of mental health, perceptions of one's job (i.e., motivation potential), and job performance as rated by their supervisors. The results indicated that there was a significant increase in knowledge among the NAs in each intervention group; a non-significant increase in knowledge was observed among NAs in the control facility. There was also an increase in motivation potential among the NAs in the treatment group; however, this increase was not statistically significant. There were no significant changes in job performance (Smyer, Brannon, & Cohn, 1992).

2.4 Methodological Limitations

The preceding research on long-term care staff suffers from various methodological shortcomings that limit the internal and external reliability of the findings. The main limitations include the following: (1) staffing confounds, (2) reliance on cross-sectional studies, (3) lack of appropriate control groups, and (4) lack of appropriate measurement tools.

In terms of staffing confounds, some of the studies were not conducted specifically with long-term care staff and, instead, combined staff from acute and long-term care settings (e.g., Hare, Pratt, & Andrews, 1988). As well, many studies combined different levels of nursing staff such as RNs, LPNs, NAs, and may have included other staff such as individuals from dietary, housekeeping, and office personnel (e.g., Hare & Skinner, 1990; Schaefer & Moos, 1996). Because of differences in the

populations being cared for in acute compared with long-term care, there may be differences in the level of stress and burnout experienced. Therefore, by combining staff from acute and long-term care without taking these differences into account, one may not fully understand the experiences of the staff members in each type of setting. Similar comments can be made about combining staff at different levels.

Another limitation with this research is that many of the studies conducted were cross-sectional (e.g., Chappell & Novak, 1992; Chappell & Novak, 1994; Hare, Pratt, & Andrews, 1988; Hare & Skinner, 1990; Schaefer & Moos, 1996). When studying the relationship between variables using a cross-sectional design, it is not possible to determine temporal sequence. That is, if a relationship is found between the work environment and burnout, it is not clear whether a poor work environment lead to an increased level of burnout, whether burnout lead to a poorer work environment, or whether a third factor contributed to increased burnout and a poor work environment.

An additional issue to consider is the appropriateness of the control groups used in intervention studies. For example, in the study by Mobily et al. (1992), it was not clear where the control group was from or how the control group was selected. As a result, it was not possible to determine the comparability of the control group; that is, whether or not the control group had similar work-related experiences as the treatment group at baseline.

A final limitation involves the measurement of staff (and resident) outcomes. One possible reason for the paucity of research in long-term care is the unavailability of measurement tools that are appropriate for this population. Some tools have been used in a handful of studies with long-term care staff (e.g., the Maslach Burnout Inventory and the Work Environment Scale) and thus, there is some evidence that suggests that these tools may be appropriate for this population. In other cases, researchers have either designed tools for specific studies (e.g., Mobily et al., 1992) or have had to rely on third-party ratings of staff and/or residents (e.g., Teresi et al., 1993a; Teresi et al., 1993b; Schaefer & Moos, 1996) which may be biased if the rater(s) is not blind to experimental condition.

2.5 Summary of the Literature on Formal Caregivers in Long-Term Care

The research literature conducted with long-term care staff, while not extensive, is instructive in three ways. First, the literature suggests that there are factors that predict burnout. For example, social support (Chappell & Novak, 1992; Hare, Pratt, & Skinner, 1988), coping strategies (Hare, Pratt, & Skinner, 1988), training (Chappell & Novak, 1992), and the work environment (Chappell & Novak, 1992; Hare & Skinner, 1990; Melchior et al., 1997) may each increase or decrease the likelihood that long-term care staff experience burnout. Second, some of the research suggests that the work climate may have an effect on various job-related outcomes such as burnout (Chappell & Novak, 1992; Hare & Skinner, 1990; Melchior et al., 1997), job satisfaction, job morale, and intention to stay in one's job (Schaefer & Moos, 1996). Finally, despite some practical considerations, it is possible to implement interventions within long-term care and have beneficial effects at both the resident (Teresi et al., 1993a) and staff (Mobily et al., 1992; Smyer, Brannon, & Cohn, 1992; Teresi et al., 1993a; Teresi et al., 1993b) level.

Consequently, the research literature speaks to the importance of understanding stress and burnout among long-term care staff. One method of decreasing the level of stress and burnout experienced by staff may be to improve the work environment (e.g., by increasing the level of autonomy among staff) (Chappell & Novak, 1992; Hare & Skinner, 1990). Such changes may not only be beneficial to staff but may also have a positive impact on residents since staff play an important role in the quality of life and quality of care of long-term care residents (Malott, Myers, & McAiney, 1994; Smyer, Brannon, & Cohn, 1992; Tellis-Nayak & Tellis-Nayak, 1989).

The remainder of this thesis will describe a model of care developed for long-term care staff which aims to improve the work environment of staff and, thus, decrease the level of burnout experienced. The following chapter describes the development of this model. This is followed by a description of the study's methods and results.

CHAPTER 3: THE DEVELOPMENT OF "THE EMPOWERED AIDE MODEL" (T.E.A.M.)

3.1 Background

Because caring for individuals with ADRD can have a detrimental effect on informal caregivers (e.g., Baumgarten et al., 1992; Canadian Study of Health and Aging, 1994; Kiecolt-Glaser et al., 1991; Pruchno & Potashnik, 1989; and Schulz & Williamson, 1991), it is important to derive an understanding of the effects of caregiving on formal caregivers in long-term care facilities. Also, finding ways to reduce burnout among these staff is particularly pertinent given the projected increases in the number of individuals with dementia (Canadian Study of Health and Aging Working Group, 1994), the greater levels of impairment of residents entering long-term care facilities (Chappell & Novak, 1994; Havens, 1995), and the recent staffing cut-backs in long-term care (Pitters, 1995).

Research has shown that job-related stress can be reduced among long-term care staff by making improvements to their work environment (Chappell & Novak, 1992; Hare & Skinner, 1990; Mobily et al., 1992). Of particular importance is the level of autonomy that staff perceive themselves to have. Work environments characterized by higher levels of autonomy have been related to lower levels of burnout among long-term care staff (Chappell & Novak, 1992; Hare & Skinner, 1990; Melchior et al., 1997) and acute care staff (Constable & Russell, 1986; Glass, McKnight, & Valdimarsdottir, 1993; McKnight & Glass, 1995). One method to enhance the level of autonomy among staff is to increase the opportunities staff have to participate in decision making (i.e., to empower the staff). Studies by Lee & Ashforth (1996) and Miller, Ellis, Zook, & Lyles (1990) indicated that participation in decision making among human service workers and nursing staff, respectively, was significantly associated with lower levels of burnout. In addition, interventions which aimed to decrease burnout by increasing opportunities to participate in decision making have been successfully implemented. For example, Jackson (1983) provided nurses and clerical staff with more opportunities to participate in decision making by increasing

the number of required staff meetings. Staff who had a greater number of meetings to attend were found to have significantly higher levels of job satisfaction and decreased levels of burnout compared with staff who experienced no change in the number of staff meetings (Jackson, 1983).

Another means to improve the work environment of long-term care staff may be through the provision of consistent care; that is, by providing care to the same residents for an extended period of time. Studies by Teresi et al. (1993a; 1993b) revealed that care for long-term care residents can be relatively consistent and that this greater consistency is beneficial for both staff and residents.

"The Empowered Aide Model" (T.E.A.M.) was based on these two factors: empowerment (i.e., having the opportunity to make decisions and to be accountable for those decisions) and the provision of more consistent care. T.E.A.M. was specifically designed for front-line long-term care staff (i.e., HCAs) who care for residents with ADRD. The development of T.E.A.M. began with the examination of an existing model of nursing care (i.e., the primary care nursing model) and was revised based on information in the research literature and communications with key informants working in the long-term care field.

3.2 The Development Stage

The development of T.E.A.M. began with an examination of the primary care nursing model. In this model, each nurse on a unit is permanently assigned to a group of patients. Permanent assignment refers to being assigned to, and responsible for, the care of a patient from the time that patient is admitted to a unit until the time of separation (i.e., death, discharge, or transfer). The premises behind the model are that permanent assignment of nurses to patients (i.e., consistent care) will: (1) provide nurses with a better understanding of the needs of their patients, (2) enable nurses to detect subtle changes in patients' conditions more quickly, and (3) stimulate a better rapport between nurses and their patients and families (Manthey, 1980).

Research Literature

There is a substantial amount of literature dedicated to the primary care nursing model. While much of the past literature has been anecdotal, there has been a recent increase in the number of empirically-based studies on the effects of primary care nursing. A review of the literature on this model was conducted by Thomas and Bond (1991). In their review, only empirically based outcomes studies were examined. The authors found that a variety of outcomes had been used to evaluate the impact of this model. For example, at the patient level, the most frequently used outcome was patient satisfaction; other patient level outcomes included: patient knowledge of self-management, well-being, stress, length of stay, survival, dependency, patient turnover, and life satisfaction. In terms of staff outcomes, job satisfaction was the most commonly used end-point; job involvement, turnover, absenteeism, and sickness had also been utilized. Finally, at the institutional level, nursing cost and cost per patient had been used as outcome measures. Despite the fact that the number of empirically-based studies on the primary care nursing model has increased in recent years, findings on the effects of this model are inconsistent.

The majority of studies reviewed by Thomas and Bond (1991) were based in acute care settings. However, two more recent papers described the findings obtained after a primary care nursing model had been implemented in two long-term care facilities (Teresi et al, 1993a, 1993b). As discussed in Chapter 2, implementation of this model in the studies by Teresi and her colleagues was beneficial for both staff and residents. However, the authors indicated that the long-term care setting presented some unique challenges when implementing this type of model. Two specific concerns were raised during qualitative interviews with staff: (1) that providing care to residents with severe behavioural disturbances for an extended period of time may have negative effects on the staff and (2) that the possibility of unequal workloads among staff was likely as a result of the death or transfer of residents. The authors noted that such issues may be particularly problematic in smaller facilities because these facilities would have fewer staff to work with in terms of matching staff with residents (Teresi et al., 1993b).

While the overall findings from the studies on the primary care nursing model are mixed, the studies by Teresi et al. (1993a, 1993b) provide some evidence that the concepts on which the primary care nursing model are based may be beneficial to long-term care staff and residents. However, the unique characteristics of the long-term care setting need to be considered when designing and implementing this type of model.

Key Informant Interviews

The research literature on the primary care nursing model provided the researcher with an understanding of the primary care nursing concept. The next step was to understand and appreciate how the primary care nursing model has been implemented in practice. This was done through interviews with key informants in the long-term care field.

Two RNs who managed units that had implemented the primary care nursing model were identified and subsequently interviewed by the researcher. One of the RNs was a Unit Manager of a short-term assessment unit for elderly individuals with severe psychiatric and/or behavioural problems. The other RN was the Director of Care at a local long-term care facility.

In their interviews, the key informants explained how the primary care nursing model worked in their units and shared the experiences they faced during the implementation of the model. Both RNs indicated that certain characteristics of the long-term care facility presented difficulties when attempting to implement this model. For example, in acute care settings the majority of staff are RNs or RPNs, whereas in long-term care facilities, the majority of the staff are HCAs. HCAs have minimal training and, consequently, do not have the same level of responsibility and accountability as registered staff.

The key informants also indicated that differences in the responsibilities of the various types of staff members within the long-term care setting may prove to be problematic for a facility considering the adoption of the primary care nursing model. The majority of the hands-on care within long-term care is

provided by the HCAs; in fact, estimates suggest that HCAs provide approximately 90% of the direct care (i.e., assistance with bathing, feeding, dressing, toiletting) to residents (Waxman, Carner & Berkenstock, 1984). Registered staff, on the other hand, are responsible for such tasks as conducting assessments (e.g., physical, functional, cognitive), distributing and monitoring medications, and charting. In a primary care nursing model, the registered nurse has complete responsibility for the "nursing" care of a patient. Since the level of training and the responsibilities and accountability of the HCA are much less than those of registered staff, a HCA would not be able to take on the responsibilities typically given to a primary care nurse.

While the key informants recognized these issues as potentially problematic for the long-term care setting, they did not confront these problems at the time the primary care model was implemented in their facilities. On the assessment unit, the majority of staff were RNs and, as a result, had the knowledge and experience to carry out the duties of a primary care nurse. In the long-term care facility, a number of the HCAs had been employed as RNs in other countries but were not qualified as RNs in Canada (usually because of the language barrier). Thus, many of the staff on these units had higher levels of training than typical HCAs. Consequently, it was easier for these highly trained HCAs to assume the responsibilities of the primary care nurse.

Because of the unique circumstances faced in the long-term care setting, the researcher concluded that it would be too difficult to implement the primary care nursing model in a long-term care setting without some modifications. Thus, a new nursing approach for long-term care was required. Using the information gleaned from the literature and the advice and experiences obtained in interviews with the key informants, and taking into consideration the characteristics of the long-term care setting and its staff, T.E.A.M. was developed.

3.3 Components of T.E.A.M.

T.E.A.M. is comprised of four components. The first two components, organization and empowerment, are the core of T.E.A.M.; the education and teamwork components supplement the core components. In the following sections, the development of each component is described and details regarding how the component was implemented are provided.

3.3.1 Organization

3.3.1.1 Conceptualization of the Organization Component: As previously described, one method that has been shown to have beneficial effects for long-term care staff and residents is the provision of consistent care (i.e., the same staff caring for the same residents for an extended period of time) (Teresi et al., 1993a, 1993b). The provision of consistent care enables the care provider to have a greater understanding of the care recipient and how best to meet his/her needs. This greater knowledge may not only result in more responsive care, but may lead to increased levels of comfort on behalf of the care recipients. For the long-term care staff member, greater comfort may mean that the residents are less agitated and less resistant to care.

3.3.1.2 Implementation of the Organization Component: The typical organization of HCAs on a long-term care unit is to divide the residents on the unit into equal groups and have one aide assigned to each group. HCAs are responsible for assisting the residents in their group with the activities of daily living (e.g., dressing, feeding, bathing, and toiletting). After a period of time, typically one or two weeks, resident assignments are rotated; thus, each HCA is responsible for a new group of residents. The HCAs are continuously rotated through groups of residents on the unit.

The aim of the organization component of T.E.A.M. is to have more consistent staffing, that is, to have the same HCA care for the same group of residents for an extended period of time (e.g., three to

twelve months). As previously indicated, there is some evidence which suggests that having more consistent care is beneficial to both staff and residents in long-term care (Teresi et al., 1993a, 1993b).

The HCAs should be involved in determining how they will be assigned to residents. Specifically, the HCAs can be involved in deciding: (1) how the residents are divided into groups, (2) how the aides are assigned to resident groups, and (3) the length of time that the aides are assigned to a resident group. Being involved in such decisions will help to empower the HCAs.

While the aim of the organization component is to have the same HCAs care for the same residents for an extended period of time, changes in resident assignments are expected. For example, because of the nature of dementing disorders, the demands of those with dementia will change over time. As dementias progress, some residents will require more care and/or attention (e.g., as challenging behaviours increase or intensify), while others will require less, or at least a different type of care (e.g., when residents are no longer ambulatory). The workload of each HCA, however, should remain relatively equal; consequently, changes in resident assignments will need to be made as the needs of the residents change, and after new residents are admitted to a unit (following the death of a resident or the transfer of a resident to another unit within the facility). Again, the HCAs should be involved in these decisions in order to enhance empowerment.

3.3.2 Empowerment

3.3.2.1 Conceptualization of the Empowerment Component: Another means of improving the work environment is to increase the HCA's opportunity to make decisions and to be responsible for their decisions; that is, to empower them. Estimates indicate that HCAs provide approximately 90% of the direct care to long-term care residents (Waxman et al., 1984). Consequently, HCAs are the most knowledgeable about the status of the residents and any changes that have occurred. However, HCAs have few opportunities to make job-related decisions (Foner, 1994). By providing HCAs with decision-

making opportunities, their knowledge about the residents can be tapped and their sense of empowerment enhanced.

As previously indicated, increasing the opportunity of staff to participate in decision making has been found to enhance the work environment by decreasing burnout and increasing job satisfaction (e.g., Jackson, 1983).

3.3.2.2 Implementation of the Empowerment Component: Enhanced empowerment can occur in a variety of ways. For example, HCAs can be provided with opportunities to make decisions such as determining resident assignments and resident bathing schedules. Empowerment can also be enhanced by asking HCAs to provide their input about the residents; for example, when decisions are being made about a resident's care plan (e.g., the HCA can be asked about which behaviour management approach works with a particular resident).

3.2.3 Education and Teamwork

3.2.3.1 Conceptualization of the Education and Teamwork Components: The final two components of T.E.A.M. are Education and Teamwork. These components supplement the Organization and Empowerment components of T.E.A.M. (e.g., by assisting the HCAs in making decisions; by helping the HCAs to communicate with each other when organizing the unit or in dealing with problems that arise).

The researcher identified three goals that she wanted to achieve with the Education and Teamwork components of T.E.A.M.:

1. to ensure that the HCAs had a basic level of knowledge regarding AD and dementia and the factors that need to be considered when caring for residents with dementia;
2. to provide the HCAs with an understanding of stress, including how it manifests itself and strategies that can be used to alleviate it; and

3. to provide the HCAs with an understanding of why it is important to work as a team (especially in long-term care) and what qualities are important in order to be an effective team member.

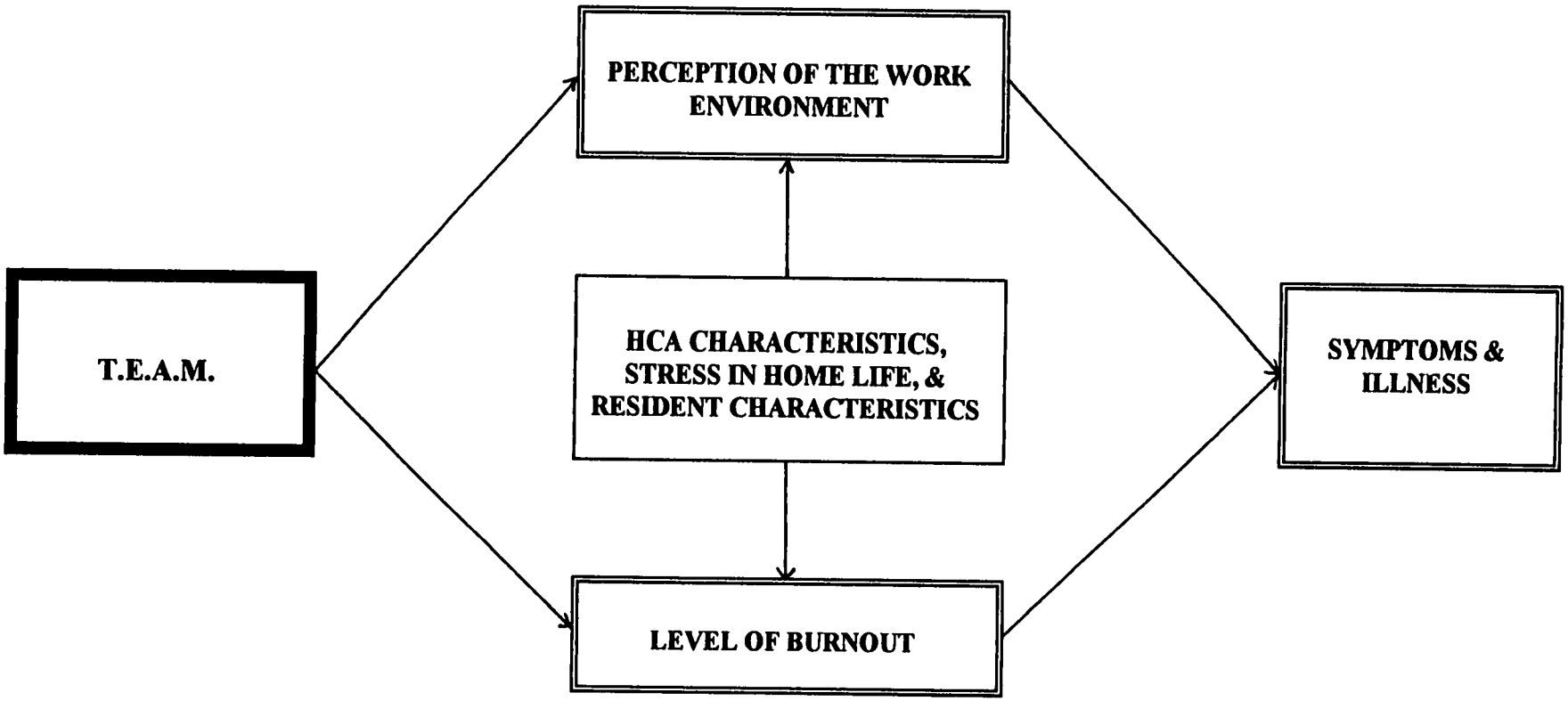
In order to achieve these goals, a set of education and teamwork in-services were developed. The information presented in the in-services was determined based on the researcher's knowledge of ADRD and on suggestions from key informants. The six in-services developed were:

1. facts about dementia and AD;
2. dealing with aggressive residents;
3. communicating with demented residents during the provision of personal care;
4. enhancing teamwork;
5. understanding stress; and
6. stress management techniques.

Information on the content of each in-service is provided in Appendix A.

3.3.3.2 Implementation of the Education and Teamwork Components: The in-services were developed to be approximately twenty to thirty minutes in length in order for the HCAs to be able to attend during their shifts. Every in-service was offered at least once for each shift. The material included within the in-services was practical and presented in a discussion format. HCAs were encouraged to share personal experiences related to the in-service topic (e.g., difficulties that they have had with aggressive residents; how they experienced stress; how they managed stress). Handouts that summarized the key material from the in-services were provided to the staff who attended the in-services and were made available to those who were not able to attend.

Figure 3.1
Conceptual Overview of "The Empowered Aide Model" (T.E.A.M.)



3.4 Conceptual Model

Figure 3.1 provides a conceptual overview of T.E.A.M.. The implementation of T.E.A.M. was expected to improve the quality of work life among long-term care staff. Specifically, it was hypothesized that the implementation of T.E.A.M. would have a differential effect on job burnout and perceptions of the work environment among HCAs in the facilities that implemented T.E.A.M. compared with HCAs in the facilities that did not implement T.E.A.M.. Other factors such as the characteristics of the HCAs (e.g., age, years of experience, shift worked, and employment status), the level of stress in the personal lives of the HCAs, and the characteristics of the residents (e.g., degree of behavioural disturbance), may influence how T.E.A.M. affects the HCAs' perceptions of the work environment and their level of burnout.

Because research has found that staff play an important role in the quality of life and quality of care provided to residents (Malott, Myers & McAiney, 1994; Smyer, Brannon & Cohn, 1992; Tellis-Nayak & Tellis-Nayak, 1989), it was further hypothesized that T.E.A.M. would have a beneficial effect on residents (e.g., by decreasing the level of aggression and agitation exhibited by residents). However, because the effect of T.E.A.M. on residents was not specifically assessed in this study, this relationship has not been included in the conceptual model.

3.5 Summary of the Development of T.E.A.M.

T.E.A.M. consists of four components: organization, empowerment, education, and teamwork. In implementing T.E.A.M., the first step is to assist the HCAs in determining how their units should be organized; that is, how the care that they provide can be made more consistent. As much as possible, the way the HCAs are organized should be determined by the HCAs in order to enhance their feelings of empowerment. After the organization component is implemented, methods to further enhance empowerment among the HCAs should be initiated. Education and teamwork in-services should commence after the organization and empowerment components are established.

The remainder of the thesis involves a description of a study that was conducted to evaluate the effects of implementing T.E.A.M. in two long-term care facilities in Ontario, Canada. The next chapter describes the design of the study and the methodology used to evaluate the impact of T.E.A.M.. Detailed information regarding how T.E.A.M. was implemented in the two treatment facilities, as well as the intervention implemented in the two control facilities, is presented in Chapter 5.

CHAPTER 4: OVERVIEW OF STUDY METHODS

4.1 Rationale

A study was undertaken to examine the effects of implementing T.E.A.M. on long-term care staff. Specifically, the purpose of the study was to determine whether the implementation of T.E.A.M. would have an effect on job burnout and perceptions of the work environment among HCAs.

This chapter describes the study's design, the strategies used to select the facilities and participants, and outlines the procedure employed in conducting the study.

4.2 Study Design

This study utilized a pre-post design with a staggered implementation of the intervention. That is, the intervention was to first be implemented in Group 1 and later implemented in Group 2. Originally, T.E.A.M. was to be implemented in all four facilities. However, as will be described in section 4.4.3, T.E.A.M. was only implemented in the two facilities that comprised Group 1 (i.e., Facilities A and C). The other two facilities (i.e., Facilities B and D) participated in a series of educational in-services. While these in-services were developed for T.E.A.M., the provision of in-services alone could be considered "usual practice" within long-term care. Long-term care facilities are required by the Ontario Ministry of Health to provide a minimal number of in-services to their staff each year. While some in-service topics are mandatory, others are left to the discretion of the facility management (Ontario Ministry of Health, 1993). The in-services developed for T.E.A.M. could be considered within the realm of possible topics provided within long-term care facilities.

A depiction of the study's design is illustrated in Figure 4.1. As indicated, after baseline data were collected from Groups 1 and 2, the intervention was implemented in Group 1. Approximately four months later, data were again collected from both Groups. This second set of data represents the first set

of follow-up data for Group 1 and the second set of baseline data for Group 2. Between the second and third data collection times, the intervention continued in Group 1 and the in-services began to be offered to the facilities in Group 2. The third set of data were collected after eight months, representing the second set of follow-up data for Group 1 and the first set of follow-up data for Group 2. Between the third and fourth data collection times, there was no contact between the researcher and the HCAs in Group 1. This was done in order to determine whether any changes that resulted from the intervention would be maintained. During this time, the in-service intervention continued in Group 2. The fourth and final set of data were collected after approximately twelve months, representing the third set of follow-up data for Group 1 and the second set of follow-up data for Group 2.

4.3 Sample

4.3.1 Selection of Facilities

Selection of the long-term care facilities for this study was based on the facility's willingness to participate in an intervention that aimed to promote the quality of work life among HCAs. The first step in the selection process was to identify facilities that met two eligibility criteria: (1) the existence of a dedicated dementia unit (DDU) within the facility (i.e., a floor or unit dedicated to residents with ADRD),and (2) willingness by facility management to implement T.E.A.M.. Six facilities that met the first criteria, and were located relatively close to the Kitchener-Waterloo area, were identified. All had been visited by researchers from the Alzheimer Research and Education Project (AREP) during the year prior to the commencement of this study as part of an observational survey of long-term care facilities within Ontario. Each facility was approached to determine its interest in participating in the research project.

Figure 4.1
Study Design

	TIME 1 **0 months**		**TIME 2** **4 months**		**TIME 3** **8 months**		**TIME 4** **12 months**
GROUP 1 **Treatment**	Collect Baseline Data	Begin to implement Intervention	Collect Follow-Up Data #1	Continue with Intervention	Collect Follow-Up Data #2	No Contact with Staff	Collect Follow-Up Data #3
GROUP 2 **Control**	Collect Baseline Data		Collect Baseline Data #2	Begin to Implement Intervention	Collect Follow-Up Data #1	Continue to Implement Intervention	Collect Follow-Up Data #2

* Group 1 includes Facilities A and C; Group 2 included Facilities B and D

Meetings were arranged with the Directors of Care (DOCs) (or equivalent) at each of the six facilities. At these meetings, the DOCs were provided with a detailed explanation of the research project and asked about their willingness to participate in the study. Of the six facilities, four agreed to participate. The two facilities that declined to participate were interested in being involved but were unable to participate at that time because of other circumstances within the facility (i.e., organizational restructuring). In addition, one of the four facilities which agreed to participate, withdrew from the study prior to its commencement. The DOC in this facility informed the researcher that due to personal circumstances, a number of the full time HCAs on the DDU would be away from work for an extended period of time. As a result, the DOC thought that it was in the best interest of her facility not to become involved in a research project at that time.

In addition to these facilities, the Administrator of a seventh facility, located in Eastern Ontario, approached AREP and expressed interest in having her facility participate in a research project. After learning about this study, the Administrator indicated that her facility was willing to participate. Thus, a total of four long-term care facilities were recruited for this study. Henceforth, these facilities will be referred to as: Facility A, Facility B, Facility C, and Facility D.

The DDUs within these facilities which were selected to be involved in the research study will hereafter be referred to as the "research units".

4.3.2 Selection of Research Units

There were two DDUs in Facility A. Forty-six residents lived in one unit and fifty residents in the other. The Administrator, DOC, and Clinical Coordinator selected the fifty-resident unit as the research unit because it was the larger of the two units and because the residents living in this unit were more challenging to care for (i.e., more aggressive and agitated) compared with the residents in the other unit.

In Facility B, there was only one DDU. Therefore, it was this unit that participated in the research project. Prior to the commencement of the study, the researcher was asked by the Facility's Administrator to complete a Research Agreement (see Appendix B). This agreement addressed issues such as access to information and the terms and conditions of the research project within this facility. The Administrator presented the Research Agreement to the Facility's Management Board which subsequently approved the Facility's participation. None of the other facilities asked the researcher to complete this type of agreement.

Within Facility C, there were two DDUs. In order to determine each unit's interest in being involved in the research project, a meeting was scheduled with the Unit Managers and RPNs from both DDUs. The research project was described and the representatives from each unit discussed their willingness to become involved. The representatives from one unit were confident that their staff would be willing to participate. The representatives from the other unit thought that their staff would not be interested in participating. The representatives from this latter unit indicated that their HCAs would not want to care for the same residents for an extended period of time. As a result, the former unit was selected to participate in the study.

There were three DDUs within Facility D. One of the three units had previously participated in a research study with another university. In order to allow other staff to participate in a research project, this unit was not selected for participation. In comparing the other two DDUs, the residents in one unit were primarily ambulatory, whereas in the other unit the majority of the residents were wheelchair-bound. While each unit presented its own challenges, it was decided that the unit with the predominantly ambulatory residents would be selected for participation because the majority of the residents in the other three research units were also ambulatory. Consequently, all four research units contained primarily ambulatory residents.

4.3.3 Selection of HCAs

The focus of the study was on the effect of T.E.A.M. on the HCAs. T.E.A.M. was also expected to have an impact on residents and registered staff. However, because this study was an exploratory one (i.e., these facilities were the first to implement T.E.A.M.), the researcher decided to focus on the effects of the model on the primary target group (i.e., the HCAs).

In most facilities, there were a group of HCAs who regularly worked on a particular unit; these staff tended to be full time or part-time HCAs. In some facilities, there were also casual (i.e., non-regular) HCAs who worked for the full time and part-time aides when the latter had time off. The decision regarding which HCAs to ask to participate in the study was made by the researcher in conjunction with the head of each research unit. All of the full time HCAs on each unit were invited to participate in the study. Regular part-time HCAs (i.e., HCAs who regularly work on the unit) in all of the facilities except Facility C were also invited to participate. In Facility C, only the full time HCAs were asked to participate because the Unit Manager in this facility did not consider the part-time staff to be "regular" staff on the unit. In Facility A, some of the casual HCAs were also asked to participate since they frequently worked on the research unit.

During the course of the study, new HCAs were assigned to the research units. These new HCAs replaced HCAs who had left the unit either voluntarily (i.e., HCAs who left the facility or no longer wanted to work on the research unit) or involuntarily (i.e., HCAs who were laid off, had their hours reduced, or were transferred to another unit). When a new HCA was assigned to the research unit, he/she was asked to participate in the study.

4.4 Procedure

4.4.1 Determination of Groups 1 and 2

The decision regarding those facilities to be included in Group 1 and Group 2 was made at the facility level. The primary contact person at each of the four facilities was asked to indicate their current readiness to implement T.E.A.M.: immediately after the collection of baseline data or after the second data collection period (i.e., approximately four months later). Facilities A and C were ready to implement T.E.A.M. as soon as possible and thus comprised Group 1. Facilities B and D were anxious to implement T.E.A.M. but first required approval to participate from their management boards. As a result, Facilities B and D comprised Group 2. (Approval from the management boards was obtained from both of these facilities.)

4.4.2 Introduction of the Research Project to the HCAs

Prior to the commencement of the study, the researcher scheduled meetings in each facility with the HCAs on each shift. The purpose of these meetings was to introduce the researcher to the aides, explain the project, and determine whether the HCAs were willing to participate in the study. Specific details about T.E.A.M. were not provided at that time because the researcher did not want to influence the data collected at baseline. Instead, the researcher informed the HCAs that she was interested in understanding the experiences of HCAs who worked on DDUs. Detailed information about T.E.A.M. was provided to the HCAs after baseline data were collected (i.e., after Time 1 for Group 1 and after Time 2 for Group 2). It was at this time that the researcher asked the HCAs whether they would be willing to implement T.E.A.M..

4.4.3 Implementation of the Interventions

After the baseline data had been collected, meetings were scheduled with the HCAs in Group 1 (i.e., Facilities A and C). When T.E.A.M. was explained to the HCAs, their primary concern was having to care for very aggressive residents for an extended period of time. In order to alleviate this concern, the researcher explained that with T.E.A.M. the HCAs would be able to make changes to their resident assignments on either a short or long-term basis. Short term changes (i.e., changing a resident with another HCA for one day) could be made when a HCA was having a tough day or when a certain resident was being especially difficult. Permanent changes could be made when the workloads among the aides became unequal (e.g., as resident behaviours changed or as new residents were admitted to the unit).

The HCAs were also informed that they would be responsible for determining the length of time that they would be assigned to the same group of residents. In order to have more consistent care than had previously been in place, the researcher asked the HCAs to keep the same resident assignments for a three month period. After three months, the HCAs could re-evaluate their assignments and determine whether a change was needed.

Given these parameters, the HCAs in both Group 1 facilities were willing to implement T.E.A.M.; implementation began after the Time 1 data had been collected.

After the second set of data had been collected, meetings were scheduled with the HCAs in Group 2 (i.e., Facilities B and D) in order to determine their willingness to implement T.E.A.M.. When the researcher described T.E.A.M. to these HCAs, some problems arose. In Facility B, the HCAs were willing to implement T.E.A.M., but because of their staffing complement (i.e., the majority of the HCAs were part time), it was not possible for the care to be more consistent than that which was being provided. Thus, the entire T.E.A.M. model could not be implemented. In Facility D, the HCAs were unwilling to try T.E.A.M. because they did not want to care for the same residents for longer than a one week period.

Despite the fact that the HCAs in Facilities B and D were not able or not willing to implement T.E.A.M., the registered nursing staff in these facilities expressed their desire to have some type of intervention implemented. Therefore, the education and teamwork in-services that were developed for T.E.A.M. were conducted with the HCAs in Facilities B and D.

Thus, Group 1, which implemented T.E.A.M., will hereafter be referred to as the treatment group and Group 2, which did not implement T.E.A.M., but instead implemented the education and teamwork in-services, will be referred to as the control group. It should be noted that in the original design, the Group 2 facilities were to act as true control facilities. However, because T.E.A.M. was not able to be implemented in Group 2, these facilities actually served as comparison facilities rather than true control facilities. Nevertheless, these facilities will continue to be referred to as control facilities in this thesis.

Detailed information about the implementation of the interventions is provided in Chapter 5.

4.5 Types of Data Collected

In order to understand how the implementation of T.E.A.M. affected the HCAs, three types of data were collected from the HCAs: self-report questionnaire data, physiological stress response data, and qualitative data from HCA interviews.

The questionnaire data provided information on the HCAs' self-reported levels of burnout and perceptions of the work environment. In addition, data were gathered on confounding factors such as psychological hardiness and affect. The questionnaire data also yielded information on the HCAs regarding their personal, job, and health characteristics.

Much of the research on job-related stress has utilized self-reported questionnaires to characterize the level of stress or burnout experienced by employees (e.g., Astrom et al., 1990; Chappell & Novak, 1992; Hare, Pratt & Andrews, 1988; Mobily et al., 1992). Some researchers (e.g., Jemmott & McClelland, 1989; Kirschbaum, Wust & Hellhammer, 1992; Kugler, Reintjes, Tewes & Schedlowski,

1996) have suggested that components of saliva, such as immunoglobulin A (IgA) and cortisol, may be valid indicators of stress that are less invasive and less costly than other physiological measures (e.g., serum cortisol and serum IgA). Other researchers, however, do not agree that these salivary measures are valid markers of stress (e.g., Mouton, Fillion, Tawadros & Tessier, 1989). Therefore, this study included the collection of physiological stress response data (i.e., salivary IgA and salivary cortisol) as supplementary indicators of stress.

Finally, qualitative data were obtained during interviews with HCAs. These data were expected to provide the researcher with a better understanding of the experiences of the HCAs in caring for individuals with ADRD and how the HCAs were affected by the implementation of the interventions.

4.6 Ethical Approval and Informed Consent

Ethics approval for this study was obtained from the Office of Human Research and Animal Care at the University of Waterloo. Examples of the information letters and consent forms are found in Appendix C.

Written consent was obtained from the HCAs for each type of data collected: questionnaire, physiological, and qualitative. Separate consents were obtained in order not to preclude any individual from participating in only one or two aspects of the study. At each data collection period, participants were reminded of their rights as research participants, namely, the voluntariness of participation, confidentiality of the data, and the ability to withdraw their participation at any time without penalty.

CHAPTER 5: IMPLEMENTATION OF THE INTERVENTIONS

5.1 Purpose

The purpose of this chapter is to provide a more detailed description of the implementation of the interventions in the treatment and control facilities. It begins by describing how T.E.A.M. was implemented in the treatment facilities and is followed by a summary of the implementation of the education and teamwork in-services in the control facilities.

The information in this chapter was obtained from the researcher's notes which were kept throughout the research study.

5.2 Implementation of T.E.A.M. in the Treatment Group

5.2.1 The Experience of Facility A

5.2.1.1 Selection of HCAs: When planning for the initiation of the research project, the management in Facility A decided that they wanted to provide all staff with an opportunity to participate. Therefore, staff were asked to apply to work on the research unit. Staff were requested from all departments including nursing, dietary, activities, housekeeping, and laundry. There were a number of applicants to the unit; however, the number was not sufficient to staff the unit on a twenty-four hour per day basis. As a result, additional staff members were approached and their involvement was requested. One of the problems that arose during this stage was that not enough information had been provided to the staff about the research project. As a result, rumours began and reluctance to participate emerged among some of the staff members. In subsequent meetings with staff, more information was provided about the research project and how the research unit would work. All of the staff were informed that if they were dissatisfied with the research unit after a three month period, they could return to their original units. A full staff complement was then obtained.

5.2.1.2 Initiation of the Research Project: At the first meeting with the HCAs, the aides were informed that the purpose of the study was to obtain a better understanding of the experiences of HCAs who care for long-term care residents with ADRD. After information was provided about the data collection procedure and the level of commitment required from the HCAs, the researcher asked the aides if they were interested in participating in the study. All but one HCA indicated that they were interested in participating.

After baseline data had been collected from the HCAs, the Administrator wanted to alleviate any lingering concerns among the staff regarding the research project. Thus, a one-day paid workshop for all members of the research team (i.e., HCAs, RNs, RPNs, and staff from dietary, housekeeping, laundry and activities) was held. The workshop was organized by the researcher and the Clinical Coordinator at the facility. (Because Facility A was located in Eastern Ontario, the Clinical Coordinator at the facility acted as a Facilitator to the research unit and assisted with the implementation of T.E.A.M. in this facility.)

Organization Component

At the T.E.A.M. workshop, the organizers described the research project, including details about the involvement of the staff and the researcher. T.E.A.M. was also described and its components discussed. After this discussion, staff were asked to decide how they would organize their resident assignments. The staff were divided into groups according to shift and each group decided what type of organization would be best for their shift.

The day staff decided to work as two teams: one team on Hallway A and one on Hallway B. (There were twenty-five residents on each Hallway.) In each hallway, there would be two full time HCAs. It was decided that the short-shift (i.e., the HCA who worked from 7 - 11 am) would work with the HCAs on Hallway A. The same HCAs (both full time and part-time) always worked on the same hallways. Each team would start at one end of the hall and work their way through all of the residents.

By organizing themselves in this manner, it ensured that another HCA was always in close proximity and available to help when needed. The HCAs on evenings employed a similar system. However, two of the four HCAs on evenings worked short shifts; thus, after the short shifts ended each night (i.e., approximately 9 pm), the two evening HCAs would work together to care for all of the residents on the unit. On the night shift, there were only two HCAs per unit. These aides worked together as they always had, to provide care to all of the residents on the unit.

After the workshop, the research unit was reorganized and the project officially began. Problems did exist at the beginning.; in part, this was due to the fact that many of the HCAs were new to the unit (i.e., some of the HCAs who applied to work on the research unit had previously worked on other units). Consequently, a period of adjustment was required to allow relationships among the HCAs, and between the aides and the residents, to be established.

Empowerment Component

From the beginning of the research project, the HCAs were informed that they would be involved in more decision-making on the units. Allowing the HCAs to decide whether or not they would participate on the research unit and having them determine how they would be assigned to the residents were two examples of how they were empowered. In addition, the HCAs were informed that they were able to make changes on the unit (e.g., in terms of how they organized their duties and how they interacted with other departments). Ideas about changes were to be shared with other staff members and decisions about changes were to be made by the entire team (i.e., HCAs, RNs, and RPNs). It was explained to the HCAs that any changes should be implemented on a trial basis, and that the staff and residents should be given a period of time to adjust to a change before the effectiveness of the change was assessed. Once assessed, the team could decide whether the new system would continue, whether they would return to the previous system, or whether a new system would be implemented and evaluated. In

other words, the HCAs were told that changes were not necessarily permanent and that changes which were tried but proved to be unsuccessful were acceptable.

A number of "problem" areas were identified as being in need of change by the team including: (1) communication between the shifts, (2) the seating arrangement in the dining room, and (3) how the nursing and dietary staff were organized during meals. Changes in each of these areas were implemented at different times on a trial basis. In many instances, the changes were improvements over what had previously been in place.

Education and Teamwork Components

Approximately one month into the project, the education and teamwork sessions began. Sessions were held approximately every month and were typically scheduled at 2 pm for the day staff, 10 pm for the evening staff and 11:30 pm for the night staff. The sessions were approximately twenty to thirty minutes in length and were held on the unit. Each session was conducted at least once (and often twice) with each of the three shifts in order to provide an opportunity for both full time and part time HCAs to participate. Handouts that summarized the in-service material were provided to staff who attended the in-service. Extra handouts were made available to HCAs who were not able to attend. In addition, a binder located on the unit was used to store the handouts from all of the in-services; it also included other information related to the research project.

Meetings with Staff

Weekly meetings were held with the staff on each shift. At the beginning of the project, the meetings were organized by the facilitator (i.e., the Clinical Coordinator). However, after a few months, the team leaders (i.e., the RNs and RPNs) took over responsibility for the meetings. At the meetings, staff were able to discuss the status of the project including: what changes had been made, whether or not the

changes were effective, the problems that arose, and methods for dealing with the problems.

5.2.1.3 Challenges during the Research Project: Various challenges arose during the research project; each of these will be briefly described.

Simultaneous Changes

At the beginning of the project, the HCAs were keen to change a number of things on the unit. However, the aides often wanted to make a number of changes at the same time. The researcher and team leaders (i.e., the RNs and RPNs) explained that changes needed to be implemented one at a time and that it was necessary to allow the staff and residents to adjust to each change before it was evaluated. The impact of the change could then be accurately determined and a more valid decision about whether or not to continue with the change could be made. Once the HCAs realized that they needed to follow this process in order to establish the actual effect of a change, they were willing to implement each change individually.

Communication Between HCAs on Different Shifts

Another issue which surfaced during the project was the inadequacy of the communication between the HCAs on the three shifts. The organization of a long-term care facility is such that it makes communication between shifts difficult. Staff work for an eight hour shift and then leave the facility. There is little time for HCAs on different shifts to communicate with each other unless it is done on their own time. Unfortunately, a "union mentality" often existed among the HCAs (i.e., they were only willing to work when they were being paid) and most were unwilling (or unable) to spend a few minutes sharing information with the next shift. This attitude existed among many of the HCAs in all four of the research units.

As a means of improving communication between the shifts, a communication book was developed and implemented in Facility A. During the development stage, there was a great deal of discussion about the goal of the book and the information to be recorded within. It was decided by the team that the communication book would be available to all staff on the unit (including staff from other departments such as dietary, laundry, housekeeping and activities) to record information about the unit or the residents. Whenever a staff member wrote a comment in the book, they were to include their name and the date of the entry. All staff (particularly nursing staff) were to check the book at the beginning of each shift for new information about the residents.

Three problems arose related to the communication book. First, it became apparent that many of the staff were lacking in communication skills. As a result, HCAs sometimes took offense to the comments made in the book, even when a comment was not intended to be negative. For example, one HCA reported that she had cleaned some of the residents' closets. A few HCAs on another shift thought that this comment implied that they had not been doing their jobs, and were upset by the comment. A second problem was that not all of the HCAs "bought into" the idea of the communication book. Some HCAs did not agree on the purpose of the book, even after this had been discussed by the team. As a result, not all of the aides used the book. A third problem was that soon after the book had been implemented, it was found to be too time consuming. That is, the HCAs felt that they did not have time to record information and to review the comments written in the book at the beginning of every shift. After a few months, the communication book was discontinued. In its place, a resident list which had previously been used by the registered staff to share important information about the residents, was revised for use by all of the nursing staff. The revised resident list included a small space for each shift to make comments about the residents. The fact that only a limited amount of information could be recorded and that the only information to be included on the resident list was resident-focused seemed to play a role in the acceptance of this communication tool by the staff.

Problems with One Team Member

Another challenge which surfaced a few months after the project commenced was a problem with one of the HCAs on the day shift. This HCA was not willing to work as a team member; instead, she wanted to be the only person responsible for the care of one group of residents. Despite discussions between this HCA and other staff on the day shift, her unhappiness with the unit continued. Therefore, the team decided that it would be in the best interest of the team to allow this person to return to the unit on which she had previously worked.

Once this had been decided, a new problem developed. Management had difficulty trying to find a replacement HCA. Rumours about the unit had been spread throughout the facility about the problems on the unit and how difficult it was to work with the staff. As a result, many HCAs were hesitant to volunteer to work on the unit. A HCA was finally selected. Initially, this person was reluctant to become part of the team; however, after working on the unit for only three days she realized that what she had heard about the unit was not true, and she settled in comfortably as a new team member.

The Roles of the RN and RPN

An unanticipated challenge which arose during the research project involved the roles of the RNs and RPNs on the unit. Because one of the primary goals of T.E.A.M. was to empower the HCAs, some of the decisions that the RNs and RPNs usually made were either decided by the HCAs (e.g., when residents were to be woken up in the morning) or presented to the HCAs for input and feedback. As a result, the registered staff began to question their roles and importance on the unit. The researcher worked with the registered staff and provided them with information on being a group leader. In time, the RNs and RPNs became comfortable with their new roles. In fact, the RNs informed the researcher that allowing the HCAs to make more decisions provided the RNs with more time to spend on other duties such as charting and communicating with residents' families. In addition, the RPNs began to take on a greater leadership

role. For example, they provided the HCAs with information to assist in their decision-making and helped the HCAs to deal with problems that arose with either the residents or other HCAs.

5.2.2 The Experience of Facility C

5.2.2.1 Selection of Staff Participants: The HCAs who usually worked on this unit were regular full time HCAs and non-regular, part-time aides. Because of this, the Unit Manager thought it would be best to include only the full time HCAs in the research project. Thus, it was these staff who were asked to participate in the study.

5.2.2.2 Initiation of Research Project: The research project was introduced in the same way as it had been in Facility A; namely, that the purpose of the study was to understand the experiences of HCAs who care for residents with ADRD. Consent was obtained from individuals who were interested in participating in the research project and the collection of baseline data began.

After baseline data had been collected, meetings were held with the full time HCAs on each shift. T.E.A.M. and its components were explained and the HCAs were asked whether they would be willing to implement this model. One of the initial concerns of the HCAs was that they would have to care for the same residents for a long period of time. The HCAs thought that it would be very stressful to care for residents who were aggressive and resistant to care for the entire length of the study. The researcher asked the HCAs if they would be willing to implement T.E.A.M. for a three month period and, after that time, assess whether changes in resident assignments were needed. The HCAs were also informed that they would be working as a team and that they would be able to make short or long-term changes to their resident assignments as needed. The HCAs on all three shifts agreed to participate in the research project.

Organization Component

After the HCAs had agreed to participate, the HCAs on the day and evening shifts discussed how the forty-two residents on the unit should be grouped and how resident assignments should be determined. For convenience, the resident groupings that had previously been in place were used and the HCAs decided which aide would be responsible for each group of residents. Because only two HCAs worked on nights, these HCAs were organized as they had been before (i.e., working as a team to provide care to all of the residents on the unit).

On the day shift, there were four HCAs that were scheduled to work. Therefore, on days the residents were divided into four groups; one HCA was assigned to each group. The fifth full time HCA acted as a "float" by filling in for whichever HCA was away that day. (Part-time HCAs worked when there was more than one HCA off on a particular day.) Thus, one of five full time HCAs was not assigned to a regular group of residents.

On the evening shift, there were two full time HCAs; the RPN also assisted with resident care. One of the HCAs was injured just prior to the implementation of T.E.A.M. and, as a result, was on worker's compensation for the entire study. The injured aide was not replaced with a regular HCA; instead, there were a number of HCAs who worked in this position over the course of the study. Thus, only one evening HCA was involved in the study; she cared for the same group of residents for the entire study period.

Empowerment Component

At the beginning of the research project, the HCAs were informed that they would be able to make more of their own decisions when it came to resident care. In addition to deciding which residents they cared for, they were able to decide things such as when residents would be woken up in the morning and when residents were to be bathed. They were also asked to give their input when decisions were

being made about the resident. The HCAs on the day shift informed the researcher that they were already able to make these types of decisions. The researcher suggested that other changes on the unit could also be explored. For example, if particular aspects of care or the HCAs' interactions with other departments were problematic or inefficient, the situations could be discussed among those involved and changes implemented. To the researcher's knowledge, this opportunity was not seized by the HCAs nor were the HCAs encouraged by the registered staff or facility management to identify and address problem areas.

Education and Teamwork Components

The education and teamwork sessions began approximately one month into the project. The content, style of presentation, and scheduling of these sessions were the same as in Facility A.

Meetings with HCAs

The researcher held meetings with the HCAs from each shift every three to four weeks. At these meetings, staff were asked about T.E.A.M., their resident assignments, and any changes that had occurred on the unit (either positive or negative). Any problems which arose were discussed and solutions were elicited from the HCAs.

5.2.2.3 Challenges during the Research Project: A number of challenges were faced in this facility during the research project. Each will be briefly described.

Resistance Among the HCAs on Evenings

When the day staff were approached about the research project, they were interested and willing to participate. As indicated above, their only concern was having to provide consistent care for an

extended period of time to residents who were aggressive and/or resistant to care. Despite these concerns, the HCAs were willing to try T.E.A.M., knowing that the resident assignments would be monitored and that short and long-term changes could be made.

Some resistance, however, surfaced among the HCAs on the evening shift when they were asked to participate in the research project. At the initial meeting, one of the HCAs saw a consent form that was left by a HCA from the day shift. As she read the consent form she stated that "surveys would tell you nothing" and that they were a "waste of time". This HCA believed that the only way to understand what it was like to work with ADRD individuals was to provide hands-on care. The other HCA agreed with her. While the aides discussed their concerns, the researcher explained that she would be spending time on the unit and with the HCAs to obtain a better understanding of their experiences. The researcher also told the HCAs that she would be collecting more than just questionnaire data; specifically, interviews would be conducted with the HCAs which would provide them with opportunities to describe their experiences in detail. Once the HCAs realized that the researcher had an understanding of the long-term care environment and the challenges faced by the HCAs, they were more receptive to the research project and agreed to participate.

Restructuring Within the Facility

The next challenge came when there was a restructuring of staff within the facility. The Unit Manager positions were eliminated causing the loss of one of the team leaders on the day shift. The Unit Manager position was replaced by: (1) a Head Nurse (on days) who was responsible for all of the assessments and charting on two units (the Unit Manager had been responsible for one unit), and (2) a Resident Care Coordinator who was responsible for staffing issues and resident admissions and transfers on two units.

The day staff had a very good relationship with the Unit Manager and were very disappointed

when they learned that she was leaving the unit. In addition, the HCAs were somewhat concerned about the management styles of the new Head Nurse and Resident Care Coordinator and believed that they would lose some of the autonomy that they had had with the Unit Manager.

The researcher held a meeting with the Head Nurse and Resident Care Coordinator to discuss the status of the research project. The Resident Care Coordinator had already known about the project since she had been the Unit Manager of the facility's other DDU (i.e., the unit that was not interested in implementing T.E.A.M.). After providing more details about T.E.A.M. and the progress made on the unit until that point, both the Head Nurse and Resident Care Coordinator were supportive of the project and agreed that it would continue.

Unequal Workloads

Another challenge surfaced approximately five months into the project. During one of the meetings with the HCAs on days, the researcher mentioned that in the most recent interviews with them, she had the impression that a few of the HCAs wanted to change their resident assignments. Some of the HCAs said that they did not want to make a change; one indicated that he did because the workload on his unit had become quite heavy. After some discussion among the HCAs, they decided to postpone their decision until they had an opportunity to discuss the issue with all of the HCAs on the day shift. The researcher reiterated that the HCAs were able to make both short and long-term changes at any time if needed. No long-term changes in resident assignments were made for a number of months. After approximately ten months, the day HCAs decided that they were in need of a change. There were a few HCAs who were willing to continue to provide consistent care to the same residents; however, these aides realized that the workloads had become unequal and that some of the HCAs needed a break from their residents. Some of the other HCAs felt "burned out"; therefore, the group decided that they would return to changing the group of residents they cared for on a weekly basis.

The problem of unequal workloads also surfaced on the evening shift. Towards the end of the study, one of the part-time HCAs told the researcher that the reason the full time HCA on evenings liked T.E.A.M. was because she was able to care for residents who required the least amount of work and were the least aggressive. Since the other HCAs who worked with her were part-time, they always had to care for the most difficult and time-consuming residents.

This inequality was confirmed by the researcher when she had an opportunity to talk with the HCA who had been on worker's compensation. The HCA expressed her concerns about the research project and said that she would never have gone along with T.E.A.M. if it allowed such inequality in workloads. The researcher explained to the HCA that the model was not designed that way and that the aides were asked about their workloads throughout the study and were relied upon to make adjustments where necessary. This inequality in workloads was able to persist because of the frequent changes in the second HCA position. Thus, unlike the HCAs on the day shift who did not realize the degree of inequity which existed among the resident groups, the HCA on evenings seemed to have purposely selected her residents based on the level of care they required.

5.2.3 Summary of the T.E.A.M. Intervention

While both of the treatment facilities implemented T.E.A.M., it was obvious that Facility A was more committed to the intervention than Facility C. This was evident from the fact that the Administrator in Facility A arranged to have a paid workshop for all of the staff involved in the study and enabled the Clinical Coordinator to be available to assist with the implementation of T.E.A.M.. In addition, empowerment of the HCAs (as well as other staff) was encouraged at all levels of the Facility (i.e., by registered staff, management, and the Administrator). HCAs were invited to give input into various matters, make suggestions about the care of the residents, and identify areas in need of change. On the other hand, the research study was considered interesting by the staff and management in Facility C but

the HCAs on the research unit were not actively encouraged to give input or find ways to improve their work environment.

There were also some other differences in how T.E.A.M. was implemented in the two treatment facilities. For example, in Facility A, the HCAs volunteered to work on the unit whereas in Facility C, an existing staff complement was used. This may lead to differences in the motivation levels of the HCAs. However, in Facility A not all of the HCAs volunteered to work on the unit; in fact, some had to be persuaded to participate.

There was also a difference between the treatment facilities in how the HCAs organized themselves. In both facilities, the HCAs determined how resident assignments were made. In Facility A, the HCAs decided to work in teams of two in order to ensure that there was always a HCA in close proximity to assist them. In Facility C the HCAs were each responsible for their own group of residents; they indicated that there was always a HCA nearby to help them if they needed assistance in providing care. The HCAs in both facilities acknowledged that it was difficult at times to provide consistent care to residents who were very aggressive and/or resistant to care. The HCAs in Facility C, however, seemed to be affected by this more than the HCAs in Facility A. This may be due, in part, to differences in how the aides were organized. That is, the HCAs in Facility A worked in teams and therefore, the same HCA may not care for the same residents every day. This may have made it easier for a HCA in Facility A who was under stress to have a break from certain residents.

5.3 Implementation of the Education and Teamwork In-Services in the Control Facilities

5.3.1 The Experience of Facility B

5.3.1.1 Selection of Study Participants: Facility B was somewhat different from the other facilities in the study in that there were very few full time HCAs who worked on the unit. In fact, there were only three full time HCAs: one who worked on days, one who worked on evenings, and one who rotated

between the day and evening shifts. The majority of the aides were regular part-time employees who rotated between two shifts. Because the majority of the HCAs were part-time, it was not entirely clear which aides regularly worked on the unit. To assist in determining which HCAs worked most frequently, the DOC compiled a list of all of the HCAs who worked on the unit during a one month period and the number of shifts they worked. Upon examining the list, the DOC identified which HCAs would be considered regular members of the unit; it was these aides who were invited to participate in the study. Other HCAs who were not classified as "regular" HCAs on the unit were informed that they could also participate in the study if they wished.

5.3.1.2 Initiation of the Research Project: Implementation of T.E.A.M. in Facility B was planned for the second phase of the study (i.e., after the collection of the second set of data). The first meeting with the HCAs was held prior to the commencement of the study. Similar to Facilities A and C, HCAs at this meeting were informed that the researcher wanted to learn about the experiences of HCAs who cared for residents with ADRD. The HCAs were asked whether they would be interested in participating; the majority of the aides expressed their interest in being involved. Baseline data were collected; the second set of data were collected approximately four months later. There was no contact with HCAs at this facility between these two data collection times.

During the collection of the second set of data, a meeting was scheduled with the two Unit Managers to discuss T.E.A.M.. After the components of T.E.A.M. were explained, it was determined that the care provided to the thirty-one residents on the unit could not be made more consistent than it was at the time. The HCAs on the unit were organized in the following manner: On the day shift the residents on the unit were divided into three groups. Of the four HCAs on this shift, three worked an eight hour shift and one worked a four hour shift (i.e., a short shift). Each HCA was assigned to a group of residents; the short shift provided care to a few residents from each group. The full time HCA(s) were

assigned to one group of residents for a period of one month; thus, whenever that HCA worked, she cared for the group of residents that she was assigned to for that month. If a part-time HCA worked consecutive shifts, that aide would be assigned to the same group of residents, unless the group she was assigned to was the group to which the full time HCA was assigned. In this situation, the full time HCA cared for her group and the part-time HCA was assigned to another group. A similar system was used on the evening shift. On nights, there were two HCAs; these aides worked together to provide care to all of the residents. One of the night shift HCAs was also responsible for assisting with the care of the residents on another unit.

Thus, the care of the residents in Facility B could not be made more consistent than it was. However, the Unit Managers were interested in participating in the other aspects of T.E.A.M. and, in particular, the teamwork component. After discussions with the registered staff and HCAs from Facility D (see below), the researcher decided to implement the education and teamwork in-services in Facility B.

After the second set of data were collected from Facility B, the education and teamwork in-services began and were conducted monthly. At least one in-service on each topic was conducted with each of the three shifts. Handouts were provided to those who attended the in-services and were made available to those who were not able to attend.

Education and Teamwork In-services

The material, style of presentation, and scheduling of the education and teamwork in-services were the same in all of the facilities. Nevertheless, there were some differences between the facilities in terms of what occurred during the in-services, particularly with the HCAs in Facility B.

The HCAs in Facility B, especially those on the evening shift, were very open with the researcher about concerns they had and problems they were experiencing on the unit. These concerns were often voiced during the education and teamwork in-services. For example, one issue for many of the HCAs in

this Facility involved the high level of aggression among some of the residents and the registered staff's lack of understanding about the effect that this aggression had on the HCAs. The HCAs had trouble understanding why the registered staff were reluctant to use medications to control the behaviour of these residents. The researcher discussed with the HCAs the fact that medications were often used inappropriately in long-term care facilities and that there was often pressure on the registered staff to reduce the use of medications for managing behaviours. The HCAs and the researcher also talked about the procedures that had to be followed when prescribing medications to elderly individuals (e.g., starting at a very low dose and allowing enough time for the medication to have an effect before changing the dose or the type of medication).

The HCAs told the researcher that such discussions helped them in a number of ways. Most importantly, the HCAs felt that they were being listened to and that their feelings and concerns were being acknowledged. Second, they were being provided with information to help them understand why certain things were happening on their unit. Listening to the HCAs and sharing information with them helped the HCAs to feel respected. Thus, the HCAs in Facility B perceived the in-services as therapeutic and looked forward to other in-services. While many of the HCAs in the other facilities indicated that the in-services were beneficial to them, the in-services did not seem to have the same cathartic effect as they did with the HCAs in Facility B.

5.3.1.3 Challenges during the Research Project: There were no problems in recruiting HCAs to participate in the research project; however, a few other challenges did arise. These challenges will be briefly described.

The Monitor Position

Approximately five months after the study began, the registered staff on the research unit decided to try a new system with the day and evening HCAs. A "monitor" position was created to assist the HCAs in dealing with the aggressive and agitated residents on the unit. The role of the monitor was to intervene in resident disputes (i.e., fights between residents) and attempt to prevent the escalation of agitation and aggression among the residents. The Unit Manager's reasoned that by having a specific person assigned to the prevention and control of aggression and agitation, the other HCAs would be able to do their work more efficiently since they would not have to deal with these incidents.

On the day shift, the HCAs carried out their morning duties as they always had, with the three full time HCAs and the short shift providing resident care. After lunch, two of the HCAs would provide care to the residents while the other HCA performed her duties as the monitor. The monitor would assist the HCAs with resident care as needed and when the unit was uneventful. On evenings, the monitor performed her duties at the beginning of the shift since this was the time when the residents were most likely to be agitated and aggressive. Towards the end of the shift, the monitor assisted the other HCAs in providing care to the residents.

This new system, which coincided with the implementation of the education and teamwork in-services, had little impact on how the in-services were implemented. However, this new position did have an effect on some of the HCAs. Specifically, some of the HCAs were enthusiastic and supportive of this new approach while others were not. With time, many of the HCAs accepted the monitor position and believed it was beneficial; however, there were some who disagreed with this approach. The evening HCAs in particular were unhappy with the monitor position. Many of these aides thought that any benefits realized by having a HCA monitor the residents did not exceed the increased workload experienced by the HCAs who were not monitors (since two HCAs would essentially have to do the work of three). Eventually, the monitor position was discontinued on the evening shift.

Inability to Implement T.E.A.M.

The other challenge faced in this facility was the inability to implement T.E.A.M.. As discussed above, it was not possible to reorganize the staff so that they could provide more consistent care to the residents. The researcher decided that the interventions in Facilities B and D should be the same; thus, only the education and teamwork components of T.E.A.M. were implemented. The in-services conducted in this Facility were the same as those in Facilities A and C.

5.3.2 The Experience of Facility D

5.3.2.1 Selection of Study Participants: As described in the previous chapter, one of the three DDUs in Facility D was selected to participate in the research project. A meeting was scheduled with the Unit Manager of the research unit in order to explain the study and ascertain her interest in the project. The Unit Manager was interested in the project and thought that her staff would be willing to participate. Meetings were scheduled with each of the three shifts to determine the HCAs' interest in participating.

When the researcher arrived for her first meeting with the HCAs on the day shift, the Unit Manager was absent from work because of illness and neither the registered staff nor the HCAs had been informed about the meeting or the study. The day staff reluctantly agreed to meet with the researcher. After explaining the study and the roles of the participants and the researcher, the first set of questionnaires were distributed to the HCAs along with a consent form. The HCAs were informed that the questionnaires could be completed on their own time. After the meeting dispersed, five of the six HCAs returned their questionnaires, indicating that they were not interested in participating. Four of the HCAs told the researcher that they thought the questionnaires were "too personal" and that they did not like to give out personal information. Even after informing the HCAs that they did not have to answer any questions that they were not comfortable with, the HCAs were not willing to complete the questionnaires.

The meetings with the evening and night HCAs were similar in that they had not been told about the study. However, the HCAs on both of these shifts were more interested in the research project and were willing to participate. A meeting was also held with the part-time HCAs on days; these HCAs were willing to be involved in the study.

5.3.2.2 Initiation of Research Project: Similar to Facility B, implementation of T.E.A.M. in Facility D was to occur after the second set of baseline data had been collected. During the collection of the Time 2 data, a meeting was held with the RN on days to discuss the research project. The RN was interested in the T.E.A.M. concept and thought that the HCAs would be as well. In terms of having more consistent care, the RN thought that the HCAs may not want to provide care to the same residents for a three month period. (The HCAs at the time were changing their resident assignments on a weekly basis.) The RN suggested that the HCAs might be more willing to try T.E.A.M. if they were asked to care for the same residents for a few weeks and after that time, their assignments could be assessed to determine their willingness to continue caring for the same residents.

When the researcher met with the HCAs on days about implementing T.E.A.M., there were mixed reactions regarding the organization component. Some of the HCAs did not want to care for the same group of residents for more than one week; they thought that it would be too difficult and stressful to care for certain residents (i.e., the highly aggressive residents) even for a two week period. A few of the other HCAs were not as reluctant, but did not want to care for the same residents for more than two weeks. While a few HCAs acknowledged that having more consistent care may enable them to have a better understanding of the residents, most believed that they already knew the residents well and that the residents were comfortable with them. Despite the HCAs' reluctance to implement the consistent care component of T.E.A.M., they were interested in participating in the education and teamwork in-services.

The reaction from the HCAs on the evening shift was similar. The evening HCAs had recently begun to care for the same group of residents for a one week period. Prior to this, they cared for a different group of residents every day. When asked if they would be willing to care for the same residents for a two week period, they immediately said "no". One of the HCAs explained that caring for the same residents for one week was a difficult adjustment for many of the HCAs. The HCAs indicated that some of the residents were so aggressive that they needed a break from these residents after one week. The HCAs also believed that a sense of familiarity between the residents and staff already existed and that having more consistent care would not enhance this relationship. Similar to the HCAs on days, the HCAs on evenings were interested in participating in the education and teamwork in-services.

As with the other three facilities, the HCAs on the night shift were not asked to adopt the organization component of T.E.A.M.. There were only two HCAs who worked the night shift and these aides already worked together to provide care to all of the residents.

Because of the reluctance of both the day and evening HCAs to provide more consistent care to the residents, it was decided that T.E.A.M. would not be implemented in Facility D. However, the education and teamwork in-services were offered to the HCAs in this facility.

Thus, T.E.A.M. was not implemented in either Facilities B or D. Instead, education and teamwork in-services were conducted; the content, style of presentation, and scheduling of these in-services were the same as those implemented in Facilities A and C.

5.3.2.3 Challenges during the Research Project: A number of challenges arose while working with this facility. Each of these will be discussed.

Reluctance of HCAs to Participate in the Research Project

The first challenge was the refusal of some HCAs and the reluctance of other HCAs to participate in the research project. Further, there were differences between Facility D and the others in terms of who did and did not participate in the study. In the other facilities, most of the HCAs were interested in participating; those that were not were more likely to work on either the evening or night shifts. In Facility D, however, it was the full time day staff that were not willing to become involved in the research project. Thus, the HCAs who participated in Facility D may have been different than those who participated in the other facilities.

Lack of Trust with the Research Process

Another difference noted between the Facility D HCAs and the aides in the other facilities was that in Facility D many of the HCAs were suspicious about the research project, particularly those who refused to participate. Some questioned the researcher about how the information from the study was going to be used, particularly the information obtained from the saliva samples. During one of the first saliva sample collection times, a HCA approached the researcher to voice some concerns about this aspect of the study. She said that some HCAs felt that it was an invasion of privacy to collect these samples and were concerned that the samples may be used to assess other things such as determining drug or alcohol use. The researcher showed the HCA the information sheet and explained the saliva sample collection procedure. The researcher assured the HCA that the data from the samples would only be used for the purposes stated in the information and consent letters, and explained the implications of violating the agreement between researcher and research participant. The researcher also reiterated the voluntary

nature of all aspects of the research project. After discussing her concerns with the researcher, the HCA seemed more comfortable with this procedure. When meeting with subsequent HCAs, the researcher was especially careful to explain all aspects of this protocol and alleviate any potential concerns about the misuse of the data. No other staff member expressed concerns about this aspect of the study.

Unit Manager as the Contact Person

Another challenge faced during the research project was the use of the Unit Manager as a contact person. The first indication of a problem arose on the first day that the researcher was to meet with the HCAs on the research unit. Because neither the registered staff nor the HCAs had any knowledge of the research project or the researcher's visit, this first encounter was a negative one. Scheduling problems also occurred in subsequent meetings scheduled by the Unit Manager. For example, some meetings were set on days when the HCAs were having other meetings, leaving the HCAs with little or no time to spend with the researcher. This lead to some frustration on the part of the HCAs and wasted time for the researcher. After a few months, the researcher decided to arrange all of her meetings through the registered staff instead of the Unit Manager. This method proved to be more effective.

Refusal to Implement T.E.A.M.

Refusal to implement T.E.A.M. was another challenge faced in Facility D. The HCAs were not willing to provide care to the same residents for more than a one or two week period. As a result, only the education and teamwork in-services were implemented.

5.4.3 Summary of Education and Teamwork In-Services Intervention

Originally, T.E.A.M. was to be implemented in both Facilities B and D; however, in the end neither facility implemented the model. In Facility B, care could not be made more consistent than that that was being provided, and in Facility D the HCAs were not willing to care for the same residents for more than a one or two week period. Consequently, neither of these facilities implemented T.E.A.M. but instead, implemented the education and teamwork in-services. The in-services were implemented in the same manner as they had been in the treatment facilities.

Despite the fact that the same intervention was implemented in Facilities B and D, some differences existed in terms of the HCAs' attitudes toward the project. In Facility B, the HCAs were interested participants and willing to assist the researcher in any way they could. However, in Facility D the research project began on a negative note. When the researcher first visited the HCAs in this facility, neither the aides nor the registered staff had not been informed about the researcher's visit or the research project. As well, there were a number of HCAs (primarily full time HCAs that worked on the day shift) who were unwilling or reluctant to participate. With time, the majority of the HCAs in Facility D began to trust the researcher and in the end, were willing to participate in part of the study (i.e., qualitative interviews). These differences suggest that the HCAs in Facility D may have been different than those in the other three facilities.

There were also differences in how the HCAs in Facilities B and D participated in the education and teamwork in-services. While the information and style of presentation were the same in all facilities, many of the HCAs in Facility B used the sessions as a way to vent their work-related problems and share concerns they had about their unit. This difference suggests that the HCAs in Facility B were in need of an outside medium where they felt comfortable voicing their feelings.

5.5 Summary of Implementation Chapter

The original study design called for all of the facilities to implement T.E.A.M., with two facilities implementing the model after the first set of data had been collected and the other two facilities implementing it after the collection of the second set of data. However, due to the inability of Facility B, and unwillingness of the HCAs in Facility D, to implement T.E.A.M., these facilities only implemented the education and teamwork in-services.

In addition, there were some differences within both the treatment and control groups with respect to how the research project and the interventions were introduced and implemented (e.g., the use of volunteers in Facility A; the fact that the registered staff and HCAs had not been informed of the research project at the time of the researcher's first visit). These differences may effect the level of acceptance of the project among the HCAs, the implementation of the project and, consequently, the research findings. Therefore, such differences must be taken into consideration when interpreting results.

CHAPTER 6: DESCRIPTION OF RESEARCH UNITS

6.1 Purpose

The purpose of this chapter is to provide a description of the four research units. The chapter begins by summarizing the physical characteristics of the long-term care facilities and the research units within them, followed by a characterization of the residents that resided in each of the research units.

6.2 Description of Facilities

The physical characteristics of the four long-term care facilities are summarized in Table 6.1. Facility A was a one hundred and ninety-two bed nursing home located in an urban area of Eastern Ontario. There were fifty beds on the research unit in this facility. Facility C was a 265 bed municipal home for the aged located in an urban area of Central West Ontario. There were forty-two beds on the research unit. The facilities which comprise Group 2 were both municipal homes for the aged. Facility B was located in a rural area of Central West Ontario. There were one hundred and seventy-two beds in this facility; thirty-one of which were on the research unit. Facility D was a 406 bed facility located in an urban area of Central West Ontario. There were fifty beds on the research unit in this facility.

6.3 Staffing Ratios

The ratio of HCAs to residents for each facility and each shift is presented in Table 6.2. Upon examining these ratios by shift, it is apparent that in some facilities the ratios within a shift varied because there were some HCAs who worked short shifts (i.e., only part of a shift). The data in the table indicate that the lowest ratios of HCAs to residents were found during the night shift. HCA to resident ratios on the evening shift were equal to, or lower than, the HCA to resident ratios on the day shift.

Table 6.1
Characteristics of Participating Facilities

Group	Facility	Type	Number of Beds in Facility	Number of Beds in SCU	Region in Ontario	Urban/ Rural*
1	A	nursing home (for-profit)	192	50	East	urban
	C	home for the aged (municipal)	265	42	Central West	urban
2	B	home for the aged (municipal)	172	31	Central West	rural
	D	home for the aged (municipal)	406	50	Central West	urban

* 'Rural' is defined as residing in an area where the population is less than 10,000.

Table 6.2
Ratios of HCAs to Residents and the Average Number of Residents Cared for by HCA, by Shift

Shift	GROUP 1		GROUP 2	
	Facility A	Facility C	Facility B	Facility D
Days (7 am - 3 pm)	5:50 - 4:50	4:42	4:31 - 3:31	5:50 - 4:50
	10 - 12.5	10.5	7.75 - 10.33	10 - 12.5
Evenings (3 - 11 pm)	4:50 - 2:50	3:42 - 2:42	3:31	4:50
	12.5 - 25	14 - 21	10.33	12.5
Nights (11 pm - 7 am)	2:50	2:42	2:31 - 1:31	2:50
	25	21	15.5 - 31	25

When HCA to resident ratios were compared across facilities, on average, there was a higher HCA to resident ratio in Facility B. The ratios were similar in Facilities A and D and were slightly lower than those in Facility C. Overall, the ratios were similar in Group 1 and Group 2.

6.3 Characteristics of the Residents within Each Research Unit

6.3.1 Procedure

At each data collection period, a list was compiled of all of the residents who resided in each research unit. At the end of the study, the lists were combined to produce a final list of residents who resided in the units during the study period. These lists, however, did not necessarily include all of the residents who resided on the unit during the study period since residents who were admitted and discharged from the unit *between* data collection periods would not appear on the lists. (This number, however, was expected to be relatively small.)

Data were collected on the residents on each list after the study had ended. These data were obtained from residents' charts, or from other documentation available at the facility.

6.3.2 Permission to Access Resident Charts

Facilities A, C, and D gave the researcher access to the residents' charts because the data to be obtained were to be used in an aggregate form. Facility B was also willing to provide the researcher with access to their charts but because the researcher had indicated in the Research Agreement (see Appendix B) that she would ask each family for permission to access their relative's chart, such permission was needed.

Therefore, in Facility B, one family member of each resident who resided in the research unit was mailed an information and consent letter. The information letter explained the purpose of the study and the reason why the researcher wanted access to the resident's chart. In the consent form, family members

were asked to check one of two items: (1) that they agreed to give the researcher permission to access their relative's chart or (2) that they did not agreed to give the researcher permission to access their relative's chart. The family member was then asked to return the consent letter in the envelop provided.

Consent letters were sent to thirty-six of the thirty-eight family members of the residents who had resided on the research unit. Two residents had died during the course of the study and, thus, it was considered inappropriate to send consent letters to their family members. Because both of these family members had participated in another component of the study (i.e., the completion of questionnaires for family members), the management in Facility B decided to allow the researcher access to the files of these two residents.

Of the thirty-six families contacted, 58.3% (21) gave the researcher permission to access their relative's chart. Three family members (8.3%), refused to give the researcher permission to access their relative's file. The remaining family members (12) did not respond. Thus, a total of twenty-three charts were reviewed in Facility B.

6.3.3 Characteristics of the Residents

Data were collected on the demographic characteristics of the residents (e.g., gender, date of birth, marital status, preferred language) as well as their diagnoses. These data are presented in Table 6.3. Where appropriate, the data were analyzed to determine whether there were significant associations between Group and residents' characteristics. The data on age were analyzed to determine whether the average age at admission was significantly different in Groups 1 and 2. The results from these analyses are presented in Table 6.4.

Table 6.3
Characteristics of the Residents Who Resided on Each Research Unit

	GROUP 1		GROUP 2	
Characteristic	**Facility A**	**Facility C**	**Facility B**	**Facility D**
Total Number of Residents over the Course of the Study	80	57	38	69
Gender				
male	16.3 % (13)	38.6 % (22)	10.5 % (4)	29.0 % (20)
female	83.8 % (67)	61.4 % (35)	89.5 % (34)	71.0 % (49)
Marital Status				
married	18.8 % (15)	45.6 % (26)	5.3 % (2)	46.4 % (32)
widowed	70.0 % (56)	45.6 % (26)	50.0 % (19)	36.2 % (25)
divorced/separated	6.3 % (5)	1.8 % (1)	0.0 % (0)	5.8 % (4)
single	5.0 % (4)	7.0 % (4)	2.6 % (1)	10.1 % (7)
Language				
English	85.0 % (68)	73.7 % (42)	36.8 % (14)	78.3 % (54)
French	1.3 % (1)	3.5 % (2)	0.0 % (0)	5.8 % (4)
other	13.8 % (11)	21.1 % (12)	7.9 % (3)	8.7 % (6)
Diagnosis*				
number indicating disturbance of brain function	87	62	20	72
number not indicating disturbance of brain function	175	53	33	84
Age at Admission				
mean	83.1 years	78.4 years	79.8 years	76.5 years
standard deviation	7.54	6.78	7.67	7.88
range	62 - 95 years	60 - 95	57 - 92	44 - 90

Percentages may not sum to 100% because of missing values.
* The number of diagnosis exceeds the number of residents because more than one diagnosis per resident was permitted.

Table 6.4
Associations Between Resident Characteristics and Group

Comparison	Chi-square/*t*-Test
Gender by Group	$\chi^2(1) = 0.318$, $p = 0.57$
Marital Status by Group married versus other widowed versus other	 $\chi^2(1) = 1.513$, $p = 0.22$ $\chi^2(1) = 2.644$, $p = 0.10$
Language by Group English versus other	 $\chi^2(1) = 0.324$, $p = 0.57$
Diagnosis diagnoses indicating brain disturbance versus other	 $\chi^2(1) = 1.123$, $p = 0.29$
Age by Group **	$t(182.2) = 3.6831$, $P = 0.0003$

Group 1 refers to Facilities A and C; Group 2 refers to Facilities B and D.
* $p < 0.05$; ** $p < 0.01$

The first row of Table 6.3 gives the total number of residents who resided on each unit during the course of the study. When these figures are compared with the number of beds on each unit, it is apparent that there was a relatively high turnover rate of residents in Facility A compared with the other facilities. Thus, the HCAs in Facility A were continuously required to become acquainted with new residents.

Table 6.3 also indicates that the majority of the residents in each facility were female; however, both Facilities C and D had a relatively high percentage of male residents. When these data were examined to determine whether a significant association existed between Group and gender, the association was not significant ($\chi^2(1) = 0.318$, $p = 0.57$).

In terms of marital status, the majority of the residents on each of the research units were either married or widowed at the time they were admitted to the facility. There were no significant associations between Group and marital status when those who were 'widowed' were compared with those who were 'not widowed' (i.e., married, separated/divorced, or single) ($\chi^2(1) = 2.644$, $p = 0.104$), or when those who were 'married' were compared with those who were 'not married' ($\chi^2(1) = 1.513$, $p = 0.22$).

The preferred language of the majority of the residents on each research unit was English. When those who spoke 'English' were compared with those who spoke other languages, there was no significant association found between Group and language ($\chi^2(1) = 0.324$, $p = 0.57$).

Unfortunately, the long-term care facilities in this study did not utilize a standardized measure for determining the level of behaviour disturbance exhibited by their residents. Therefore, it was difficult to compare the two Groups on this characteristic. Consequently, a crude indicator was used to determine whether the two groups differed in terms of their residents' levels of behavioural disturbance. The measure used was 'diagnosis'. Specifically, the number of diagnoses which indicated that there may be some disturbance of brain function (e.g., Alzheimer's disease, dementia, aphasia, subdural haematoma) was determined. When the data were examined to determine whether there was an association between

Group and diagnosis, the results failed to show a significant association ($\chi^2(1) = 1.123$, $p = 0.29$). Thus, there were no differences between Groups in terms of the number of diagnoses that suggested some disturbance of brain function. If one considers the existence of brain disturbance as a crude indicator of behavioural disturbance, this result may also suggest that there was no difference between Groups in terms of possible behavioural disturbance by the residents. However, this conclusion would be a tenuous one.

The age of each resident at the time they were admitted to the long-term care facility was calculated using each resident's date of birth. The average age of the residents at admission on each unit are presented in Table 6.3. These data indicate that the average age at admission was higher in Facility A than in the other facilities. This difference may play a role in the relatively high turnover rate of the residents in this facility.

When the data on age were analyzed, a significant association was found between Group and age at admission ($t(182.2) = 3.6831$, $p = 0.0003$). Thus, the residents in Group 1 were likely to be older than the residents in Group 2.

6.3.4 Summary of Resident Characteristics

Overall, the residents which resided on the research units in Groups 1 and 2 were very similar. In fact, the only significant association was between Group and age. Specifically, residents in Group 1 were likely to be older at the time they were admitted to their facilities than those in Group 2. As indicated, this difference may have contributed to the higher resident turnover rate in Group 1.

6.4 Summary of Research Units

The data indicate that there were some differences in the physical characteristics of the long-term care facilities and the research units within these facilities. While all of the facilities were relatively large (i.e., all had more than 150 beds), the research unit in Facility B was somewhat smaller than the other research units. Facility B was also the only facility located in a rural area. As well, Facility A was the only nursing home in the study. It is not clear whether these differences may have an affect on the implementation of the study's interventions or on the study's results.

Groups 1 and 2 were also similar in terms of the HCA to resident ratios; although these ratios tended to be somewhat higher in one of the Group 2 facilities (i.e., Facility B).

Finally, there were few differences in the characteristics of the residents in Groups 1 and 2. The only significant difference was the association between age at admission and Group. This difference was not expected to affect the study or its results.

The remainder of this thesis describes the methodologies and results for the three types of data collected in the study. There are two chapters dedicated to each type of data: the first provides detailed information about the methods used to collect that type of data and summarizes the statistical analysis strategy that was employed; the second chapter provides a detailed description of the results obtained.

CHAPTER 7: QUESTIONNAIRE DATA - METHODS AND ANALYSIS STRATEGY

7.1 Purpose

The purpose of this chapter is to describe the methods used in the questionnaire component of the study and provide an overview of the analysis strategy. The results from the analysis of the questionnaire data are presented in the following chapter.

7.2 Procedure

7.2.1 Collection of the Questionnaire Data

At each data collection time, participating HCAs were given an envelope that included a copy of the questionnaires. The HCAs were asked to complete the questionnaires by a specified date, without consulting their co-workers, and to return the completed questionnaires in the envelope provided to a designated location in the facility. Individuals who did not want to complete the questionnaires were asked to return the incomplete questionnaires in the same manner.

At each data collection time, the researcher used the identification numbers assigned to the HCAs to determine whether each HCA completed the questionnaires, did not complete the questionnaires, or refused to participate in questionnaire component of the study. This information was recorded for each HCA at each time point. Aides who refused to complete the questionnaires and those who had moved off the unit were not given questionnaires at subsequent data collection times.

7.2.2 Minimizing Bias

Because the researcher developed T.E.A.M. and was responsible for conducting all aspects of this study, there was potential for bias in two ways. First, there was the possibility that if the researcher was aware of how the HCAs in each facility responded to the questionnaires, she may have unconsciously

changed the manner in which she interacted with the HCAs . Second, it is possible that the HCAs may have completed the questionnaires in a socially desirable way since they knew the researcher would be reading the questionnaires and would therefore know how each of the HCAs responded.

In an attempt to deal with these two potential sources of bias, a number of steps were taken. First, to reduce any potential bias on the part of the researcher, the data from the questionnaires were not read and compiled until after the Time 4 data had been collected. Thus, the researcher was not aware of how the HCAs responded to the questionnaires until after the study had ended.

Second, in order to increase the likelihood that the information provided by the HCAs accurately reflected their thoughts and perceptions, two steps were taken: (1) the HCAs were informed that the questionnaires would not be analyzed by the researcher until after the study had ended and (2) the HCAs were told that, prior to reading and analyzing the data, their identification numbers would be changed; thus, the researcher would not know which HCA completed which questionnaire. By informing the HCAs that their identification numbers would be changed and hence, that the questionnaires would be anonymous, it was expected that the HCAs would be more likely to complete the questionnaires based on their actual feelings and perceptions.

7.3 Measures

The following scales were administered to the HCAs at each data collection point: the *Maslach Burnout Inventory* (Maslach & Jackson, 1986), the *Work Environment Scale* (Moos, 1986), the *Short Happiness and Affect Research Protocol* (Stones, Kozma, Hirdes, Gold, Arbuckle, & Kolopack, 1996), the *Short Hardiness Scale* (McNeil, Kozma, Stones, & Hannah, 1986), and a questionnaire developed by the researcher to obtain information on demographic and employment characteristics, health conditions, health habits, and life events. The following is a description of each of these scales and, where applicable, a summary of the scale's psychometric properties.

Maslach Burnout Inventory: The *Maslach Burnout Inventory* (MBI)[1] is a twenty-two item scale which has been widely used to assess burnout among individuals working within the helping professions (e.g., nursing, teaching, and social service). According to Maslach and Jackson (1981), burnout can be characterized by three dimensions: Emotional Exhaustion, Depersonalization, and Personal Accomplishment. These three dimensions make up the three subscales within the MBI. Emotional Exhaustion refers to feelings of being overextended emotionally and exhausted by one's work. Depersonalization refers to having negative, impersonal attitudes towards one's clients. Personal Accomplishment refers to feelings of competence and success in one's work (Maslach & Jackson, 1986).

Research has found that burnout can lead to decreased quality of care and is an important factor in job turnover, absenteeism, and low morale. In addition, burnout has been found to be correlated with such factors as physical exhaustion, insomnia, increased use of alcohol and drugs, and marital and family problems (Maslach & Jackson, 1986).

Respondents completing the MBI are asked to indicate how often they experience different job-related feelings, using a seven point scale ranging from 0 (never) to 6 (every day). Burnout is a continuous variable. Scores are calculated for each of the three subscales. Subscale scores are not combined into a total score since knowledge about the relationship between the three aspects of burnout is limited. Higher scores on the nine item Emotional Exhaustion subscale and the five item Depersonalization subscale indicate higher levels of burnout, whereas lower scores on the eight item Personal Accomplishment subscale indicate higher degrees of burnout (Maslach & Jackson, 1986).

In terms of the psychometric properties of the MBI, internal consistencies were reported by Maslach and Jackson (1986) to be 0.90 for emotional exhaustion, 0.79 for depersonalization, and 0.71 for personal accomplishment, based on a sample of 1, 316 individuals. Test-retest reliability was assessed

[1] The MBI and WES have not been included in the appendices. To obtain these scales, contact Psychometrics Canada Ltd., Edmonton, Alberta.

using a sample of social welfare graduate students and administrators in a health agency (N=53) over a two to four week time period. The reliability coefficients obtained were 0.82 for Emotional Exhaustion, 0.60 for Depersonalization, and 0.80 for Personal Accomplishment. In a sample of teachers, the one year test-retest reliability coefficients were 0.60 for Emotional Exhaustion, 0.54 for Depersonalization, and 0.57 for Personal Accomplishment (Maslach & Jackson, 1986).

Work Environment Scale: The *Work Environment Scale* (WES)[1] consists of ten subscales which measure the social climate of various types of work settings. Social climate refers to the 'personality' of a setting or environment; it includes such factors as the degree of task orientation, support, rigidity, and control in an environment. The social climate of an environment can have a strong impact on the individuals within the environment. For example, social climate has been shown to influence morale, well-being, achievements, understanding of one's self, and the likelihood of increasing employee productivity (Moos, 1986). There are three forms of the WES: (1) the Real Form, which measures employees' perceptions of their current work environment, (2) the Ideal Form, which measures employees' beliefs about the ideal work environment, and (3) the Expectations Form, which measures employees' expectations about the work setting (Moos, 1986). The Real Form of the WES was used in this study.

The ten subscales of the WES assess three underlying domains of the work environment. The *Relationship Dimension* refers to how involved individuals are within a setting, how much they help each other, and how spontaneously they express their feelings. This dimension is measured by the Involvement, Peer Cohesion, and Supervisor Support subscales. The *Personal Growth Dimension* refers to the ways that a setting encourages or suppresses personal growth. It is assessed by the Autonomy, Task Orientation, and Work Pressure subscales. The *System Maintenance and System Change Dimension* refers to how orderly and organized a setting is, how clear the expectations are, the level of control, and how responsive the environment is to change. This dimension is measured by the Clarity,

Control, Innovation, and Physical Comfort subscales (Moos, 1994).

The WES contains ninety items. Each item has a true-false response format. Scores are determined with the use of a template; highlighted responses are scored as one; responses that are not highlighted are scored as zero. The scores from the items on each subscale are summed to obtain a subscale score. Raw scores for each subscale range from 0 to 9. The raw scores can be converted into standard scores in order to allow for comparisons across subscales and with normative data (Moos, 1994).

Internal consistencies for each of the ten WES subscales have been found to be acceptable. Cronbach's alphas range from 0.69 on the Peer Cohesion subscale to 0.86 on the Innovation subscale. In terms of reliability, one month test-retest reliabilities have been found to be acceptable, ranging from 0.69 for the Clarity subscale to 0.83 for the Involvement subscale. Twelve month test-retest reliabilities are moderately high, ranging from 0.51 for the Supervisory Support subscale to 0.63 for the Work Pressure subscale (Moos, 1986).

Short Happiness and Affect Research Protocol: The *Short Happiness and Affect Research Protocol* (SHARP) is a short version of the *Memorial University of Newfoundland Scale of Happiness* (MUNSH) (Kozma & Stones, 1980) (see Appendix D). The MUNSH is a twenty-four item scale that was developed to measure mental health among the elderly, but has been found to be a valid measure of affect in a number of populations (e.g., Kozma, Stones, & Kazarian, 1985). The twelve item SHARP has been tested in a number of samples and has been found to have psychometric properties which are very similar to the MUNSH. The SHARP was used in this study instead of the MUNSH because of its brevity and demonstrated validity and reliability.

In the SHARP, respondents are asked to respond 'yes' or a 'no' to each of the items. Items one to six ask about the respondent's feelings during the previous month and items seven to twelve ask about

general life experiences. The SHARP is balanced in that items have been included which assess positive affect, negative affect, long-term happiness, and long-term unhappiness. Scores on the SHARP range from -6 to 6, with higher scores indicating higher levels of happiness (Stones, Kozma, Hirdes, Gold, Arbuckle & Kolopack, 1996).

Internal consistency of the SHARP has ranged from 0.80 to 0.82 in different populations. As well, the SHARP and the MUNSH have been found to be highly correlated (r=0.94 to 0.95). Validity coefficients between the SHARP and both avowed happiness and judges' ratings were found to be equivalent to those of the MUNSH. Specifically, coefficients of 0.63 and 0.69 were found with self-reported ratings of immediate avowed happiness and avowed happiness during the past month, respectively. A validity coefficient of 0.59 was obtained with observer ratings of happiness (Stones, Kozma, Hirdes, Gold, Arbuckle & Kolopack, 1996).

Short Hardiness Scale: The *Short Hardiness Scale* (SHS) is a short version of the seventy-one item Hardiness Scale (Kobasa, 1979) (see Appendix E). Hardiness is composed of three components: control, commitment, and challenge. Control refers to a belief that one can control or influence life events. Commitment refers to the feeling of being involved in the activities occurring within one's life. Challenge refers to one's belief that change is normal, positive, and can enhance life and life experiences. Research on hardiness has found that the relationship between stress and illness may be buffered in individuals characterized as being 'hardy' (Kobasa, 1979).

In terms of the psychometric properties of the twenty item SHS, McNeil, Stones, Kozma, and Hannah (1986) reported that an internal consistency of 0.81 was obtained in an unpublished study by Kobasa and Maddi (1982). However, when McNeil, Stones, Kozma, and Hannah (1986) used the SHS with a sample of individuals over the age of fifty who were participating in a one year longitudinal study of exercise and fitness, they obtained internal consistencies of 0.64 and 0.67 at baseline and one year,

respectively. While the internal consistencies were somewhat lower than anticipated, the authors found that the SHS was significantly correlated with other measures of psychological well-being, namely the MUNSH and trait anxiety from the State-Trait Anxiety Inventory.

Background Information Questionnaire: The Background Information Questionnaire was developed by the researcher for this study (see Appendix F). The data collected included the participant's: demographic characteristics (e.g., age, gender, marital status), job characteristics (e.g., employment status, shift worked, length of service), absenteeism, health history (e.g., existence of long-term health conditions), health practices (e.g., smoking status, participation in exercise), and the occurrence of selected life events.

7.3.1 Dependent Variables

The three MBI subscales, the ten WES subscales, and self-reported absenteeism were the dependent variables in this component of the study. A summary of the subscale definitions for the MBI and WES are found in Tables 7.1 and 7.2, respectively.

Table 7.3 summarizes the internal consistencies obtained with normative data and with the current sample for each of the MBI and WES subscales, and with the SHS and SHARP. Internal consistencies with the current sample were comparable with those found with a normative population for the MBI subscales ($\alpha = 0.75 - 0.91$) and the SHS ($\alpha = 0.57$). The internal consistency obtained in this sample with the SHARP was higher than what has been obtained with other samples ($\alpha = 0.90$). However, for the WES subscales, the internal consistencies obtained with this sample tended to be somewhat lower than those obtained with normative samples ($\alpha = 0.47$ to 0.78).

Table 7.1
Description of Subscales from the Maslach Burnout Inventory

Subscale	Description
Emotional Exhaustion	the feeling of being exhausted by one's work and overextended emotionally
Depersonalization	having negative, impersonal attitudes towards one's clients
Personal Accomplishment	the feeling of competence and achievement in one's work

Source: Maslach, C. and Jackson, S.E. (1986). *Maslach Burnout Inventory Manual*, Second Edition. Consulting Psychologists Press, Inc.: Palo Alto, CA.

Table 7.2
Description of Subscales from the Work Environment Scale

Dimension	Subscale	Description
Relationship Dimension	Involvement	the degree to which employees are concerned about and committed to their jobs
	Peer Cohesion	the degree to which employees are supportive and friendly towards one another
	Supervisor Support	the degree to which management supports employees and encourages employees to be supportive of one another
Personal Growth Dimension	Autonomy	the degree to which employees are encouraged to make their own decisions and to be self-sufficient
	Task Orientation	the degree of emphasis placed on good planning, efficiency, and getting the job done
	Work Pressure	the extent to which time urgency and pressure to get the job done dominates the work milieu
System Maintenance and System Change Dimension	Clarity	the degree to which employees know what is expected in their daily routines and how explicitly rules and policies are communicated
	Control	the degree to which rules and pressures are used by management to keep employees under control
	Innovation	the degree of emphasis placed on variety, change, and new approaches
	Physical Comfort	the degree to which the physical surroundings contribute to a pleasant work environment

Source: Moos, R.H. (1986). *Work Environment Scale Manual, Second Edition.* Consulting Psychologists Press, Inc.: Palo Alto, CA.

Table 7.3
Internal Consistencies of the MBI and WES Subscales

Subscale	Internal Consistencies Current Study	Internal Consistencies Normative Samples
Maslach Burnout Inventory (MBI)		
Emotional Exhaustion	0.91	0.90
Depersonalization	0.75	0.79
Personal Accomplishment	0.75	0.71
Short Happiness and Affect Research Protocol (SHARP)	0.90	0.80 - 0.82
Work Environment Scale (WES)		
Involvement	0.78	0.84
Peer Cohesion	0.68	0.69
Supervisor Support	0.62	0.77
Autonomy	0.48	0.73
Task Orientation	0.59	0.76
Work Pressure	0.70	0.80
Clarity	0.58	0.79
Control	0.47	0.76
Innovation	0.66	0.86
Physical Comfort	0.71	0.81
Short Hardiness Scale (SHS)	0.57	0.64 - 0.67

7.4 Analysis Strategy

Prior to describing the analysis strategy used in the questionnaire component of this study, some comments will be made regarding the types of comparisons conducted in this analysis.

7.4.1 Comparison of Groups

Questionnaires were completed by the HCAs at baseline and after approximately four, eight, and twelve months. Because the researcher was interested in the effect of T.E.A.M. on the HCAs, the data from the treatment facilities (i.e., Facilities A and C) were combined, and the data from the control facilities (i.e., Facilities B and D) were combined. Comparisons were thus made between the treatment and control groups.

7.4.2 Pre- versus Post-Intervention Comparisons

As previously described, this study utilized a staggered start approach. That is, in the treatment group (i.e., Group 1), T.E.A.M. was implemented after Time 1 data were collected. The intervention in Group 2 (i.e., the education and teamwork in-services), was implemented after the Time 2 data were collected. Because of this design, the multivariate analyses that were conducted compared the pre-intervention data with the post-intervention data. 'Pre-intervention' data referred to the data from Time 1 in Group 1 and to the data from Times 1 and 2 in Group 2. 'Post-intervention' data referred to the data from Times 2, 3, and 4 in Group 1 and to the data from Times 3 and 4 for Group 2. A graphical display of analysis strategy is provided in Table 7.4.

Comparison of the pre- and post-intervention data by Group meant that the number of observations in each Group was different at different levels of the repeated factor (i.e., time). In such circumstances, SAS recommends the use of the GLM procedure (SAS Institute Inc., 1988). Consequently, the GLM procedure was used in these analyses.

Table 7.4
Graphical Depiction of Multivariate Analysis Strategy

	Pre-Intervention	Post-Intervention
Treatment Group (i.e., Group 1)	Time 1	Times 2, 3 & 4
Control Group (i.e., Group 2)	Times 1 & 2	Times 3 & 4

7.4.3 Overview of Analysis Strategy

The first step in the analysis was to examine the response rates of the HCAs at each data collection time. This was followed by a description of the study population through univariate and bivariate analyses. The final step in the analysis involved the use of multivariate methods to determine the effect that the implementation of T.E.A.M. had on the HCAs.

Response Rates

It is important to examine the response rates obtained from a study because they indicate whether the results obtained can be generalized within the experimental groupings and to other facilities.

Because of the nature of a long-term care facility, namely how a facility is staffed, the calculation of response rates can be challenging. In the present study, the first issue to be determined was which staff members should be asked to participate in the study. As previously described, it was HCAs who "regularly worked" on each research unit that were selected as the study population within each facility. Response rates were calculated using these groups.

A second challenge faced in calculating the response rates was changes in the study population over time. That is, some HCAs discontinued working at a facility or on a research unit (because of staff cutbacks or because they decided to leave the unit or the facility), and new HCAs began to work on the

unit at different stages of the study. These changes needed to be incorporated in the response rates.

A final challenge was dealing with the schedules of the HCAs. HCAs worked on different days (and sometimes different shifts) and, as a result, it was difficult, and sometimes impossible, to meet face-to-face with each potential research participant at every data collection period. However, scheduling did not pose a significant problem for the questionnaire component of the study since HCAs were asked to complete the questionnaires on their own time and to return the questionnaires (complete or incomplete) to a central location in each facility.

Response rates can be calculated in a variety of ways. In an attempt to portray how the HCAs in each Facility responded, the response patterns (i.e., the number who responded and did not respond at each data collection time) and two types of response rates are presented for each facility.

The first type of response rate represents an overall response rate. It was based on the following comparison:

$$\frac{\textit{the number of HCAs who provided data at any data collection point}}{\textit{the number of HCAs eligible to provide data at any data collection point}}$$

The second type of response rate was a "retention rate" and refers to the ability to maintain participants in the study. It compared:

$$\frac{\textit{the number of HCAs providing data at all 4 data collection points}}{\textit{the number of HCAs eligible to provide data at all 4 data collection points}}$$

In the denominator, 'eligible' referred to HCAs who were working on the unit at the time of data collection and were not absent from work because of a long-term illness or injury. Thus, the denominator did not include those HCAs who had moved from the unit or were absent from work because of a chronic health condition or chronic injury.

Descriptive Data and Bivariate Analyses

The second step in the analysis was to summarize the descriptive data; specifically, the data on demographic characteristics, job characteristics, health habits, health conditions, absenteeism, and occurrence of life events for the HCAs in each facility. These data were then examined to determine whether there were significant differences between the treatment and control groups on any of the descriptive characteristics. If significant differences between the groups existed, this may affect how the findings were interpreted as well as the generalizability of the findings. Thus, where appropriate the data were examined to determine whether significant associations existed between Group (i.e., treatment versus control) and the various characteristics. In conducting these analyses, it was evident that for a number of the variables, the number of subjects within some of the response categories was small. As a result, the data from these variables were collapsed into larger categories. For example, marital status was collapsed into 'married' versus 'not married' (i.e., never married, separated/divorced, widowed, living together). Thus, 2 by 2 contingency tables were created (i.e., Group by characteristic). These data were analyzed using chi-square tests of association. When the chi-square test was not valid (i.e., the number of observations in some cells were less than five), Fisher's exact test was used to determine whether a significant association existed.

Two sample t-tests

Following the summary and analysis of the descriptive data, the data were analyzed to determine whether the means on the various scales/subscales differed between Groups 1 and 2 at baseline. If significant differences existed at baseline between the Groups, this may affect the results and their interpretation. Two-sample *t*-tests were conducted with the following variables at baseline: the MBI subscales, WES subscales, SHARP, and SHS.

Repeated Measures Analysis of Variance

In this study, the structure of the design involved Facilities within Groups, individuals within Facilities, and these individuals were followed over time. Because the number of facilities in the study was relatively small, problems may be presented unless the variability between facilities is not significantly larger than the variability within facilities.

The following terms were included in the repeated measures ANOVA models:

- Group
- Facility(Group)
- HCAs(Facility)
- Time
- Group x Time
- Time x Facility(Group)

Repeated measures ANOVAs were conducted with the MBI and WES subscales to determine whether there were significant Group by Time interactions. Since the Group by Time interaction is a within-facility factor, comparison of the between- to within-facility variability is not a concern. Therefore, the amount of variability remaining in the model (after accounting for all of these factors) was used to examine the Group by Time interaction.

The researcher was interested in the Group by Time interaction since it indicated whether changes over Time in the subscale means were dependent upon Group. Examination of the Group by Time interaction is particularly important because any significant differences between Groups that might exist at baseline are taken into account. When a significant Group by Time interaction was found, the means and standard errors were plotted.

When the Group by Time interaction was not significant, the data were examined to determine whether there was a main effect for Group. In this situation, it is important to compare the between- to within-facility variability. If the between-facility variability was not significantly larger than the within-facility variability, these two sources of variability were pooled to examine the effect of Group. If the

between-facility variability was significantly larger, the Facility(Group) term was used to examine the effect of Group. When a significant main effect was found, the means and standard errors were plotted.

Repeated measures ANOVAs were also conducted with the SHARP and SHS scales. These analyses were not expected to show significant Group by Time interactions, but were conducted to test whether T.E.A.M. had an effect on general personality variables.

Planned Comparisons

One issue of concern in this analysis was that of multiple comparisons. The problem associated with multiple comparisons is that significant results may be found by chance since a number of comparisons are being made. By specifying, a priori, the results expected from all of the comparisons made, this reduces the likelihood that the results obtained occurred by chance (Toothaker, 1993).

Prior to conducting the data analysis, hypotheses were made regarding which subscales would and would not be expected to be affected by T.E.A.M.. Effects were expected to be found with these subscales because the constructs tapped in these subscales were specifically addressed in the T.E.A.M. intervention. However, because T.E.A.M. was a new model of care, it was possible that significant interactions may also be found with other subscales.

Among the subscales in the MBI, the Emotional Exhaustion subscale was expected to be affected by T.E.A.M.. Emotional Exhaustion refers to the feeling of being exhausted by one's work and overextended emotionally (Maslach & Jackson, 1986). This subscale was hypothesized to be affected because one of the aims of T.E.A.M. was to increase the HCAs' participation in decision making. Increasing one's decision-making ability has been found to reduce work-related stress (e.g., Jackson, 1983; Miller et al., 1990). Therefore, it was anticipated that there would be a Group by Time interaction with the Emotional Exhaustion subscale such that over time, the treatment and control facilities would differ in terms of work-related stress.

Only the Emotional Exhaustion subscale of the MBI was hypothesized to be affected by T.E.A.M. because research has found that Emotional Exhaustion is the dimension of burnout which is most likely to be associated with factors that are related to burnout and its effects (Glass, McKnight, & Valdimarsdottir, 1993). It has also been suggested that Emotional Exhaustion may be the first symptom of burnout (Hare & Skinner, 1990).

The following WES subscales were expected to be affected by T.E.A.M.: Autonomy, Work Pressure, Control, and Innovation. Autonomy referred to the degree to which employees were encouraged to make their own decisions and be self-sufficient (Moos, 1986). Since increased participation in decision making was one of the components of T.E.A.M., perceived Autonomy was expected to differ between the HCAs in the treatment and control groups over time.

Work Pressure, which referred to the extent to which the work environment was dominated by time urgency and pressure to get the job done (Moos, 1986), was expected to be affected by T.E.A.M. in a similar way as Emotional Exhaustion. That is, Work Pressure was expected to differ between the treatment and control groups over time.

In T.E.A.M., the HCAs' supervisors were encouraged to give the HCAs more freedom by enabling them to have more input into decisions and by asking them to identify ways of improving the work environment. Thus, perceived Control, which referred to the degree to which rules and pressures were used by management to keep employees under control, was also expected to differ between the HCAs in the treatment and control groups over time.

Finally, T.E.A.M. was expected to have an effect on the Innovation subscale. This subscale referred to the emphasis placed on variety, change, and new approaches. HCAs' perceptions of Innovation were expected to differ over time between the treatment and control groups because T.E.A.M. involved a new method of organizing the work environment, one which encouraged HCAs to find novel methods of improving the environment.

7.5 Missing Data

Over the course of the study, not all participants completed every question or every questionnaire. Consequently, data were missing at each data collection time. If HCAs had not provided complete information regarding their personal characteristics (e.g., their age, whether or not they had been absent from work during the previous month), the data were coded as missing. Alternatively, a HCA may not have completed all of the items on a scale/subscale. If there were more than 25% of the items on a scale/subscale missing for a HCA on any measurement occurrence, the entire scale/subscale was coded as missing. If there were 25% or fewer incomplete scale/subscale items, the score was extrapolated based on the score obtained on the completed items, and the missing item(s) was assigned a value based on the difference between the extrapolated score and the actual score.

7.6 Statistical Package and Significance Level

All of the above analyses were conducted using SAS (SAS Institute Inc., 1988). The significance level used in this study was $p < 0.05$.

CHAPTER 8: QUESTIONNAIRE DATA - RESULTS

8.1 Purpose

The purpose of this chapter is to present the results from the analysis of the HCA questionnaire data. The questionnaire component of the study was one of three components aimed at assessing the impact of the implementation of T.E.A.M.. The other two components of the study involving the qualitative interviews and the physiological indicators of stress, will be discussed in subsequent chapters.

8.2 Response Rates

The response patterns (i.e., the number of HCAs who did and did not respond at each time period) for each facility are shown in Figures 8.1 to 8.4. In these figures, "complete" refers to those HCAs who completed the questionnaires for a particular data collection time point. "Incomplete" refers to HCAs who did not complete the questionnaires at that time point, but completed them for at least one of the other time periods. "Refused" refers to HCAs who refused to participate in the study. "Moved" refers to HCAs who no longer worked on the research unit or no longer worked at the facility. "Ill" refers to HCAs who were ill at the time of data collection. (Ill meaning a long-term illness or being absent from work while on worker's compensation, rather than a short-term illness such as a cold.) "Eligible" refers to HCAs who were not ill and had not moved at a particular data collection point, and who had not refused to participate at a previous data collection point.

Two types of response rates were calculated for each Facility. These rates are presented in Table 8.1. The rate presented in the first row is an overall response rate; it compares the number of HCAs who provided data at any data collection point to the number of HCAs who were eligible to provide data at any data collection point. The rate in the second row represents a retention rate for each facility; in this rate, the number of HCAs who provided data at all four data collection points is compared with the number of

HCAs who were eligible to provide data at all four data collection points.

The response rates obtained using the first calculation are very high for Facilities A and C (95.8% and 100.0 %, respectively), high for Facility B (78.3%), and adequate for Facility D (51.5%). Thus, for Facilities A, B and C, the reader can be confident that the data obtained from these facilities is representative of the study population and can be generalized to that population. Less confidence can be placed in the results from Facility D since the response rate was only adequate. The relatively high refusal rate among the full time day staff at Time 1 largely contributed to this low response rate. Consequently, the results obtained may not be representative of all of the HCAs at Facility D.

The second response rate, or the retention rate, ranged from high in Facility B (70.0%) to adequate in Facilities A and D (53.8% and 50.0%, respectively), to poor in Facility C (33.3%). Much of the reason for the lower rates obtained with this calculation had to do with the fact that a number of HCAs did not complete the questionnaires at every time point, even though they were eligible to do so. This was particularly problematic in Facility C at Time 3 when only two HCAs completed the questionnaires. Failure to complete the questionnaires at each time point may have been related to the amount of time required to complete the task and/or to the fact that data were collected over a one year time period which may have been considered too onerous by some of the HCAs.

8.3 Descriptive Data

8.3.1 Demographic and Job-Related Characteristics

The demographic and job-related characteristics of the HCAs are presented in Table 8.2. The data are presented by Facility for the purpose of description; however, all of the analyses that were conducted involved the comparison of the HCAs in Group 1 to those in Group 2.

Figure 8.1
Response Patterns for Facility A: Staff Questionnaires

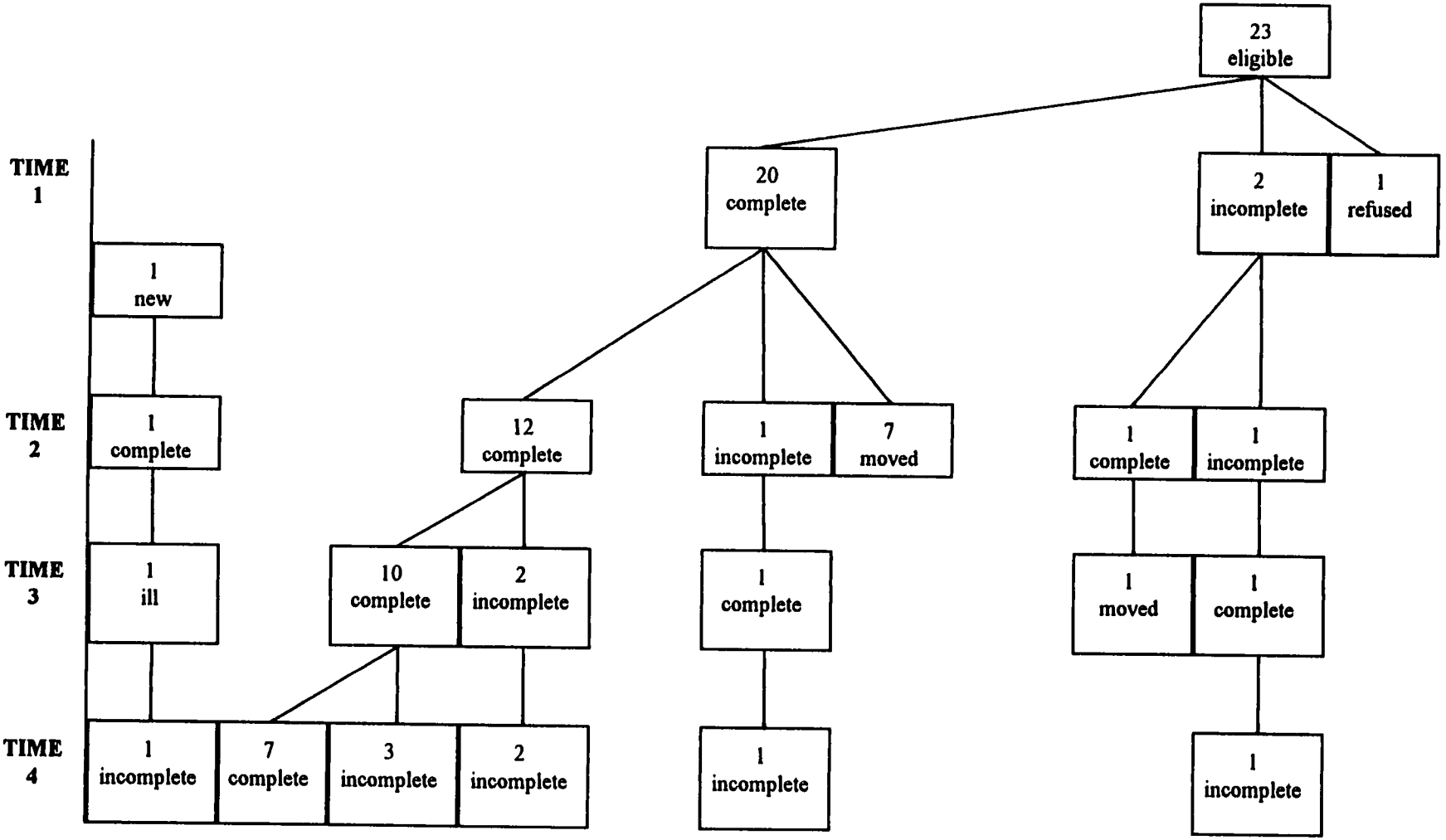


Figure 8.2
Response Patterns for Facility C: Staff Questionnaires

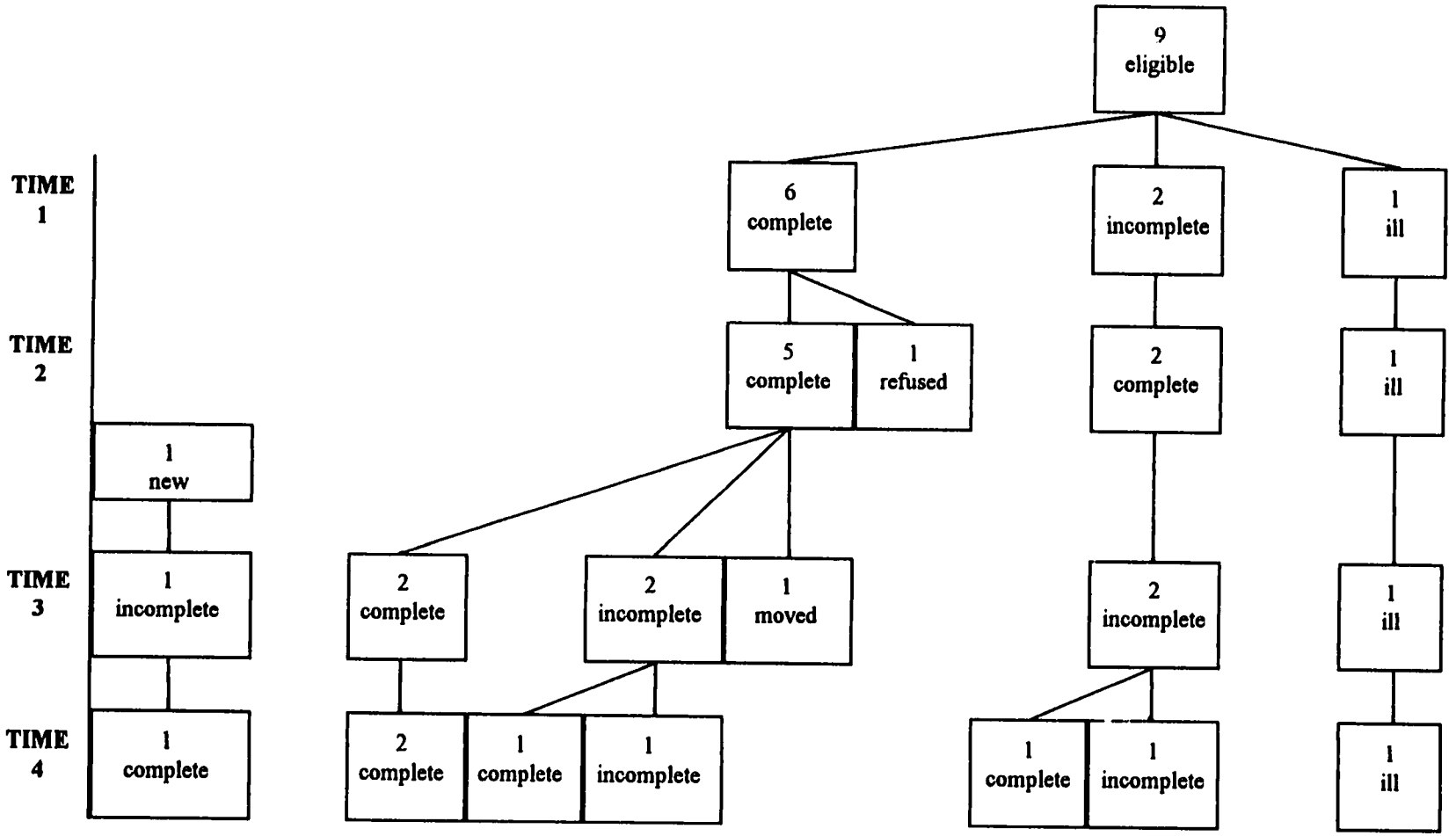


Figure 8.3
Response Patterns for Facility B: Staff Questionnaires

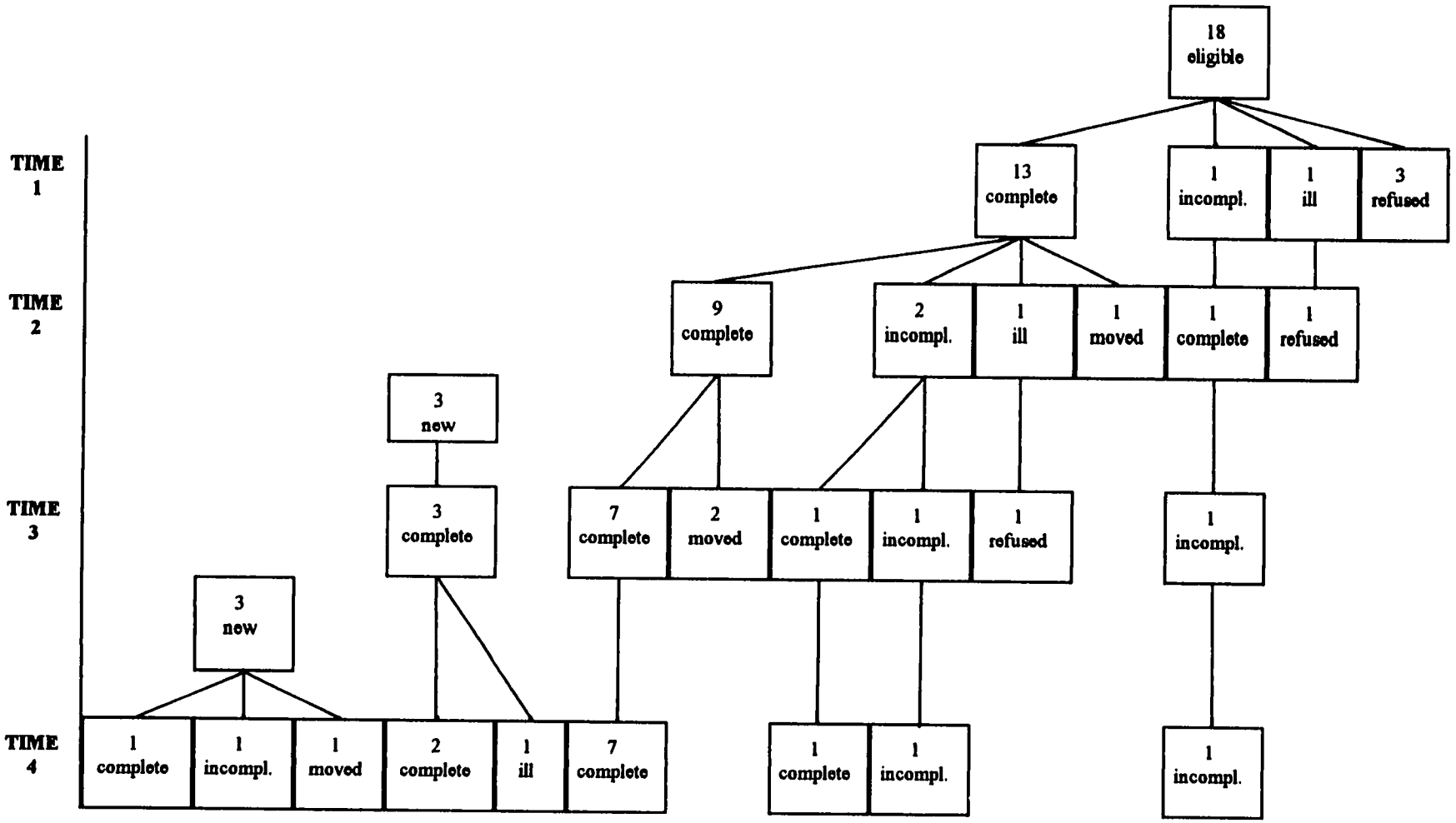


Figure 8.4
Response Patterns for Facility D: Staff Questionnaires

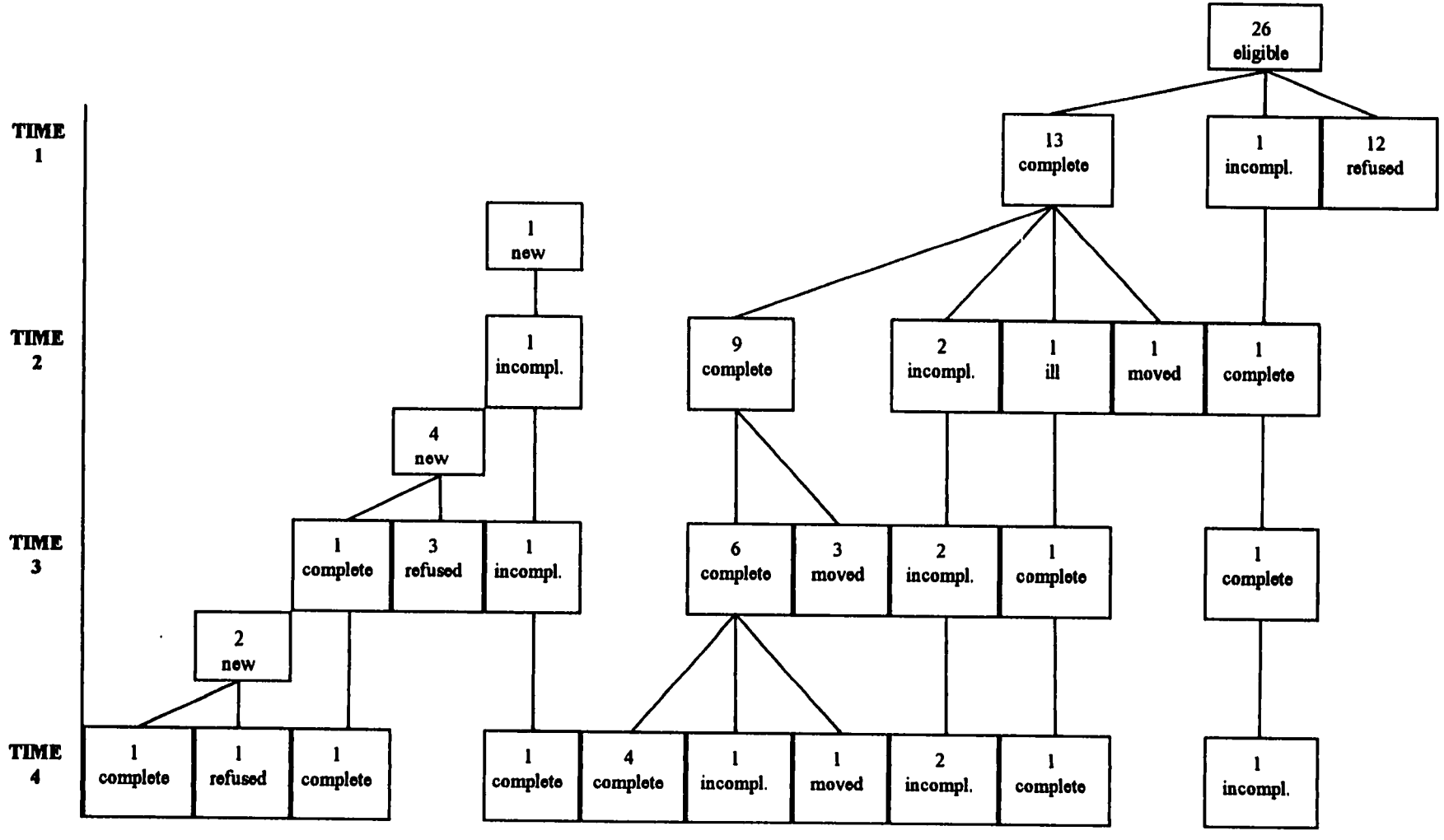


Table 8.1
Response Rates for Staff Questionnaires by Facility

RESPONSE RATE	GROUP 1		GROUP 2	
	FACILITY A	FACILITY C	FACILITY B	FACILITY D
# giving data at any point / # eligible at any point	95.8 % (23/24)	100.0 % (9/9)	78.3 % (18/23)	51.5 % (17/33)
# giving data at all 4 points / # eligible to give data at all 4 points	53.8 % (7/13)	33.3 % (2/6)	70.0 % (7/10)	50.0 % (4/8)

The data on demographic and job-related characteristics were examined to determine if there were significant associations between these characteristics and Group. Chi-square tests were used to test the significance of these associations. In situations where the chi-square test may not have been valid (i.e., when the number of observations in some cells was less than five), Fisher's exact test (two-tailed) was used to indicate whether an association existed. The results from these analyses are found in Table 8.3.

The majority of the HCAs participating in all of the facilities were female and had either 'some college' education or had 'completed college'. No significant association was found between gender and Group (i.e., Fisher's: $p = 0.176$). The data on education were also examined to determine whether there was an association with Group. Two comparisons were examined: (1) HCAs who had 'some high school' education or had 'completed high school' were compared with HCAs with at least 'some college' education and (2) HCAs who had at most 'some college' education were compared with HCAs who had at least 'completed college'. Neither of these associations were significant (i.e., $\chi^2(1) = 1.132$ and $\chi^2(1) = 0.220$, respectively).

In terms of age, comparisons were made between HCAs who were 'less than 40 years of age' versus those '40 and over,' and between HCAs who were 'less than 50 years of age' and those who were '50 and over'. There were no significant associations found between age and Group, for either comparison (i.e., $\chi^2(1) = 0.772$ and $\chi^2(1) = 0.551$, respectively).

In terms of marital status, the association between Group and HCAs who were 'married' versus 'not married' (i.e., never married, living together, separated/divorced or widowed) was examined. A significant association was found ($\chi^2(1) = 9.418$, $p < 0.01$) which indicated that the HCAs in Group 2 were more likely to be married than those in Group 1.

Table 8.2
Demographic and Employment Characteristics of Participating HCAs

	GROUP 1		GROUP 2	
	Facility A (N=22)	**Facility C (N=9)**	**Facility B (N=18)**	**Facility D (N=17)**
GENDER				
Male	13.6 (3)	11.1 (1)	0.0 (0)	5.9 (1)
Female	77.3 (17)	88.9 (8)	100.0 (18)	82.4 (14)
AGE				
20 - 29 years	13.6 (3)	0.0 (0)	5.6 (1)	11.8 (2)
30 - 39 years	31.8 (7)	0.0 (0)	16.7 (3)	58.8 (10)
40 - 49 years	22.7 (5)	44.4 (4)	44.4 (8)	11.8 (2)
50 - 59 years	22.7 (5)	22.2 (2)	27.8 (5)	5.9 (1)
MARITAL STATUS				
Married	31.8 (7)	44.4 (4)	83.3 (15)	64.7 (11)
Never Married	27.3 (6)	22.2 (2)	5.6 (1)	11.8 (2)
Separated/Divorced	27.3 (6)	0.0 (0)	5.6 (1)	5.9 (1)
Widowed	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Living together	4.5 (1)	0.0 (0)	0.0 (0)	5.9 (1)
EDUCATION				
Some high school	18.2 (4)	11.1 (1)	16.7 (3)	5.9 (1)
High school	9.1 (2)	11.1 (1)	11.1 (2)	0.0 (0)
Some college	27.3 (6)	33.3 (3)	38.9 (7)	35.3 (6)
College	27.3 (6)	11.1 (1)	16.7 (3)	35.3 (6)
Some university	4.5 (1)	0.0 (0)	5.6 (1)	11.8 (2)
University	4.5 (1)	0.0 (0)	5.6 (1)	0.0 (0)
CHILDREN				
No	27.3 (6)	11.1 (1)	5.6 (1)	23.5 (4)
Yes	63.6 (14)	55.6 (5)	88.9 (16)	64.7 (11)
LANGUAGE				
English	90.9 (20)	55.6 (5)	94.4 (17)	76.5 (13)
French	4.5 (1)	0.0 (0)	0.0 (0)	5.9 (1)
Other	0.0 (0)	11.1 (1)	0.0 (0)	11.8 (2)

* Percentages may not total 100% because of missing values.

Table 8.2 (cont.)
Demographic and Employment Characteristics of Participating HCAs

	GROUP 1		GROUP 2	
	Facility A (N=22)	Facility C (N=9)	Facility B (N=18)	Facility D (N=17)
ETHNICITY*				
Canadian	31.8 (7)	22.2 (2)	38.9 (7)	47.1 (8)
African Canadian	4.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
English	45.5 (10)	55.6 (5)	61.1 (11)	41.2 (7)
French	0.0 (0)	0.0 (0)	5.6 (1)	11.8 (2)
German	0.0 (0)	22.2 (2)	0.0 (0)	0.0 (0)
Portuguese	4.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Chinese	4.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Irish	9.1 (2)	33.3 (3)	5.6 (1)	11.8 (2)
Scottish	9.1 (2)	0.0 (0)	11.1 (2)	5.9 (1)
Italian	4.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Ukrainian	0.0 (0)	0.0 (0)	0.0 (0)	5.9 (1)
East Indian	4.5 (1)	0.0 (0)	0.0 (0)	0.0 (0)
Other	31.8 (7)	11.1 (1)	5.6 (1)	23.5 (4)
YEARS OF EXPERIENCE				
5 years or less	36.4 (8)	0.0 (0)	0.0 (0)	41.2 (7)
6 - 10 years	27.3 (6)	0.0 (0)	66.7 (12)	23.5 (4)
11 - 15 years	9.1 (2)	11.1 (1)	16.7 (3)	11.8 (2)
16 - 20 years	18.2 (4)	33.3 (3)	11.1 (2)	11.8 (2)
> 20 years	0.0 (0)	22.2 (2)	0.0 (0)	0.0 (0)
EMPLOYMENT				
Full time	68.2 (15)	100.0 (9)	38.9 (7)	35.3 (6)
Part time	18.2 (4)	0.0 (0)	55.6 (10)	70.6 (12)
Casual	13.6 (3)	0.0 (0)	11.1 (2)	0.0 (0)
SHIFT				
Days	27.3 (6)	66.7 (6)	5.6 (1)	35.3 (6)
Evenings	13.6 (3)	11.1 (1)	27.8 (5)	47.1 (8)
Nights	27.3 (6)	22.2 (2)	16.7 (3)	23.5 (4)
3 shift rotation	9.1 (2)	0.0 (0)	0.0 (0)	0.0 (0)
2 shift rotation	0.0 (0)	0.0 (0)	50.0 (9)	0.0 (0)
Other**	22.7 (5)	0.0 (0)	5.6 (1)	0.0 (0)

* Percentages may exceed 100% because some participants gave more than 1 response.
** 'Other' refers to 'short shifts' (i.e. 4 or 5 hour shifts scheduled during busy times).

Table 8.2 (cont.)
Demographic and Employment Characteristics of Participating HCAs

	GROUP 1		GROUP 2	
	Facility A (N=22)	**Facility C (N=9)**	**Facility B (N=18)**	**Facility D (N=17)**
HCA CERTIFICATE				
Yes	86.4 (19)	66.7 (6)	88.9 (16)	88.2 (15)
No	4.5 (1)	0.0 (0)	5.6 (1)	0.0 (0)
NUMBER OF YEARS WITH CERTIFICATE				
Mean	7.7 years	11.2 years	6.9 years	8.8 years
SD	5.6	2.4	3.7	5.4
Range	1 - 18 years	8 - 14 years	4 - 18 years	2 - 20 years
N	19	6	16	15
TRAINING IN DEMENTIA CARE				
Yes	86.4 (19)	66.7 (6)	83.3 (15)	82.4 (14)
No	4.5 (1)	0.0 (0)	11.1 (2)	5.9 (1)
SOURCE OF TRAINING *				
HCA course				
Yes	77.3 (17)	66.7 (6)	77.8 (14)	52.9 (9)
No	9.1 (2)	0.0 (0)	5.6 (1)	29.4 (5)
In-services				
Yes	45.5 (10)	55.6 (5)	72.2 (13)	76.5 (13)
No	40.9 (9)	11.1 (1)	11.1 (2)	5.9 (1)
Other staff				
Yes	18.2 (4)	0.0 (0)	33.3 (6)	41.2 (7)
No	68.2 (15)	66.7 (6)	50.0 (9)	41.2 (7)
Alzheimer Society				
Yes	0.0 (0)	11.1 (1)	38.9 (7)	23.5 (4)
No	86.4 (19)	55.6 (5)	44.4 (8)	58.8 (10)
Other				
Yes	13.6 (3)	33.3 (3)	22.2 (4)	17.6 (3)
No	72.7 (16)	33.3 (3)	61.1 (11)	64.7 (11)

* Numbers may not sum to column totals because not all participants had training in dementia.

Table 8.3
Results of Associations Between Demographic and Job Characteristics and Group

Comparison	Test of Association
Gender by Group	Fisher's: p = 0.176
Age by Group < 40 yrs vs. 40 yrs or over < 50 yrs vs. 50 yrs or over	 $\chi^2(1) = 0.772$ $\chi^2(1) = 0.551$
Marital Status by Group married vs. other	 $\chi^2(1) = 9.623$ **
Children (yes/no) by Group	$\chi^2(1) = 1.116$
Language by Group English vs. other	 Fisher's: p = 1.000
Ethnicity by Group Canadian vs. other	 $\chi^2(1) = 1.534$
Number of years employed in LTC Facility by Group 5 yrs or less vs. more than 5 yrs 10 yrs or less vs. more than 10 yrs	 $\chi^2(1) = 0.592$ $\chi^2(1) = 2.109$
Number of years with a HCA certificate by Group 5 yrs or less vs. more than 5 yrs 9 yrs or less vs. more than 9 yrs	 $\chi^2(1) = 0.500$ $\chi^2(1) = 3.019$
Education by Group some/completed high school vs. some college or more some college or less vs. completed college or more	 $\chi^2(1) = 1.132$ $\chi^2(1) = 0.220$
Employment Status by Group full time HCA vs. part-time or casual HCA	 $\chi^2(1) = 12.158$ ***
Shift vs. Group rotation between shifts vs. no rotation	 $\chi^2(1) = 3.974$ *

Group 1 refers to Facilities A and C; Group 2 refers to Facilities B and D.
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

In terms of the number of years employed in a long-term care facility, Group comparisons were made between HCAs working '5 years or less' and those working 'more than 5 years', and between HCAs working '10 years or less' compared with those working 'more than 10 years'. Neither of these associations were significant (i.e., $\chi^2(1) = 0.592$ and $\chi^2(1) = 2.109$, respectively).

Finally, there was no significant association between Group and the number of years with a HCA certificate. Comparisons were made between HCAs who had their HCA certificate for '5 years or less' and those with a certificate for 'more than 5 years', as well as HCAs with a HCA certificate for '9 years or less' and those with a certificate for 'more than 9 years' (i.e., $\chi^2(1) = 0.500$ and $\chi^2(1) = 3.019$, respectively).

Upon examining the employment status of the HCAs in the study, it was of note that the majority of HCAs in Group 1 were full time and the majority of HCAs in Group 2 were part-time. In terms of an association between Group and employment status, a comparison was made between HCAs who were 'full time' and those who were 'part time or casual'; a significant association was found ($\chi^2(1) = 12.158$, $p < 0.01$).

HCAs from all shifts participated in the study. Upon examining the shift variable, it was apparent that the majority of the HCAs in Facility B rotated between two shifts (typically between the day and evening shifts) whereas the majority of the HCAs in the other facilities worked on only one shift. When the association between Group and shift (i.e., rotation versus no rotation) was examined, a significant association was found, ($\chi^2(1) = 3.974$, $p < 0.05$); that is, HCAs in Group 2 were more likely to rotate between shifts than HCAs in Group 1.

In terms of training in dementia care, the majority of HCAs in all facilities had such training. This training was provided by a variety of sources including college-level HCA courses, facility in-services, and other staff members.

Overall, the HCAs in Groups 1 and 2 were very similar. The HCAs in Group 2 were more likely

to be married than those in Group 1; however, this difference was not expected to affect the intervention or its likelihood of success. Differences between Groups in terms of employment status and whether or not one rotated between shifts may affect the level of stress experienced and/or one's perception of the work environment. Such differences will need to be considered when interpreting results.

8.3.2 Summary of Health Conditions, Medications, and Life Events

At each time point, participants were asked about the existence of long-term health conditions, the use of medications, and the occurrence of various life events in the previous four months. A summary of these data is found in Tables 8.4(a) to 8.4(d). Because the distributions of these data were skewed median values and scores at the twenty-fifth and seventy-fifth percentiles are presented. Median values were used because the median is less affected by extreme scores and is therefore more likely to reflect the "typical" scores (Evans, 1996).

The data were analyzed at each time point to determine whether significant associations existed between Group and the number of health conditions, the number of medications taken in the previous month, the number of medications taken at least once a week in the previous four weeks, and the number of life events occurring in the previous four months. In order to examine these associations, the health conditions, medications, and life events variables were categorized and two sets of comparisons were made: (1) 'none' versus '1 or more' and (2) 'none or 1' versus '2 or more'. There were no significant associations found between the health conditions, medications, or life events variables and Group at any time point for either comparison (see Table 8.5). Thus, the HCAs in the two Groups were similar in terms of the number of chronic health conditions they had, the number of medications taken, and the number of life events experienced, throughout the study.

Table 8.4(a)
Number of Health Conditions Reported by HCAs, by Group and Time

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Time 1	Q3 2 median 1 Q1 0 range 0 - 6 N 16	Q3 3 median 1 Q1 0 range 0 - 3 N 5	Q3 2 median 2 Q1 0 range 0 - 4 N 11	Q3 1 median 0 Q1 0 range 0 - 4 N 13
Time 2	Q3 2 median 1 Q1 0 range 0 - 3 N 13	Q3 1 median 1 Q1 0 range 0 - 2 N 6	Q3 2 median 2 Q1 0 range 0 - 7 N 9	Q3 1.5 median 1 Q1 0 range 0 - 4 N 8
Time 3	Q3 2 median 0 Q1 0 range 0 - 2 N 11	Q3 3 median 1.5 Q1 0 range 0 - 3 N 2	Q3 2 median 1 Q1 0 range 0 - 3 N 10	Q3 1 median 0.5 Q1 0 range 0 - 1 N 6
Time 4	Q3 2 median 0.5 Q1 0 range 0 - 2 N 6	Q3 0 median 0 Q1 0 range 0 N 4	Q3 2 median 1 Q1 0 range 0 - 4 N 11	Q3 2 median 1 Q1 0 range 0 - 2 N 8

* Health conditions include: (1) skin allergies or other skin diseases, (2) hay fever or other allergies, (3) back pain, (4) arthritis or rheumatism, (5) other serious problems with joints or bones, (6) asthma, (7) emphysema or cough bronchitis or persistent cough, (8) epilepsy, (9) high blood pressure or hypertension, (10) circulatory problems, (11) heart disease, (12) non-insulin-dependent diabetes, (13) insulin-dependent diabetes, (14) urinary problems or kidney disease, (15) stomach or intestine ulcer, (16) other digestive problems, (17) goitre or thyroid problems, (18) eye problems (e.g. glaucoma, cataract), and (19) cancer.
** Q1 refers to the 25th percentile of the range of values; Q3 refers to the 75th percentile of the range of values.

Table 8.4(b)
Number of Medications Taken in the Previous Four Weeks, by Group and Time

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Time 1	Q3 3 median 2 Q1 1 range 0 - 4 N 19	Q3 3 median 3 Q1 3 range 2 - 4 N 6	Q3 3 median 2 Q1 1 range 1 - 5 N 13	Q3 3 median 2 Q1 1 range 0 - 5 N 13
Time 2	Q3 2 median 2 Q1 1 range 0 - 5 N 13	Q3 3 median 1 Q1 1 range 0 - 3 N 7	Q3 3 median 2 Q1 1 range 1 - 6 N 10	Q3 3 median 2 Q1 2 range 1 - 4 N 10
Time 3	Q3 3 median 2 Q1 1 range 1 - 3 N 11	Q3 4 median 2.5 Q1 1 range 1 - 4 N 2	Q3 3 median 2 Q1 0 range 0 - 5 N 10	Q3 3 median 2 Q1 1 range 1 - 3 N 8
Time 4	Q3 3 median 1 Q1 1 range 0 - 4 N 6	Q3 2 median 1 Q1 1 range 1 - 2 N 3	Q3 2.5 median 2 Q1 1 range 1 - 5 N 11	Q3 2 median 1 Q1 1 range 0 - 4 N 8

* Medications include: (1) pain relievers (e.g. Aspirin, Advil, Tylenol), (2) medicine for the heart or blood pressure, (3) stomach remedies or laxatives, (4) tranquilizers or sleeping pills, (5) penicillin or other antibiotics, (6) cough or cold remedies, (7) allergy medicine or antihistamines, (8) codeine demerol, or morphine, (9) anti-depressants, (10) diet pills or stimulants, and (11) vitamins.
** Q1 refers to the 25th percentile of the range of values; Q3 refers to the 75th percentile of the range of values.

Table 8.4(c)
Number of Medications Taken At Least Once a Week in the Previous Four Weeks, by Group and Time

	GROUP 1		GROUP 2	
	Facility A	Facility C	Facility B	Facility D
Time 1	Q3 3 median 1 Q1 0.5 range 0 - 4 N 14	Q3 2 median 2 Q1 1 range 0 - 4 N 5	Q3 1 median 1 Q1 1 range 0 - 3 N 12	Q3 2 median 1.5 Q1 1 range 0 - 3 N 13
Time 2	Q3 1.5 median 1 Q1 0.5 range 0 - 4 N 11	Q3 3 median 1 Q1 0 range 0 - 3 N 7	Q3 2 median 1 Q1 1 range 0 - 6 N 10	Q3 2 median 1 Q1 1 range 1 - 3 N 10
Time 3	Q3 2 median 1 Q1 1 range 1 - 3 N 11	Q3 4 median 2.5 Q1 1 range 1 - 4 N 2	Q3 2 median 1.5 Q1 0 range 0 - 4 N 9	Q3 2 median 2 Q1 1 range 0 - 3 N 7
Time 4	Q3 1 median 1 Q1 0 range 0 - 3 N 7	Q3 1 median 1 Q1 1 range 1 N 3	Q3 2 median 1 Q1 0 range 0 - 5 N 10	Q3 1 median 1 Q1 0 range 0 - 2 N 8

* Medications include: (1) pain relievers (e.g. Aspirin, Advil, Tylenol), (2) medicine for the heart or blood pressure, (3) stomach remedies or laxatives, (4) tranquilizers or sleeping pills, (5) penicillin or other antibiotics, (6) cough or cold remedies, (7) allergy medicine or antihistamines, (8) codeine demerol, or morphine, (9) anti-depressants, (10) diet pills or stimulants, and (11) vitamins.

** Q1 refers to the 25th percentile of the range of values; Q3 refers to the 75th percentile of the range of values.

Table 8.4(d)
Number of Life Events Occurring in the Previous Four Months, by Group and Time

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Time 1	Q3 2 median 1 Q1 0 range 0 - 5 N 15	Q3 2 median 1 Q1 0 range 0 - 3 N 6	Q3 2 median 1 Q1 0 range 0 - 4 N 13	Q3 2 median 1 Q1 0 range 0 - 4 N 13
Time 2	Q3 2 median 1 Q1 0 range 0 - 4 N 13	Q3 1 median 0 Q1 0 range 0 - 1 N 6	Q3 1 median 1 Q1 0 range 0 - 4 N 10	Q3 2 median 1 Q1 0 range 0 - 3 N 9
Time 3	Q3 2 median 1 Q1 0 range 0 - 3 N 12	Q3 0 median 0 Q1 0 range 0 N 2	Q3 1 median 1 Q1 0 range 0 - 2 N 9	Q3 2 median 1 Q1 0 range 0 - 3 N 8
Time 4	Q3 1 median 0 Q1 0 range 0 - 2 N 6	Q3 1 median 0.5 Q1 0 range 0 - 1 N 4	Q3 1 median 1 Q1 0 range 0 - 2 N 9	Q3 2 median 0 Q1 0 range 0 - 3 N 8

* Life Events include: (1) death of a close family member, (2) change in the health or behaviour of a family member, (3) gain of a new family member, (4) changed financial state, (5) death of a close friend, (6) change in living conditions, (7) marriage, (8) foreclosure on a loan or mortgage, (9) pregnancy, (10) in-law troubles, (11) son or daughter left home.

** Q1 refers to the 25th percentile of the range of values; Q3 refers to the 75th percentile of the range of values.

Table 8.5
Results of Associations Between Health Conditions, Medications and Life Events and Group

Comparison	Test of Association
Health Conditions by Group	
Time 1: none vs. 1 or more	$\chi^2(1) = 0.060$
Time 1: none or 1 vs. 2 or more	$\chi^2(1) = 0.085$
Time 2: none vs. 1 or more	$\chi^2(1) = 0.009$
Time 2: none or 1 vs. 2 or more	$\chi^2(1) = 0.358$
Time 3: none vs. 1 or more	$\chi^2(1) = 0.293$
Time 3: none or 1 vs. 2 or more	Fisher's: p = 0.667
Time 4: none vs. 1 or more	Fisher's: p = 0.245
Time 4: none or 1 vs. 2 or more	Fisher's: p = 0.431
Medications by Group	
Time 1: none vs. 1 or more	Fisher's: p = 0.610
Time 1: none or 1 vs. 2 or more	$\chi^2(1) = 1.238$
Time 2: none vs. 1 or more	Fisher's: p = 0.487
Time 2: none or 1 vs. 2 or more	$\chi^2(1) = 1.758$
Time 3: none vs. 1 or more	Fisher's: p = 0.497
Time 3: none or 1 vs. 2 or more	Fisher's: p = 0.452
Time 4: none vs. 1 or more	Fisher's: p = 1.000
Time 4: none or 1 vs. 2 or more	Fisher's: p = 0.435
Weekly Medications in the Previous 4 weeks by Group	
Time 1: none vs. 1 or more	Fisher's: p = 1.000
Time 1: none or 1 vs. 2 or more	$\chi^2(1) = 0.003$
Time 2: none vs. 1 or more	Fisher's: p = 0.170
Time 2: none or 1 vs. 2 or more	$\chi^2(1) = 0.077$
Time 3: none vs. 1 or more	Fisher's: p = 0.107
Time 3: none or 1 vs. 2 or more	$\chi^2(1) = 0.909$
Time 4: none vs. 1 or more	Fisher's: p = 0.669
Time 4: none or 1 vs. 2 or more	Fisher's: p = 0.194
Life Events by Group	
Time 1: none vs. 1 or more	$\chi^2(1) = 0.195$
Time 1: none or 1 vs. 2 or more	$\chi^2(1) = 0.132$
Time 2: none vs. 1 or more	$\chi^2(1) = 0.432$
Time 2: none or 1 vs. 2 or more	$\chi^2(1) = 0.000$
Time 3: none vs. 1 or more	$\chi^2(1) = 2.584$
Time 3: none or 1 vs. 2 or more	Fisher's: p = 1.000
Time 4: none vs. 1 or more	Fisher's: p = 1.000
Time 4: none or 1 vs. 2 or more	Fisher's: p = 1.000

Group 1 refers to Facilities A and C; Group 2 refers to Facilities B and D.
*$p < 0.05$; **$p < 0.01$

8.3.3 Health Habits

Data on the health habits of the HCAs are found in Table 8.6. Again, the associations between the various health habits variables and Group were examined at each time point using chi-square (or Fisher's exact) tests (see Table 8.7).

Examination of current smoking status revealed that there was no association between this variable and Group at any time point. The same was true when previous smoking status among current non-smokers and Group was examined; there were no significant associations found.

In terms of participation in physical activities, a relatively high percentage of HCAs in each facility reported that they participated in physical activities outside of work. The average number of times participants exercised per week ranged from 2.3 to 7.0 times and the number of minutes spent exercising ranged from 30 to 137 minutes. There were no significant associations between participation in exercise and Group at any time point.

The majority of HCAs reported drinking caffeinated beverages regularly. The average number of cups consumed per day ranged from 2.6 to 7.0. On the other hand, the majority of HCAs reported that they consumed alcoholic beverages infrequently. Most indicated that they consumed alcohol 'less than once per month' or '1 or 2 times per month'. There were no significant associations between caffeine (i.e., consumed caffeinated beverages versus did not consume caffeinated beverages) and Group or between alcohol consumption (i.e., consumed alcohol versus did not consume alcohol) and Group at any time point.

Thus, the HCAs in Groups 1 and 2 were similar with respect to their health habits and behaviours throughout the study.

Table 8.6
Health Habits of HCAs, by Group

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Current Smoker *				
Time 1	10.5 (2/19)	83.3 (5/6)	46.2 (6/13)	46.2 (6/13)
Time 2	21.4 (3/14)	57.1 (4/7)	40.0 (4/10)	40.0 (4/10)
Time 3	33.3 (4/12)	100.0 (2/2)	54.5 (6/11)	50.0 (4/8)
Time 4	42.9 (3/7)	60.0 (3/5)	54.5 (6/11)	25.0 (2/8)
Number of cigarettes smoked				
Time 1	15.5	18.0	18.0	17.0
mean	13.4	4.9	9.7	2.7
SD	6 - 25	10 - 23	6 - 30	15 - 20
range	2	5	6	5
N				
Time 2	17.0	22.5	19.8	17.0
mean	9.8	2.9	8.6	9.1
SD	6 - 25	20 - 25	9 - 30	5 - 25
range	3	4	4	4
N				
Time 3	14.5	21.5	16.5	14.8
mean	6.8	4.9	7.6	6.2
SD	6 - 20	18 - 25	6 - 25	6 - 20
range	4	2	6	4
N				
Time 4	14.7	19.0	16.7	16.5
mean	8.5	5.3	7.4	2.1
SD	6 - 23	15 - 25	6 - 25	15 - 18
range	3	3	6	2
N				

* Percentages are calculated using the number of individuals completing this question at each time point as the denominator.

Table 8.6 (cont.)
Health Habits of HCAs, by Group

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Previous Smoker *				
Time 1				
Yes	41.2 (7/17)	0.0 (0/1)	14.3 (1/7)	42.9 (3/7)
No	52.6 (10/17)	100.0 (1/1)	85.7 (6/7)	57.1 (4/7)
Time 2				
Yes	54.5 (6/11)	33.3 (1/3)	16.7 (1/6)	66.7 (4/6)
No	36.3 (4/11)	66.7 (2/3)	83.3 (5/6)	33.3 (2/6)
Time 3				
Yes	37.5 (3/8)	N/A	0.0 (0/5)	50.0 (2/4)
No	62.5 (5/8)	N/A	80.0 (4/5)	50.0 (2/4)
Time 4				
Yes	50.0 (2/4)	0.0 (0/2)	20.0 (1/5)	66.7 (4/6)
No	25.0 (1/4)	100.0 (2/2)	80.0 (4/5)	33.3 (2/6)
Number of years since you quit				
Time 1	8.5	N/A	19.0	11.0
mean	11.9	N/A	0.0	5.6
SD	1 - 32	N/A	N/A	3 - 16
range	6	0	1	4
N				
Time 2	10.4	2.0	3.0	11.3
mean	11.2	0.0	0.0	5.9
SD	2 - 30	N/A	N/A	3 - 17
range	5	1	1	4
N				
Time 3	15.0	N/A	N/A	10.0
mean	15.9	N/A	N/A	8.5
SD	3 - 33	N/A	N/A	4 - 16
range	3	0	0	2
N				
Time 4	19.5	N/A	25.0	9.7
mean	14.8	N/A	0.0	5.5
SD	9 - 30	N/A	N/A	4 - 15
range	2	0	1	3
N				

* Percentages calculated using self-reported non-smokers as the denominator.
** Percentages may not sum to 100% because of missing values.

Table 8.6 (cont.)
Health Habits of HCAs, by Group

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Participate in Exercise *				
Time 1	63.2 (12/19)	66.7 (4/6)	53.8 (7/13)	38.5 (5/13)
Time 2	78.6 (11/14)	57.1 (4/7)	60.0 (6/10)	60.0 (6/10)
Time 3	80.0 (8/10)	50.0 (1/2)	63.6 (7/11)	62.5 (5/8)
Time 4	100.0 (5/5)	20.0 (1/5)	45.5 (5/11)	75.0 (6/8)
Number of times you exercise each week				
Time 1				
mean	3.7	4.3	4.6	3.8
SD	1.6	1.2	1.5	2.2
range	2 - 7	3 - 5	2 - 7	2 - 7
N	10	3	7	5
Time 2				
mean	4.7	3.8	4.3	3.2
SD	2.1	2.4	1.0	2.0
range	2 - 7	2 - 7	3 - 6	1 - 7
N	10	4	6	6
Time 3				
mean	4.4	3.0	4.3	2.3
SD	1.6	0.0	1.6	0.6
range	3 - 7	N/A	2 - 7	2 - 3
N	8	1	7	3
Time 4				
mean	3.6	7.0	4.6	4.5
SD	1.5	0.0	1.7	1.4
range	2 - 6	N/A	3 - 7	2 - 6
N	5	1	5	6

* Percentages are calculated using the number of individuals completing this question at each time point as the denominator.

Table 8.6 (cont.)
Health Habits of HCAs, by Group

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Length of time you exercise (minutes)				
Time 1				
mean	45.6	45.0	43.6	60.0
SD	17.8	19.1	14.9	21.2
range	25 - 75	20 - 60	20 - 60	30 - 90
N	9	4	7	5
Time 2				
mean	43.0	38.8	31.7	42.0
SD	27.1	15.5	17.8	19.6
range	10 - 90	25 - 60	15 - 60	15 - 60
N	10	4	6	5
Time 3				
mean	52.5	30.0	42.1	136.7
SD	34.7	0.0	19.5	193.5
range	20 - 120	N/A	10 - 60	20 - 360
N	8	1	7	3
Time 4				
mean	40.0	30.0	41.0	79.2
SD	27.2	0.0	26.1	81.0
range	20 - 85	N/A	10 - 60	25 - 240
N	5	1	5	6

Table 8.6 (cont.)
Health Habits of HCAs, by Group

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Drink coffee, tea, cola *				
Time 1	100.0 (19/19)	100.0 (6/6)	84.6 (11/13)	84.6 (11/13)
Time 2	92.9 (13/14)	100.0 (7/7)	90.0 (9/10)	90.0 (9/10)
Time 3	100.0 (11/11)	100.0 (2/2)	100.0 (11/11)	87.5 (7/8)
Time 4	83.3 (5/6)	100.0 (5/5)	100.0 (11/11)	87.5 (7/8)
Number of cups consumed per day				
Time 1	3.4	5.7	4.5	3.5
mean	2.2	1.5	2.0	1.8
SD	1 - 10	4 - 8	2 - 8	1 - 7
range	18	6	11	11
Time 2	3.4	5.8	3.9	2.9
mean	3.6	2.4	1.3	1.5
SD	1 - 15	3 - 10	2 - 6	1 - 5
range	13	6	7	9
Time 3	2.7	7.0	4.5	3.4
mean	1.1	1.4	1.5	1.6
SD	1 - 5	6 - 8	3 - 7	1 - 6
range	11	2	10	7
Time 4	2.6	4.6	4.5	2.9
mean	1.1	2.7	1.8	1.1
SD	1 - 4	1 - 8	3 - 8	1 - 4
range	5	5	11	7

* Percentages are calculated using the number of individuals completing this question at each time point as the denominator.

Table 8.6 (cont.)
Health Habits of HCAs, by Group

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
How often consume alcohol *				
Time 1				
everyday	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
4-6 times/week	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
2-3 times/week	5.6 (1)	16.7 (1)	7.7 (1)	15.4 (2)
1 time/week	5.6 (1)	16.7 (1)	0.0 (0)	0.0 (0)
1-2 times/month	22.2 (4)	0.0 (0)	7.7 (1)	15.4 (2)
<1 time/month	27.8 (5)	66.7 (4)	61.5 (8)	38.5 (5)
do not drink	38.9 (7)	0.0 (0)	23.1 (3)	30.8 (4)
Time 2				
everyday	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
4-6 times/week	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
2-3 times/week	0.0 (0)	14.3 (1)	0.0 (0)	20.0 (2)
1 time/week	28.6 (4)	14.3 (1)	10.0 (1)	0.0 (0)
1-2 times/month	14.3 (2)	28.6 (2)	30.0 (3)	20.0 (0)
<1 time/month	35.7 (5)	14.3 (1)	30.0 (3)	30.0 (3)
do not drink	21.4 (3)	28.6 (2)	30.0 (3)	30.0 (3)
Time 3				
everyday	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
4-6 times/week	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
2-3 times/week	0.0 (0)	0.0 (0)	9.1 (1)	0.0 (0)
1 time/week	27.3 (3)	0.0 (0)	18.2 (2)	0.0 (0)
1-2 times/month	27.3 (3)	50.0 (1)	9.1 (1)	25.0 (2)
<1 time/month	36.4 (4)	50.0 (1)	54.5 (6)	25.0 (2)
do not drink	9.1 (1)	0.0 (0)	9.1 (1)	50.0 (4)
Time 4				
everyday	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
4-6 times/week	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
2-3 times/week	16.7 (1)	0.0 (0)	18.2 (2)	0.0 (0)
1 time/week	0.0 (0)	20.0 (1)	0.0 (0)	0.0 (0)
1-2 times/month	50.0 (3)	40.0 (2)	18.2 (2)	37.5 (3)
<1 time/month	16.7 (1)	40.0 (2)	54.5 (6)	12.5 (1)
do not drink	16.7 (1)	0.0 (0)	9.1 (1)	50.0 (4)

* Percentages are calculated using the number of individuals completing this question at each time point as the denominator.

Table 8.7
Results of Associations Between Health Habits and Group

Comparison	Test of Association
Smoking status	
Time 1: current smoker versus current non-smoker	$\chi^2(1) = 1.797$
Time 2: current smoker versus current non-smoker	$\chi^2(1) = 0.196$
Time 3: current smoker versus current non-smoker	$\chi^2(1) = 0.130$
Time 4: current smoker versus current non-smoker	$\chi^2(1) = 0.185$
If not a current smoker, have you ever smoked?	
Time 1: past smoker versus non-smoker	Fisher's: p = 0.712
Time 2: past smoker versus non-smoker	$\chi^2(1) = 0.371$
Time 3: past smoker versus non-smoker	Fisher's: p = 1.000
Time 4: past smoker versus non-smoker	Fisher's: p = 1.000
Exercise	
Time 1: sedentary versus non-sedentary	$\chi^2(1) = 1.639$
Time 2: sedentary versus non-sedentary	$\chi^2(1) = 0.595$
Time 3: sedentary versus non-sedentary	Fisher's: p = 0.697
Time 4: sedentary versus non-sedentary	Fisher's: p = 1.000
Caffeine	
Time 1: consumes caffeine versus does not consume caffeine	Fisher's: p = 1.000
Time 2: consumes caffeine versus does not consume caffeine	Fisher's: p = 0.606
Time 3: consumes caffeine versus does not consume caffeine	Fisher's: p = 1.000
Time 4: consumes caffeine versus does not consume caffeine	Fisher's: p = 1.000
Alcohol	
Time 1: consumes alcohol versus does not consume alcohol	$\chi^2(1) = 0.031$
Time 2: consumes alcohol versus does not consume alcohol	$\chi^2(1) = 0.200$
Time 3: consumes alcohol versus does not consume alcohol	Fisher's: p = 0.361
Time 4: consumes alcohol versus does not consume alcohol	Fisher's: p = 0.372

Group 1 refers to Facilities A and C; Group 2 refers to Facilities B and D.
*$p < 0.05$; **$p < 0.01$

Table 8.8
The Number and Percentage of HCAs who were Absent from Work in the Previous Month by Group and Time

	GROUP 1		GROUP 2	
	Absent	Not Absent	Absent	Not Absent
Time 1	12 48.00%	13 52.00%	8 30.77%	18 69.23%
Time 2	9 45.00%	11 55.00%	11 55.00%	9 45.00%
Time 3	5 38.46%	8 61.54%	6 31.58%	13 68.42%
Time 4 *	2 16.67%	10 83.33%	11 57.89%	8 42.11%

Group 1 includes Facilities A and C; Group 2 includes Facilities B and D.
Chi-square test conducted to compare Absence by Group for each time point.
* $p < 0.05$; ** $p < 0.01$

Table 8.9
The Reasons Provided for Why HCAs were Absent from Work in the Previous Month by Group and Time

	GROUP 1	GROUP 2
Time 1		
illness	91.7% (11)	50.0% (4)
family reason	8.3% (1)	37.5% (3)
needed a break from work	0.0% (0)	0.0% (0)
worker's compensation	0.0% (0)	12.5% (1)
other **	0.0% (0)	0.0% (0)
Time 2		
illness	44.4% (4)	63.6% (7)
family reason	22.2% (2)	18.2% (2)
needed a break from work	0.0% (0)	9.1% (1)
worker's compensation	0.0% (0)	0.0% (0)
other	33.3% (3)	9.1% (1)
Time 3		
illness	80.0 (4)	83.3% (5)
family reason	20.0% (1)	16.7% (1)
needed a break from work	0.0% (0)	0.0% (0)
worker's compensation	0.0% (0)	0.0% (0)
other	0.0% (0)	0.0% (0)
Time 4		
illness	100.0% (2)	63.6% (7)
family reason	0.0% (0)	9.1% (1)
needed a break from work	0.0% (0)	0.0% (0)
worker's compensation	0.0% (0)	0.0% (0)
other	0.0% (0)	18.2% (2)

* The numbers in the columns indicate the percentage (and number) of HCAs who were absent from work in the previous month that provided that reason for their absence.
** The reason provided for 'other' was being on vacation.
*** Percentages do not always sum to 100% because of missing values.

8.4 Absenteeism

HCAs were asked at each data collection point whether or not they had been absent from work in the previous month, and if they had been absent, the reason for their absence. Similar to the analyses above, associations between Group and the number of HCAs who reported being 'absent' versus the number who reported that they were 'not absent' were examined at each time point. The results of these analyses are shown in Table 8.8.

Significant associations between absence and Group were not found at Times 1, 2, or 3. However, a significant association was found at Time 4, ($\chi^2(1)= 5.134$, $p < 0.05$). The data show that a higher percentage of staff reported being absent in Group 2 compared with Group 1 at Time 4. In addition, when examining the percentage of those who were 'absent' and 'not absent' over time, the data indicate that the percentage of HCAs in Group 1 who reported that they were 'absent' consistently decreased from Time 1 to Time 4; there was no pattern exhibited in Group 2.

Table 8.9 presents a summary of the reasons why the HCAs were absent from work. An examination of the reasons reveals that for each Facility, the majority of the HCAs were absent at each Time period because of illness. Thus, it does not appear that the HCAs' reasons for their absence changed over time.

8.5 Results Involving the MBI and WES Subscales

8.5.1 Two sample t-tests Between Groups at Time 1

Two sample *t*-tests were conducted with each of the MBI and WES subscales and with the SHS and the SHARP to determine whether there were significant differences between Groups 1 and 2 at Time 1. The results of these analyses are summarized in Table 8.10.

There were no significant differences in means across Groups at Time 1 for any of the MBI subscales (i.e., Emotional Exhaustion, Depersonalization, or Personal Accomplishment) or for the SHS or

Table 8.10
***t*-test Results for the MBI Subscales, WES Subscales, SHS and SHARP by Group at Time 1**

SCALE/SUBSCALE	GROUP 1 MEAN (SD)	GROUP 2 MEAN (SD)	*t*-test
MBI			
Emotional Exhaustion	17.09 (11.39)	18.63 (12.26)	$t = -0.45$
Depersonalization	2.56 (3.72)	4.92 (5.59)	$t = -1.68$
Personal Accomplishment	39.86 (6.53)	38.15 (7.25)	$t = 0.83$
WES			
Involvement	7.29 (2.03)	5.72 (2.34)	$t = 2.51$ *
Peer cohesion	6.72 (1.76)	5.31 (2.26)	$t = 2.41$ *
Supervisor Support	5.03 (2.00)	4.16 (2.10)	$t = 1.48$
Autonomy	5.23 (1.54)	4.58 (1.96)	$t = 1.31$
Task Orientation	7.58 (1.58)	6.56 (1.71)	$t = 2.16$ *
Work Pressure	5.45 (2.03)	5.35 (2.35)	$t = 0.16$
Clarity	6.54 (1.33)	4.57 (1.84)	$t = 4.28$ ***
Control	6.36 (1.68)	6.25 (1.57)	$t = 0.24$
Innovation	5.52 (1.88)	5.12 (2.36)	$t = 0.66$
Physical Comfort	4.71 (2.47)	4.48 (2.12)	$t = 0.36$
SHS	16.58 (6.08)	18.07 (6.00)	$t = -0.79$
SHARP	3.71 (3.07)	2.76 (3.76)	$t = 0.93$

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

the SHARP. Upon examination of the WES subscales, significant differences were found between Groups 1 and 2 at Time 1 for the following subscales: Involvement, Peer Cohesion, Task Orientation, and Clarity. In all cases, the mean subscale score for Group 1 was significantly greater than the mean for Group 2.

8.5.2 Repeated Measures ANOVA

Repeated measures ANOVAs were conducted across Group with each of the MBI and WES subscales. The results reported compare pre-intervention means with post-intervention means. As previously indicated, 'pre' refers to the means at Time 1 for Group 1 and to the means at Times 1 and 2 for Group 2; 'post' refers to the means for Times 2, 3 and 4 for Group 1 and to the means for Times 3 and 4 for Group 2.

For each of the scales/subscales examined, the pre and post means are presented for Groups 1 and 2. As well, summaries of the repeated measures ANOVA source tables are provided.

Examination of Group by Time Interactions

The first step was to conduct repeated measure ANOVAs with the dependent variables that were expected to differ according to the planned comparisons (i.e., Emotional Exhaustion, Autonomy, Work Pressure, Control, and Innovation).

In terms of the Emotional Exhaustion subscale (see Tables 8.11 and 8.12), a significant Group by Time interaction was found, $F(1, 17)=4.90$, $p < 0.05$. A graphical display of this interaction in Figure 8.5 indicates that over time, Emotional Exhaustion in Group 2 increased relative to Group 1. It is interesting to note that the standard error bars overlap at both pre and post, even though the interaction is significant. The reason for this is not entirely clear.

Table 8.11
Repeated Measures Analysis of Variance Means (and Standard Deviations) at 'Pre' and 'Post', by Group, for the MBI Subscales

SUBSCALE	GROUP 1	GROUP 2
Emotional Exhaustion *		
Pre	17.09 (11.39)	17.07 (11.13)
Post	16.88 (11.59)	18.42 (11.70)
Depersonalization		
Pre	2.56 (3.72)	4.73 (4.88)
Post	2.60 (3.26)	4.42 (4.64)
Personal Accomplishment		
Pre	39.86 (6.53)	37.64 (8.07)
Post	39.62 (8.09)	37.93 (6.93)

† 'Pre' refers to Time 1 for Group 1 and to Times 1 & 2 combined for Group 2.
'Post' refers to Times 2, 3 & 4 combined for Group 1 and to Times 3 & 4 combined for Group 2.
* $p < 0.05$; ** $p < 0.01$

Table 8.12
Source Tables from Repeated Measures ANOVA, MBI Subscales

Subscale	Source	Degrees of Freedom	Sums of Squares	Mean Squares	F-Value
Emotional Exhaustion	Group	1	20.43	20.43	0.47
	Facility(Group)	2	669.09	334.54	7.76 ***
	ID(Facility)	60	14843.69	247.39	5.74 ***
	Time	1	80.86	80.86	1.88
	GROUP*TIME	1	211.18	211.18	4.90 *
	Time*Facility(Group)	2	21.18	10.59	0.25
	Error	84	3619.13	43.08	
Depersonalization	Group	1	149.83	149.83	15.29 ***
	Facility(Group)	2	16.87	8.44	0.86
	ID(Facility)	60	1766.13	29.44	3.00 ***
	Time	1	2.87	2.87	0.29
	GROUP*TIME	1	5.73	5.73	0.59
	Time*Facility(Group)	2	8.46	4.23	0.43
	Error	83	813.10	9.80	
Personal Accomplishment	Group	1	134.81	134.81	7.86 **
	Facility(Group)	2	210.73	105.37	6.15 **
	ID(Facility)	59	6656.67	112.82	6.58 ***
	Time	1	0.92	0.92	0.05
	GROUP*TIME	1	7.67	7.67	0.45
	Time*Facility(Group)	2	52.05	26.02	1.52
	Error	81	1388.73	17.14	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 8.13
Repeated Measures Analysis of Variance Results Using the Group WES Subscales Means (and Standard Deviations) at 'Pre' and 'Post'

SUBSCALE	GROUP 1	GROUP 2
Involvement		
Pre	7.29 (2.03)	5.73 (2.27)
Post	7.36 (1.50)	5.76 (2.08)
Peer Cohesion		
Pre	6.72 (1.76)	5.30 (2.11)
Post	6.57 (1.55)	5.84 (1.59)
Supervisor Support **		
Pre	5.03 (2.00)	4.14 (1.99)
Post	5.79 (2.16)	3.26 (2.14)
Autonomy *		
Pre	5.23 (1.54)	4.48 (1.85)
Post	5.91 (1.89)	4.21 (1.99)
Task Orientation		
Pre	7.58 (1.58)	6.88 (1.62)
Post	7.66 (1.26)	6.76 (1.97)
Work Pressure *		
Pre	5.45 (2.03)	5.27 (2.23)
Post	5.07 (2.23)	5.94 (2.21)
Clarity		
Pre	6.54 (1.33)	4.87 (1.83)
Post	6.06 (1.48)	4.93 (1.66)
Control *		
Pre	6.36 (1.68)	6.32 (1.66)
Post	6.02 (1.97)	7.25 (1.50)
Innovation *		
Pre	5.52 (1.88)	5.20 (2.14)
Post	6.09 (1.98)	4.74 (1.92)
Physical Comfort		
Pre	4.71 (2.47)	4.52 (2.13)
Post	5.21 (2.32)	5.23 (2.46)

† 'Pre' refers to Time 1 for Group 1 and to Times 1 & 2 combined for Group 2.
'Post' refers to Times 2, 3 & 4 combined for Group 1 and to Times 3 & 4 combined for Group 2.
* $p < 0.05$; ** $p < 0.01$

Table 8.14
Source Tables from Repeated Measures ANOVA, WES Subscales

Subscale	Source	Degrees of Freedom	Sums of Squares	Mean Squares	F-Value
Involvement	Group	1	93.29	93.29	54.34 ***
	Facility(Group)	2	42.74	21.37	12.45 ***
	ID(Facility)	59	365.04	6.19	3.60 ***
	Time	1	6.10	6.10	3.56
	GROUP*TIME	1	0.28	0.28	0.17
	Time*Facility(Group)	2	7.65	3.83	2.23
	Error	80	137.33	1.72	
Peer Cohesion	Group	1	43.64	43.64	28.82 ***
	Facility(Group)	2	15.81	7.91	5.22 **
	ID(Facility)	61	317.60	5.21	3.44 ***
	Time	1	7.99	7.99	5.28 *
	GROUP*TIME	1	0.35	0.35	0.23
	Time*Facility(Group)	2	0.51	0.25	0.17
	Error	80	121.11	1.51	
Supervisor Support	Group	1	111.38	111.38	45.95 ***
	Facility(Group)	2	38.10	19.05	7.86 ***
	ID(Facility)	59	361.84	6.13	2.53 ***
	Time	1	7.47	7.47	3.08
	GROUP*TIME	1	25.03	25.03	10.33 **
	Time*Facility(Group)	2	10.61	5.31	2.19
	Error	77	186.63	2.42	
Autonomy	Group	1	62.98	62.98	35.42 ***
	Facility(Group)	2	41.12	20.56	11.56 ***
	ID(Facility)	60	288.45	4.81	2.70 ***
	Time	1	0.00	0.00	0.00
	GROUP*TIME	1	9.32	9.32	5.24 *
	Time*Facility(Group)	2	19.51	9.76	5.49 **
	Error	79	140.49	1.78	
Task Orientation	Group	1	23.56	23.56	20.28 ***
	Facility(Group)	2	86.15	43.07	37.07 ***
	ID(Facility)	59	174.28	2.95	2.54 ***
	Time	1	3.32	3.32	2.86
	GROUP*TIME	1	0.69	0.69	0.59
	Time*Facility(Group)	2	13.93	6.97	6.00 **
	Error	80	92.96	1.16	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 8.14 (cont.)
Source Tables from Repeated Measures ANOVA, WES Subscales

Subscale	Source	Degrees of Freedom	Sums of Squares	Mean Squares	F-Value
Work Pressure	Group	1	4.93	4.93	1.80
	Facility(Group)	2	25.66	12.83	4.70 *
	ID(Facility)	61	437.03	7.16	2.62 ***
	Time	1	4.11	4.11	1.50
	GROUP*TIME	1	18.50	18.50	6.77 *
	Time*Facility(Group)	2	7.63	3.81	1.40
	Error	81	221.35	2.73	
Clarity	Group	1	64.86	64.86	53.05 ***
	Facility(Group)	2	23.71	11.86	9.70 ***
	ID(Facility)	59	239.99	4.07	3.33 ***
	Time	1	5.50	5.50	4.49 *
	GROUP*TIME	1	0.01	0.01	0.01
	Time*Facility(Group)	2	8.34	4.17	3.41 *
	Error	80	97.81	1.22	
Control	Group	1	13.22	13.22	8.24 **
	Facility(Group)	2	30.33	15.17	9.46 ***
	ID(Facility)	61	264.43	4.33	2.70 ***
	Time	1	7.72	7.72	4.81 *
	GROUP*TIME	1	9.30	9.30	5.80 *
	Time*Facility(Group)	2	12.37	6.18	3.86 *
	Error	79	126.69	1.60	
Innovation	Group	1	29.82	29.82	15.08 ***
	Facility(Group)	2	61.52	30.76	15.56 ***
	ID(Facility)	61	351.61	5.76	2.92 ***
	Time	1	1.02	1.02	0.51
	GROUP*TIME	1	8.61	8.61	4.36 *
	Time*Facility(Group)	2	8.76	4.38	2.21
	Error	80	158.17	1.98	
Physical Comfort	Group	1	1.49	1.49	0.67
	Facility(Group)	2	107.46	53.73	24.19 ***
	ID(Facility)	61	473.30	7.76	3.49 ***
	Time	1	6.72	6.72	3.03
	GROUP*TIME	1	1.72	1.72	0.77
	Time*Facility(Group)	2	30.30	15.15	6.82 **
	Error	80	177.66	2.22	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Figure 8.5: Emotional Exhaustion Group Means at Pre and Post

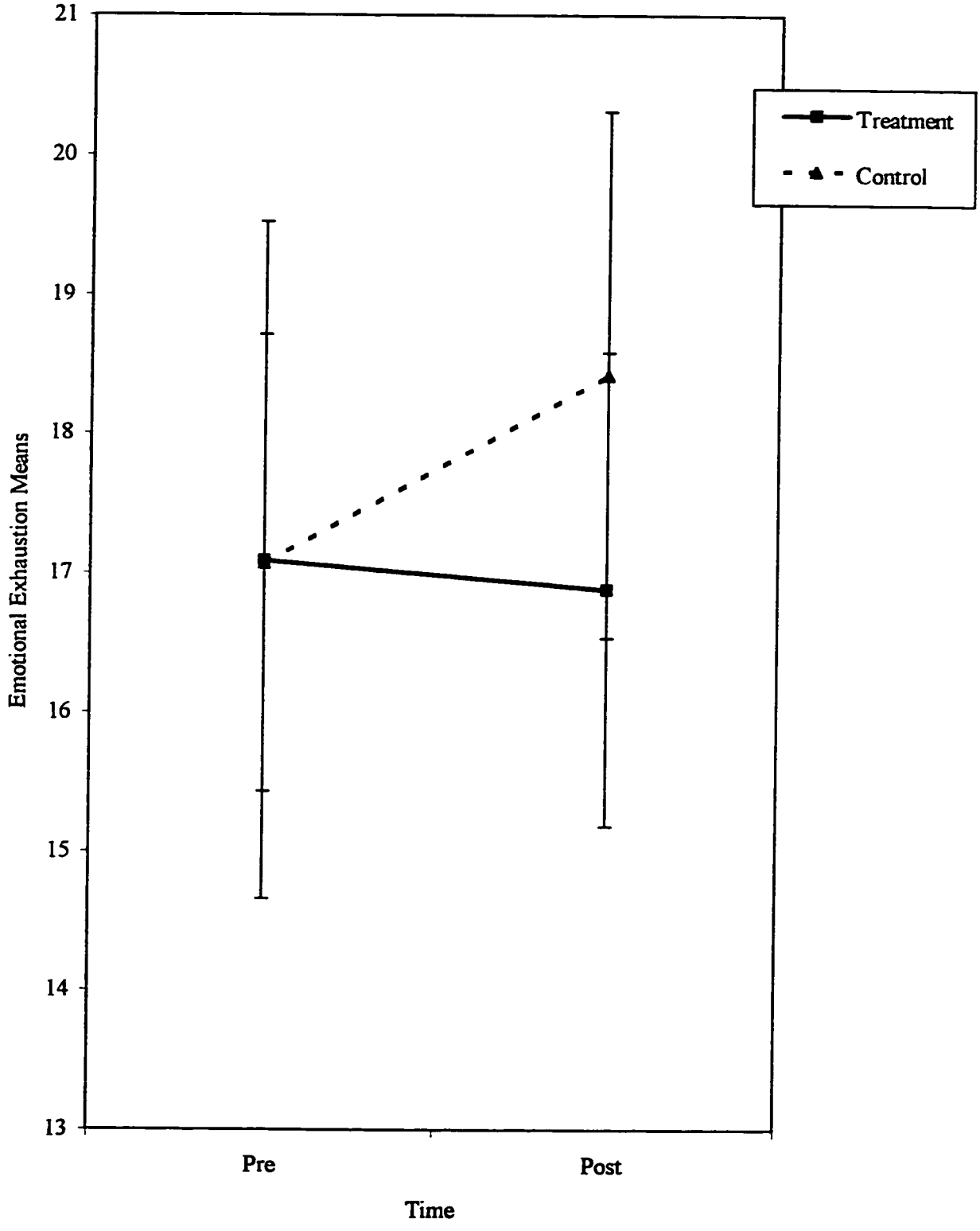


Figure 8.6: Autonomy Group Means at Pre and Post

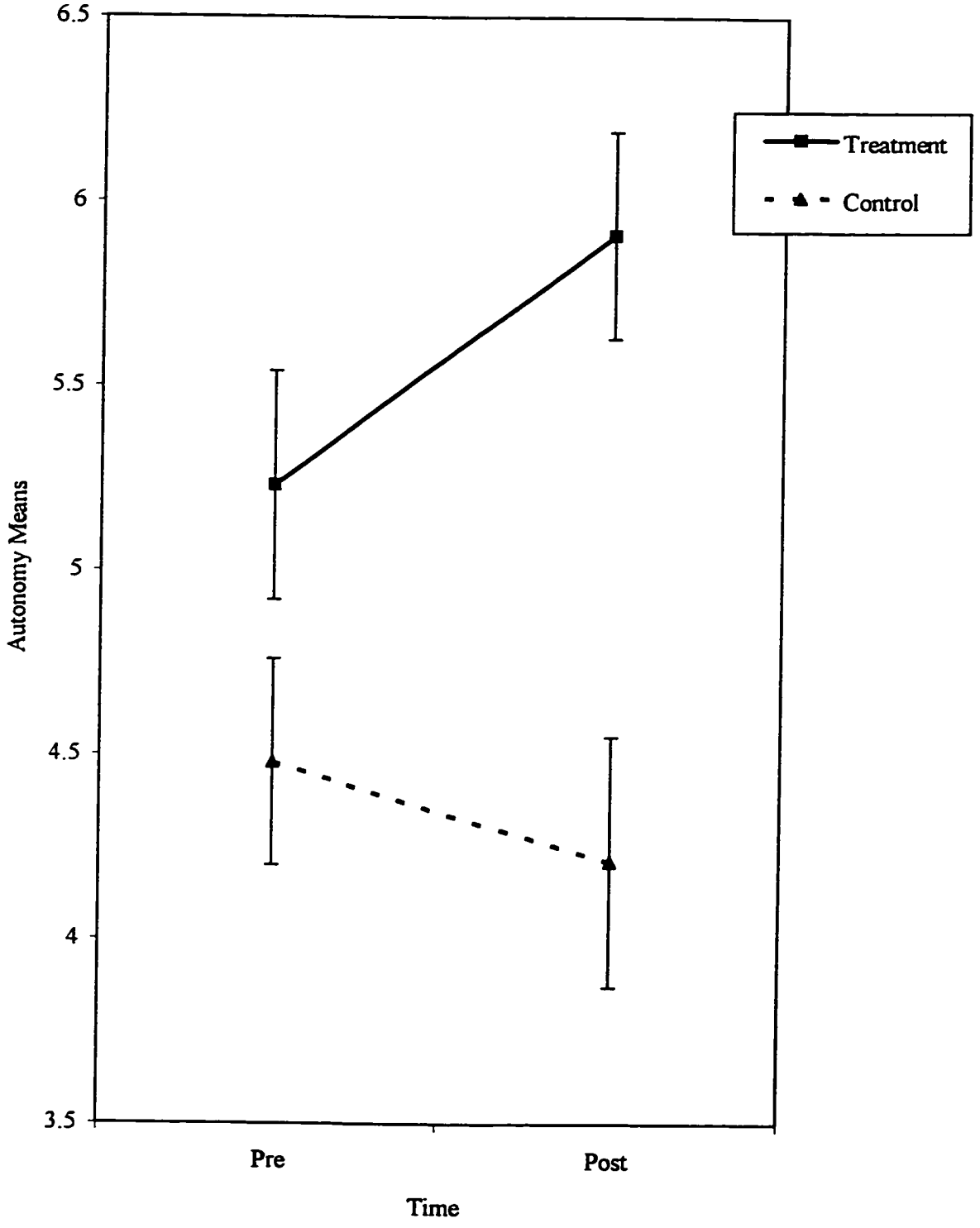


Figure 8.7: Work Pressure Group Means at Pre and Post

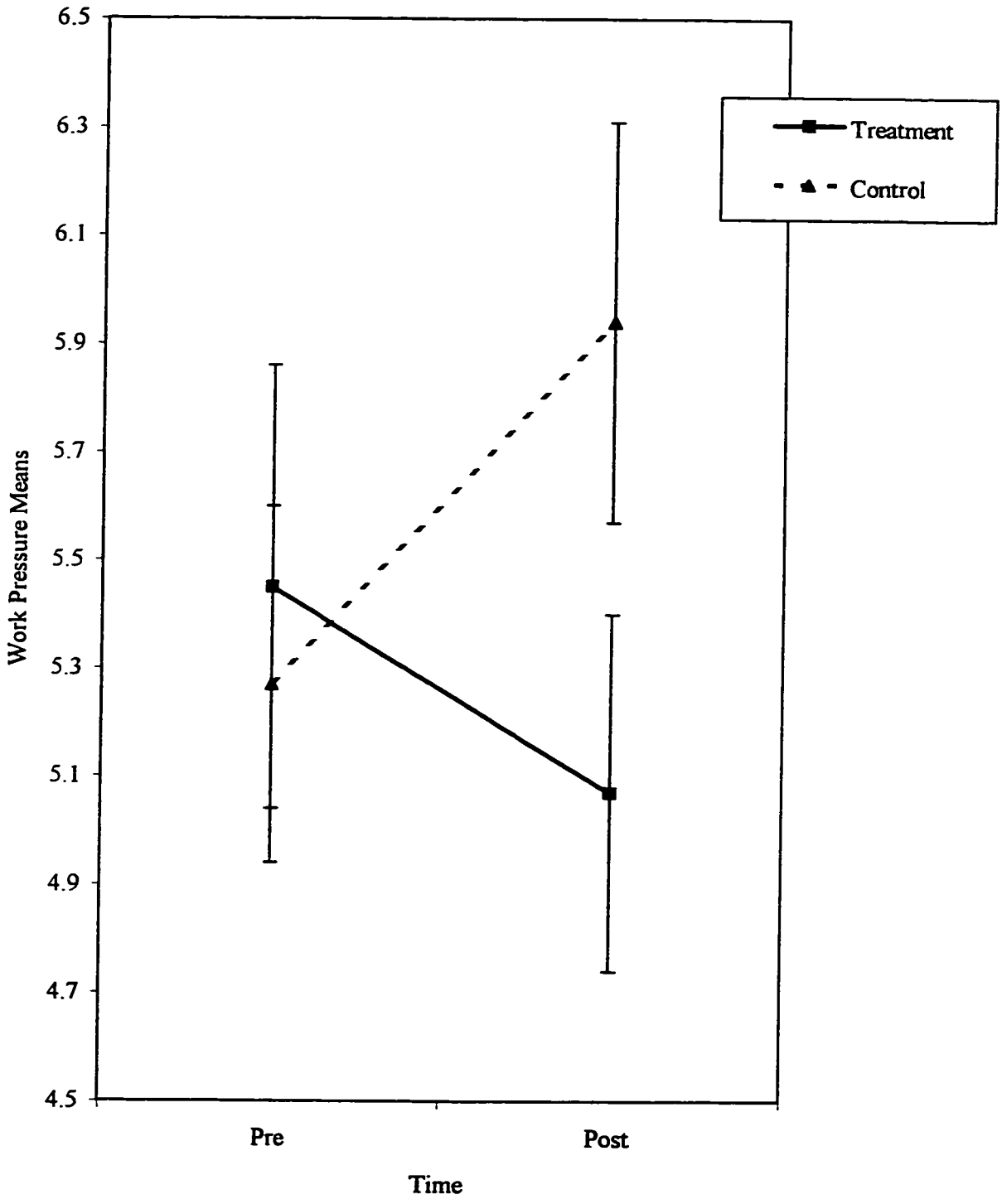


Figure 8.8: Control Group Means at Pre and Post

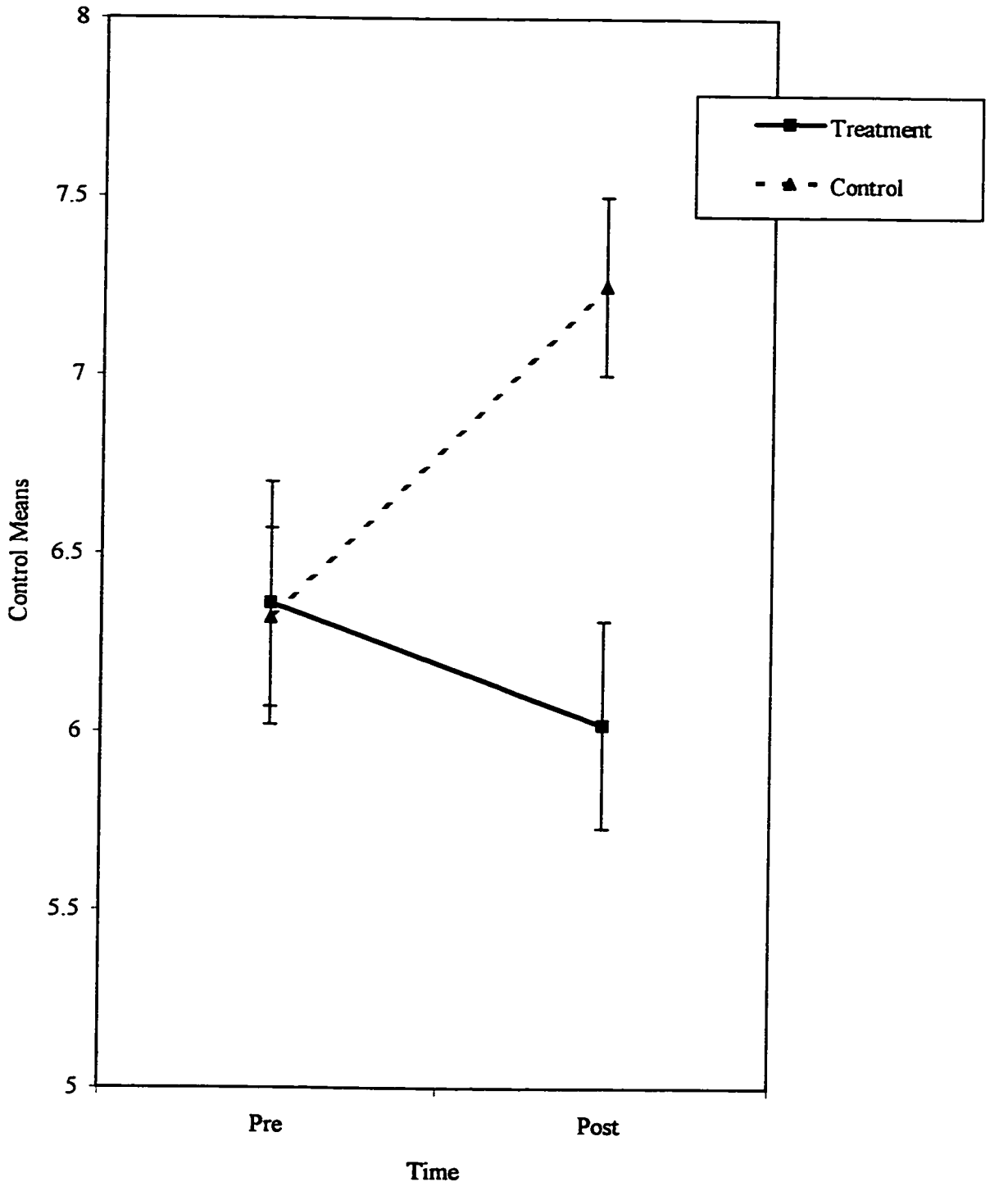


Figure 8.9: Innovation Group Means at Pre and Post

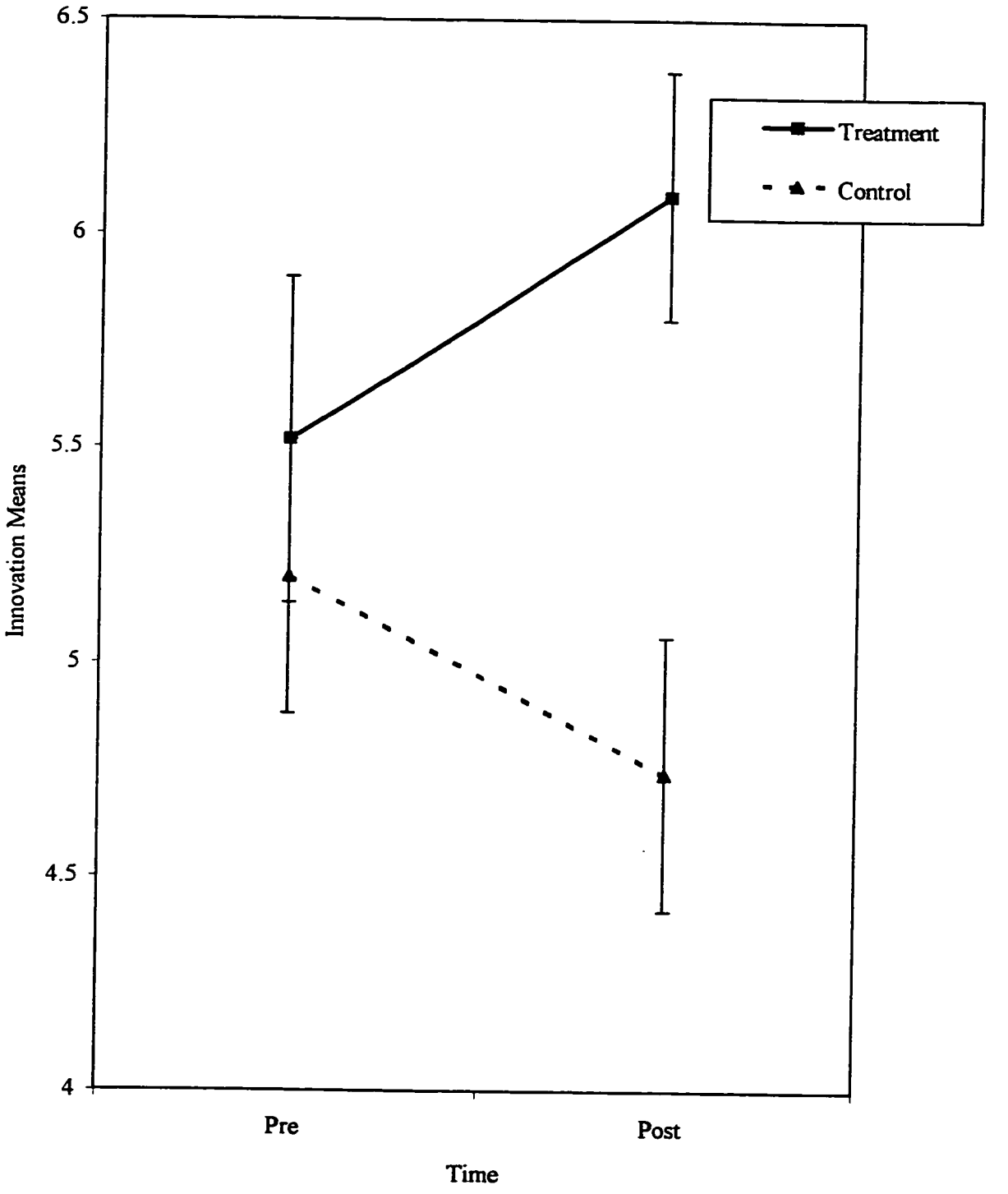
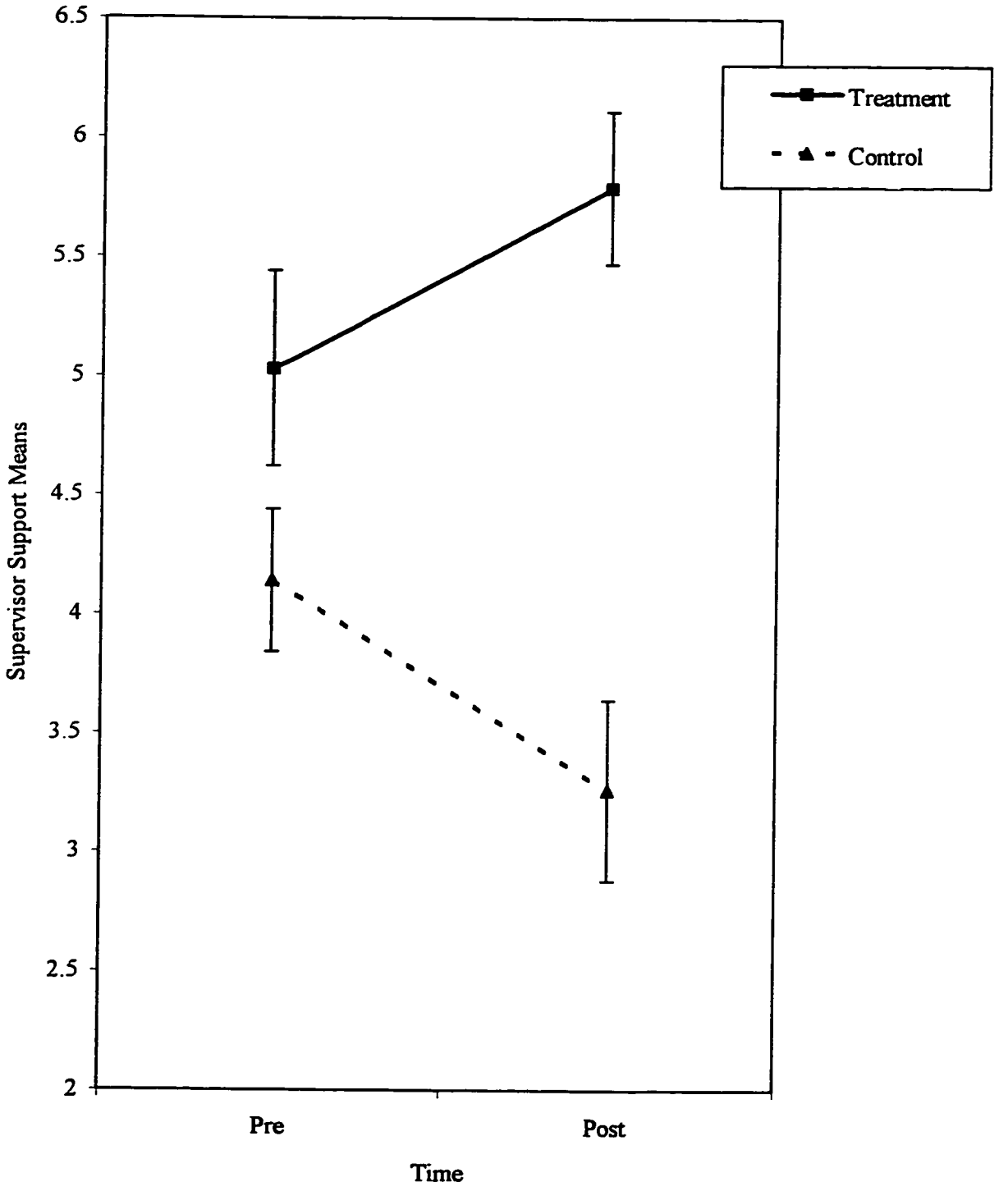


Figure 8.10: Supervisor Support Group Means at Pre and Post



A significant Group by Time interaction was also found for the Autonomy subscale, $F(1,12)=5.24$, $p < 0.05$ (see Tables 8.13 and 8.14). Figure 8.6 indicates that Autonomy increased over time in Group 1 compared with Group 2.

The results from the Work Pressure subscale were similar to those from the Emotional Exhaustion subscale, namely, that over time Work Pressure increased in Group 2 compared with Group 1, $F(1, 13)=6.77$, $p < 0.05$). Figure 8.7 displays the results from the Work Pressure subscale.

In terms of the Control subscale (i.e., management's use of rules and pressures to keep employees under control), a significant Group by Time interaction was also found, $F(1, 11)=5.80$, $p < 0.05$. When these data were plotted (see Figure 8.8), the results indicate that over time Control decreased in Group 1 relative to Group 2.

Finally, a significant Group by Time interaction was found for the Innovation subscale, $F(1, 12)=4.36$, $p < 0.05$). Figure 8.9 shows that Innovation increased over time in Group 1 compared with Group 2.

Therefore, for each of the subscales predicted to differ between Groups over time as a result of the implementation of T.E.A.M., significant Group by Time interactions were found.

The next step was to examine those scales/subscales for which significant Group by Time interactions were not predicted in the planned comparisons. In terms of the other MBI subscales, there were no significant Group by Time interactions for the Depersonalization or Personal Accomplishment subscales (see Table 8.12). For the WES subscales (see Table 8.14), no significant Group by Time interactions were found for the Involvement, Peer Cohesion, Task Orientation, Clarity, or Physical Comfort subscales. However, a significant interaction was found for the Supervisor Support subscale, $F(1, 11)=10.33$, $p < 0.01$. The results presented in Figure 8.10 indicate that over time Supervisor Support increased in Group 1 compared with Group 2.

In addition to the MBI and WES subscales, repeated measures ANOVAs were conducted with the SHS and SHARP. These scales were not expected to differ between Groups over time; however, they were examined to ensure that T.E.A.M. did not affect general personality variables. Results from these analyses indicate that there was no significant Group by Time interaction for either the SHS or SHARP scales (see Tables 8.15 and 8.16).

Examination of Main Effects

For subscales where a significant Group by Time interaction was not found, the data were examined to determine whether a main effect for Group occurred. That is, the analyses were examined to determine whether there were significant differences between Groups, collapsing across Times.

For the MBI subscales, a significant main effect for Group was found for the Depersonalization subscale, $F(1,60)=5.09$, $p < 0.05$. Figure 8.11 indicates that the Depersonalization means were significantly lower for Group 1 then for Group 2, regardless of Time. There was no Group effect for the Personal Accomplishment subscale.

In terms of the other WES subscales, there was only one main effect for Group; this was found with the Peer Cohesion subscale, $F(1, 61)=8.38$, $p < 0.01$. When these data were graphed (see Figure 8.12), the results indicate that the Peer Cohesion means were significantly higher for Group 1 than for Group 2, irrespective of Time.

The data for the SHS and SHARP scales were also examined to determine whether a main effect of Group existed. The analysis failed to reveal such an effect.

Table 8.15
Repeated Measures Analysis of Variance Results with the Group SHS and SHARP 'Pre' and 'Post' Means

SUBSCALE	GROUP 1	GROUP 2
SHS		
Pre	16.58 (6.08)	18.17 (5.57)
Post	16.17 (6.75)	17.68 (4.98)
SHARP		
Pre	3.71 (3.07)	2.69 (3.85)
Post	3.72 (2.78)	2.64 (3.53)

† 'Pre' refers to Time 1 for Group 1 and to Times 1 & 2 combined for Group 2.
'Post' refers to Times 2, 3 & 4 combined for Group 1 and to Times 3 & 4 combined for Group 2.
$*p < 0.05$; $**p < 0.01$

Table 8.16
Sources Table from Repeated Measures ANOVA, SHS and SHARP

Subscale	Source	Degrees of Freedom	Sums of Squares	Mean Squares	F-Value
Short Hardiness Scale (SHS)	Group	1	97.21	97.21	6.69 *
	Facility(Group)	2	425.62	212.81	14.64 ***
	ID(Facility)	58	3229.28	55.68	3.83 ***
	Time	1	0.92	0.92	0.06
	GROUP*TIME	1	14.30	14.30	0.98
	Time*Facility(Group)	2	14.67	7.33	0.50
	Error	76	1104.72	14.54	
Short Happiness and Research Protocol (SHARP)	Group	1	39.43	39.43	11.29 **
	Facility(Group)	2	45.83	22.91	6.56 **
	ID(Facility)	61	1295.50	21.24	6.08 ***
	Time	1	1.46	1.46	0.42
	GROUP*TIME	1	1.73	1.73	0.50
	Time*Facility(Group)	2	1.36	0.68	0.20
	Error	77	268.00	3.49	

$*p < 0.05$; $**p < 0.01$; $***p < 0.001$

Figure 8.11: Depersonalization Group Means at Pre and Post

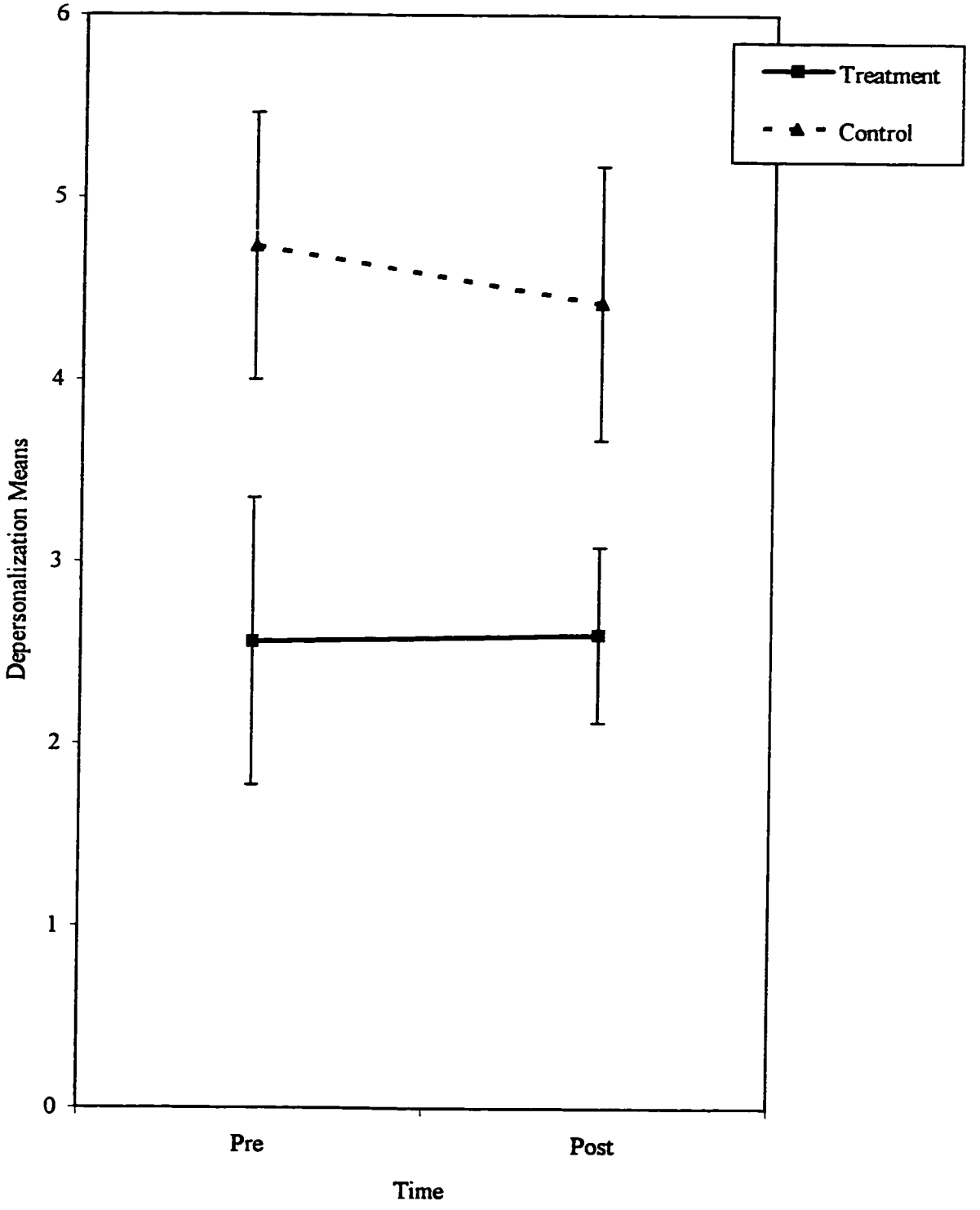
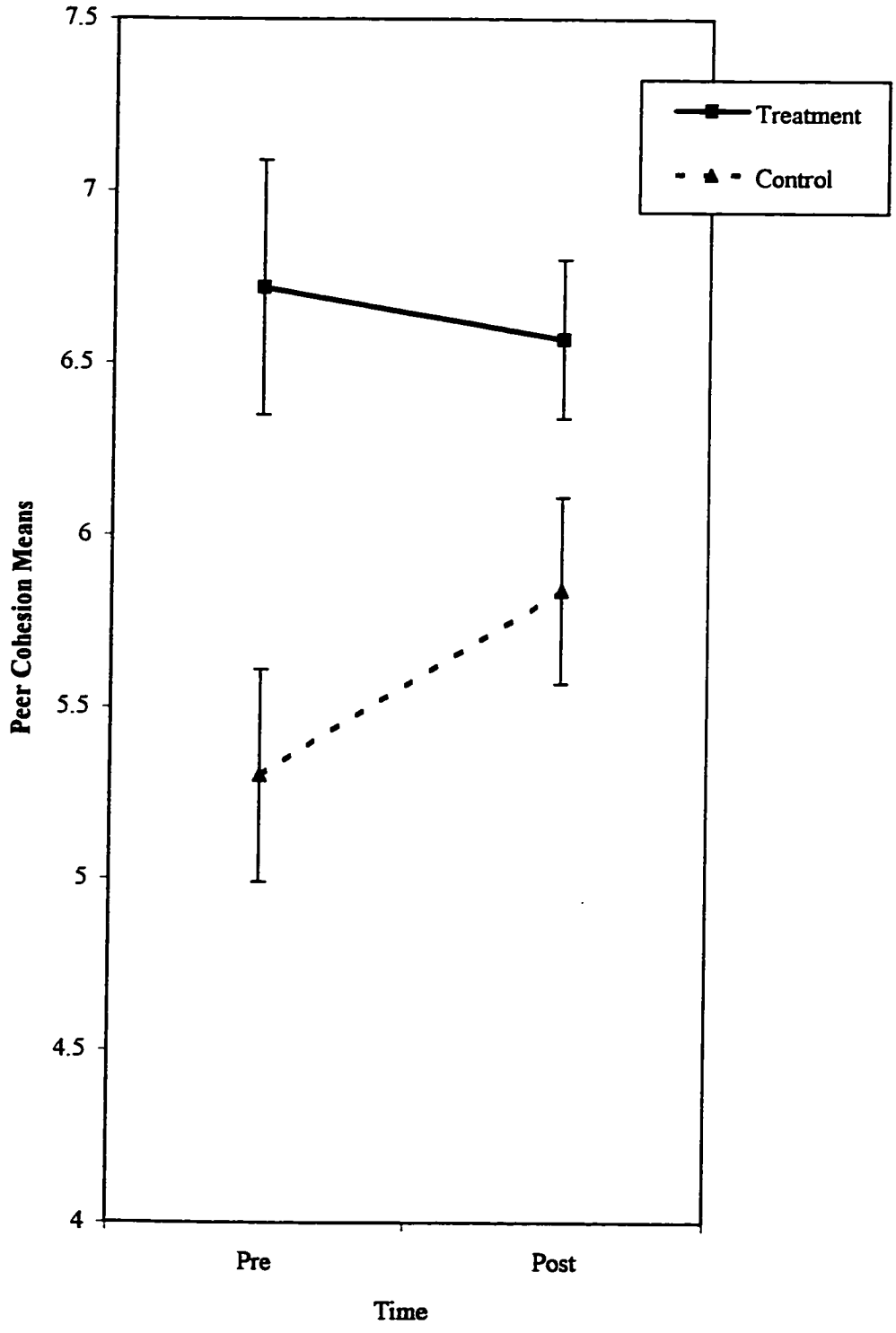


Figure 8.12: Peer Cohesion Group Means at Pre and Post



Summary

Prior to conducting the data analysis, planned comparisons based on the dependent measures were made. It was hypothesized that T.E.A.M. would have a significant effect on the Emotional Exhaustion subscale of the MBI and on the Autonomy, Work Pressure, Control, and Innovation subscales of the WES. Statistically significant Group by Time interactions were found for each of these subscales. A significant Group by Time interaction was also found for the Supervisor Support subscale of the WES.

8.6 Discussion

Results from the repeated measures ANOVA revealed significant Group by Time interactions with the following variables: Emotional Exhaustion, Autonomy, Work Pressure, Control, Innovation, and Supervisor Support. Specifically, Emotional Exhaustion and Work Pressure increased in Group 2 relative to Group 1 over Time, Control decreased over Time in Group 1 compared with Group 2, and Autonomy, Innovation and Supervisor Support increased over Time in Group 1 relative to Group 2.

According to the planned comparisons, all of these variables, except Supervisor Support, were expected to be significantly affected by the implementation of T.E.A.M.. Consequently, the reader can be confident that the results obtained were a result of the true effects of T.E.A.M. rather than chance.

The fact that burnout among the HCAs in Group 2 (i.e., the control group) increased (as measured by the Emotional Exhaustion and Work Pressure subscales) may seem surprising. However, when the climate within long-term care is considered, the results are understandable. In the past few years, long-term care facilities in Ontario have undergone continuous change, particularly in terms of funding. Because of these changes, numerous job cutbacks (in terms of either positions and/or hours) have occurred (Pitters, 1995). Further, residents who are currently admitted into long-term care facilities are likely to be more frail and more cognitively impaired than in the past (Chappell & Novak, 1994;

Havens, 1995). As a result, staff and in particular HCAs, have been required to care for residents who are more physically and emotionally demanding, with no increase in the number of staff. Given these circumstances, it is not surprising that the level of stress among the HCAs in the control group increased over the course of the study.

The finding that emotional exhaustion and work pressure increased among the HCAs in the control group but decreased somewhat amongst HCAs in the treatment group suggests that T.E.A.M. may have had a protective effect. Considering the stressful climate of long-term care, protecting against an increase in stress is as beneficial as a reduction in stress.

The questionnaire results also revealed a significant association between Group and the number of HCAs who reported being 'absent' at Time 4. That is, HCAs in the treatment Group were less likely than those in the control group to report being absent at Time 4. As previously indicated, after the implementation of T.E.A.M., job-related stress was lower and perceived autonomy was higher among the HCAs in the treatment group. The significant association between absenteeism and Group may further reflect this difference in stress and autonomy. Support for this possibility comes from other studies which have found an association between absenteeism and higher levels of job-related stress (Higgins, 1986), higher levels of job pressure, and lower levels of control (i.e., autonomy) (Neubauer, 1992).

Thus, the findings from the questionnaire component of the study reveal that the implementation of T.E.A.M. was successful in improving the perceptions of the work environment and protecting against an increase in job burnout among HCAs in two long-term care facilities.

The fact that HCAs in the treatment group perceived positive changes in the work environment and with their supervisors suggests that T.E.A.M. lead to a change in the organizational culture of the facilities; that is, a change in the set of shared beliefs and values within the organizations (Winnubst, 1993). In order to determine whether T.E.A.M., in fact, affects the culture of a long-term care facility, future research should include a measure of organizational culture as one of the dependent variables.

Comparability of MBI and WES Subscale Means with Normative Data

When the pre-intervention Group means for the MBI subscales are compared with normative data from mental health workers (Maslach & Jackson, 1986), the data indicated that for both the treatment and control groups, the Emotional Exhaustion means were in the average burnout range and the Depersonalization and Personal Accomplishment means were in the low burnout range. Similar comparisons of the pre-intervention Group means for the WES subscales with normative data from individuals working in health care settings (Moos, 1986) revealed that the treatment group means tended to be higher than the normative data and that the means for the control group were either similar to, or higher, than the normative data. Such comparisons, however, need to be made with caution since these normative populations include a wide range of individuals from personal care staff to professionals (e.g., psychiatrists and managerial staff). Consequently, the comparisons may not be valid.

Other Issues

The *t*-tests conducted between the Group MBI and WES means at Time 1 revealed that there were some differences between Groups at baseline (i.e., the average scores for the Involvement, Task Orientation, Clarity, and Physical Comfort subscales of the WES were higher in Group 1 than in Group 2). Differences between Groups at baseline are of concern since these differences may affect the outcome of the study. However, examination of Group by Time interactions in repeated measures ANOVA ensures that any possible differences between the Groups at baseline are taken into account. Examination of the Group by Time interaction term is relevant as long as there are no ceiling or floor effects (i.e., there is still room for the Group means to increase or decrease on the measurement scale).

It is interesting to note that the differences that existed in some of the WES subscales between Groups 1 and 2 at baseline indicated that the HCAs in Group 1 viewed their work environment more positively than HCAs in Group 2. This difference may indicate that the climate within these facilities was

right for this intervention. The possibility that a facility may need to have a certain type of climate, or be at a particular stage of readiness, to successfully implement an intervention such as T.E.A.M. will be discussed in Chapter 13.

It is also important to note the congruence of the findings regarding burden. Results from the Emotional Exhaustion subscale of the MBI and the Work Pressure subscale of the WES suggested that T.E.A.M. had a protective effect against burden. As well, the results with absenteeism provide additional support for these findings. This congruence in results increases one's confidence regarding the benefits of T.E.A.M..

Subscales for which there was no significant Group by Time interaction were further analyzed to determine whether there was a main effect for Group. Main effects for Group were found with two subscales: Depersonalization and Peer Cohesion. While baseline scores for these two variables were not significantly different, the significant main effects indicate that the differences in scores between the Groups on these two variables were maintained throughout the study. Specifically, Depersonalization scores were lower and Peer Cohesion scores were higher among the HCAs in the treatment group than those in the control group, regardless of time.

Response Rates

The response rates were excellent to good in all of the Facilities except Facility D. The retention rates, however, were lower than the response rates in all Facilities, particularly in Facility C. These lower rates reflect the frequent changes in staffing that were made in the long-term care facilities during the course of the study. Given these response rates, one can be relatively confident that the results obtained from this sample were representative of the HCAs in each facility. The one exception may be Facility D where it was the full time HCAs on the day shift who were most likely to refuse to participate in this study. Thus, the results from Group 2 (which included Facility D) may not be generalizable to all of the

HCAs in Facility D.

As indicated in the response patterns of the HCAs in each facility (see Figures 8.1 to 8.4), there were a number of HCAs who moved (i.e., left the facility or the unit on which they were working). There were also a small number of HCAs who refused to participate in the study. Because there were no available data on HCAs who refused to participate (other than the fact that those in Facility D tended to be full time HCAs on the day shift), it cannot be determined whether those who refused to participate were different from those who agreed to participate in the study. However, the information on those who participated can be compared with the data on those who "moved" during the study to determine if differences existed.

The data from all four facilities were collapsed and comparisons were made between HCAs who participated (or were eligible to participate) at Time 1 and HCAs who moved (i.e., left the unit or the facility after baseline data were collected) using chi-square tests of association or Fisher's exact tests. The specific comparisons were the same as those made by Group (i.e., Group 1 compared with Group 2). These analyses revealed that there were no significant differences between these two groups of HCAs in terms of demographic characteristics (i.e., gender, age group, marital status, whether or not they had children, education, preferred language, or ethnicity), job characteristics (i.e., length of employment, length of time with a HCA certificate, employment status, or shift), or the number of reported health conditions, medications taken, or life events experienced in the month prior to the collection of baseline data. In addition, there were no differences between HCAs who participated and those who moved in terms of smoking status (present or past), participation in exercise, or alcohol consumption. A significant association was found between participant status (i.e., participant versus mover) and caffeine consumption (Fisher's = 0.025). HCAs who participated in the entire study were more likely to report that they consumed caffeine than HCAs who moved.

In addition to these descriptive characteristics, associations between participant status and Time 1 scores on the dependent variables were also examined. There were no significant associations found between participant status and mean values on the three MBI subscales at Time 1. Significant associations, however, were found between participant status and some of the WES subscales. Specifically, significant associations were found between participant status and the Involvement (t=2.07, $p > |t| = 0.04$), Peer Cohesion (t=3.76, $p > |t| = 0.001$), and Control (t=-1.99, $p > |t| = 0.052$) subscales. Those HCAs who participated in the entire study were more likely to rate their work environment as having greater levels of Involvement and Peer Cohesion and lower levels of Control than HCAs who moved. Thus, HCAs who continued to participate throughout the study rated some aspects of their work environments more positively than those who moved during the study. In addition, HCAs who participated in the entire study were more likely than HCAs who moved to report that they had not been absent from work during the month prior to the collection of baseline data ($\chi^2(1) = 4.102$, $p = 0.04$).

In comparing the HCAs who participated in the entire study and those who moved, it was apparent that there were few differences in terms of descriptive characteristics. In fact, the only difference found was in caffeine consumption; this difference was not expected to affect the results of the study. However, when scores on the dependent variables at Time 1 were examined, some significant differences were observed. Namely, HCAs who participated in the entire study rated their work environments more positively than HCAs who later moved. In addition, HCAs who moved were more likely to report being absent from work during the month prior to collecting baseline data. These differences are important if the HCAs who moved were more likely to be in one group (i.e., treatment or control) than the other. Figures 8.1 to 8.4 indicate that 9 of the 32 eligible HCAs in Group 1, and 9 of the 44 eligible HCAs in Group 2 moved during the study. However, a chi-square analysis revealed that there was no significant association between Group and the number of HCAs who moved during the study ($\chi^2(1)= 0.603$, $p = 0.437$). Therefore, HCAs who moved were equally likely to be in either Group 1 or Group 2.

Consequently, the differences observed between HCAs who participated throughout the study and those who moved were not expected to have an effect on the outcomes of the study.

Comparison of HCAs in Groups 1 and 2

With respect to the demographic and job characteristics of the HCAs, the only significant associations with Group were found with marital status, employment status, and shift. Marital status was not expected to affect the implementation of T.E.A.M. or its likelihood of success. However, employment status and shift may affect the HCAs' level of burnout and/or their perceptions of the work environment. To determine whether such differences existed, the mean values on the dependent variables were examined at Time 1 for two levels of employment status (i.e., full time versus part time/casual) and shift (i.e., rotation versus no rotation). There were no differences in the average MBI or WES scores between full time and part time/casual HCAs. However, differences between HCAs who rotated between shifts and those who did not rotate between shifts were found with four of the WES subscales: Task Orientation (t=2.63, $p > |t| = 0.011$), Clarity (t=4.51, $p > |t| = 0.000$), Innovation (t=2.67, $p > |t| = 0.01$), and Physical Comfort (t=2.48, $p > |t| = 0.02$). In all cases, mean values were higher among HCAs who did not rotate between shifts. The reader will recall that when the data were examined to determine whether differences existed at baseline between Groups on the dependent variables, the mean values for the Involvement, Peer Cohesion, Task Orientation, and Clarity subscales were significantly higher in Group 1 than in Group 2. Since the HCAs in Group 2 were more likely to rotate between shifts, shift (i.e., rotation versus no rotation) may account, at least in part, for the differences observed between Groups at Time 1 for the Task Orientation and Clarity subscales.

In terms of other associations with Group, the analyses revealed that there were no significant associations between Group and the number of health conditions reported, the number of medications taken, the number of life events, current smoking status, prior smoking status, participation in exercise,

caffeine consumption, or alcohol consumption at any of the four time points. Thus, overall there were very few differences between the HCAs in Groups 1 and 2.

Hardiness and Happiness

There were no significant Group by Time interactions found in the repeated measures ANOVAs conducted with the SHS and SHARP. While these measures were not expected to change, they were examined to ensure that T.E.A.M. did not affect personality variables in general. Because the results of these analyses were not significant, there is greater confidence that the components of T.E.A.M. targeted specific aspects of the work environment and not general personality variables.

8.7 Methodological Issues

Comparability of Facilities Within Groups

The first methodological issue relates to the appropriateness of combining Facilities A and C into the treatment group and Facilities B and D into the control group. Originally, T.E.A.M. was to be implemented in all four facilities. However, after the study began, it was determined that it was not possible to implement T.E.A.M. in Facility B and that the HCAs in Facility D were not willing to implement T.E.A.M.. Therefore, the four facilities were not purposely combined into treatment and control groups before the study began. Nevertheless, it is important to compare the facilities within each group to determine whether significant differences existed.

When the descriptive data were examined, four significant differences were found. In comparing Facilities A and C, significant associations were found between Facility and length of employment (Fisher's = 0.004) and current smoking status (Fisher's = 0.002). The HCAs in Facility C were more likely to have worked longer and to smoke than the HCAs in Facility A. In comparing Facilities B and D, a significant association was found between Facility and length of employment (Fisher's = 0.002) and

shift (Fisher's = 0.001). Specifically, HCAs in Facility D were more likely to have worked longer and not to rotate between shifts than HCAs in Facility B. While there were some differences between the Facilities within both the treatment and control groups, these differences were not expected to have a substantial effect on the outcomes of the study.

The data were also examined to determine whether differences existed between the Facilities within the treatment and control groups in terms of the dependent variables. No significant differences were found between Facilities A and C or between Facilities B and D in the mean values of the MBI subscales at Time 1. However, differences were observed for some of the WES subscales. A significant difference was found between Facilities A and C in Task Orientation (t=4.00, $p > |t| = 0.001$); the average Task Orientation score was higher among the HCAs in Facility A compared with those in Facility C. Significant differences were also found between Facilities B and D for the Control (t=-2.74, $p > |t| = 0.012$) and Physical Comfort (t=-3.47, $p > |t| = 0.002$) subscales; in addition, differences were marginally significant for the Work Pressure (t=-2.04, $p > |t| = 0.053$) and Innovation (t=-2.03, $p > |t| = 0.053$) subscales. Thus, the HCAs in Facility D rated their work environment as being more stressful and controlling than HCAs in Facility B. However, the HCAs in Facility D also rated their work environments as more innovative and physically comfortable than the HCAs in Facility B.

These results indicate that for Facilities A and C there was one significant difference in the average scores on the dependent variables. It was not expected that this difference would have a substantial effect on the results of the treatment group. Between Facilities B and D, there were significant differences in four of the WES subscale means. However, upon examining the directionality of these differences, it is apparent that the HCAs in Facility D did not consistently rate their work environment more positively or negatively than the HCAs in Facility B. As a result, it was not expected that these differences would have a biasing effect on the outcomes of this study.

Pre- versus Post-Intervention Comparisons

A second issue relates to the analysis of pre-intervention and post-intervention scores in the repeated measures ANOVA. As previously indicated, this comparison was made because it reflected the study design. As well, examining the effect of the implementation of T.E.A.M. across all four time points may have been difficult to interpret, especially given the relatively small sample size at some of the time points.

It is also important to note that when the data from the various time points were combined to make the pre-versus post-intervention comparisons, the GLM procedure in SAS used all of the available data (i.e., the data were not averaged for each HCA). This is instructive because if the data had been averaged across the respective time points, the variability of the means would have been reduced, making it easier to show a significant Group by Time interaction. Because all of the data were used, one can be more confident that the results reflect the true effect of the intervention.

Unit of Analysis

A third methodological issue involves the unit of analysis. In an ideal situation, a large number of representative long-term care facilities would have been selected for the study and randomly assigned to either treatment or control groups. Because this study had limited financial and personnel resources, it was only possible to enroll four long-term care facilities. In order to address the potential problems associated with having a relatively small number of facilities, the analysis included an examination of the between- to within-facility variability.

Alternative Explanations

The findings from the analysis of the questionnaire data indicated that the implementation of T.E.A.M. resulted in a protective effect against job-related stress and improved perceptions of the work

environment among the HCAs in the treatment group. However, it is possible that other factors could have lead to these results. One alternative explanation for the results is that changes in HCAs' level of stress or perceptions of the work environment occurred as a result of the Hawthorne effect. That is, positive results were obtained because the HCAs knew that they were part of a research study (Ray and Ravizza, 1985). However, it is unlikely that a Hawthorne effect caused the results in this study because the HCAs in both the treatment and control groups were aware that they were subjects in a study. Moreover, the HCAs in the control group were not informed about the true purpose of the study until the study had ended. That is, the HCAs in the control group were not aware of T.E.A.M. and the fact that two other long-term care facilities had implemented this model. As a result, it is unlikely that the reactions to being a research participant would have been different between the HCAs in the treatment and control groups.

Another possible explanation for the results is that the HCAs were influenced by demand characteristics (i.e., when a subject's behaviour is influenced by the environment). However, as previously described, efforts were made to minimize demand characteristics. Specifically, HCAs were informed that the questionnaire data would not be examined until the end of the study and at that time, the identification numbers which had been assigned to the them would be changed; therefore, the questionnaires would be anonymous. While it was expected that this would decrease the demand characteristics of the research situation, it is also important to note that demand characteristics were not expected to differ between the treatment and control groups. That is, any such effects that might exist would presumably be equal across both groups. Therefore, it is unlikely that the difference in results between the treatment and control groups were a result of demand characteristics.

It is also possible that the differences between the HCAs in the treatment and control groups were the result of history effects; that is, events that occur between data collection times which were not related to the intervention but may have an effect on the dependent variable(s) (Ray and Ravizza, 1985). Given

the fact that data collection occurred over more than a one year period, it is likely that events unrelated to the independent variable occurred which may have affected the dependent measures. Such events could have occurred within the work place or in the home environment of the HCAs. As will be shown in the qualitative analysis chapter, the HCAs in the treatment and control facilities perceived similar demands within the work environment during the course of the study. In addition, at each data collection time the HCAs were asked about the occurrence of various life events since the previous data collection time. When these data were analyzed, no significant associations were found between Group and the number of life events at any time point. (Although it is possible that there may have been a difference in the type of life event that occurred, that is, positive or negative). Thus, there is at least some evidence to support the fact that the experiences of the HCAs in the treatment and control group were similar throughout the study. Consequently, the reader can be confident that the results reflected the actual impact of the intervention rather than some other event.

CHAPTER 9: PHYSIOLOGICAL STRESS RESPONSE - METHODS AND ANALYSIS STRATEGY

9.1 Purpose

As part of this study, saliva samples were obtained from the HCAs at baseline and after four months. The saliva samples were analyzed for concentrations of cortisol and immunoglobulin A (IgA) which were used as indicators of the physiological response to stress. This chapter describes the methods used to collect and assay these components, and provides an overview of the statistical analysis strategy. The results from the statistical analysis are presented in the following chapter.

9.2 Background

Salivary immunoglobulin A (IgA) and salivary cortisol have been used in psychoimmunological and psychoendocrine studies as indicators of the physiological response to stress. IgA is the first line of defense against infectious agents which enter the body through mucosal surfaces such as saliva and nasal secretions (Jemmott & McClelland, 1989; Sell, 1987). Cortisol is a neuroendocrine factor that is released under conditions of physical and psychological stress. Salivary IgA and salivary cortisol are attractive as indicators of physiological stress response because they can be obtained in a relatively non-invasive manner and are easily quantified (Henningsen, Hurrell, Baker, Douglas, MacKenzie, Robertson & Phipps, 1992; Mouton, Fillion, Tawadros & Tessier, 1989).

Table 9.1 summarize some of the studies which have utilized one or both of these measures as physiological indicators of stress. While not a comprehensive list, these studies were selected because they represent the types of studies that have been conducted with these indices.

Table 9.1
Selected Research Studies Using Salivary IgA and/or Salivary Cortisol

Authors & Year	Purpose of Study	Subjects/Data Collection	Measures	Selected Findings
Jemmott et al., 1983	- to examine the interaction between academic stress and personality on immune function	- 64 dentistry students - data collected 5 times over 1 year: 3 during exams, 2 during non-stress times - RID analysis	- salivary IgA secretion rate (unstimulated) - motivational-personality characteristics - perceived stress	- decreased IgA secretion rate during stress (i.e., exam) vs. non-stress times - lower IgA secretion rate when program perceived as stressful vs. less stressful
McClelland et al., 1985	- to examine the relationship between power motivation, adrenergic activity and immune function	- 46 college students - data collected immediately after a midterm exam, 1&3/4 hours later, and a few days later - RID analysis	- salivary IgA concentration (unstimulated) - catecholamines - motivational-personality characteristics	- marginally significant increase in IgA concentration after exam; increase maintained 1&3/4 hours later - IgA concentration lower in those with higher need for power vs. affiliation 1&3/4 hours after exam
Mouton et al., 1989	- to determine the effect of an academic stressor on psychological state and IgA	- 44 dentistry students - data collected at 4 times: 2 during exams, 2 at non-stress times - ELISA analysis	- salivary IgA secretion rate and concentration (unstimulated) - psychological stress	- decreased IgA concentration only in comparison of highest and lowest stress - weak negative correlations between IgA secretion rate and stress rating and IgA concentration and stress rating
Jemmott & McClelland, 1989	- to present results from meta-analysis of studies using salivary IgA		- salivary IgA secretion rate - stress, motivation arousal, motives, mood	- decreased IgA secretion rate after psychological stress - increased IgA secretion rate among subjects with affiliation motivation - decreased IgA secretion rate among subjects with power motivation

* RID refers to radial immunodiffusion assays; ELISA refers to enzyme-linked immunosorbant assay

Table 9.1 (cont.)
Selected Research Studies Using Salivary IgA and/or Salivary Cortisol

Authors & Year	Purpose of Study	Subjects/Data Collection	Measures	Selected Findings
Schouten et al., 1988	- to determine the relationship between strenuous exercise, habitual physical activity and IgA	- 175 adults - data collected before and after exercise - RID analysis	- salivary IgA concentration (stimulated) - assessment of amount of physical activity	- decreased IgA concentration in women following exercise; increased IgA concentration in men - in general, no relationship between activity level and IgA; however, total activity time and total IgA produced were correlated among women
Housh et al., 1991	- to examine the effect of exercise on IgA at various temperatures (low, moderate, high)	- 9 males - data collected before and after exercise - ELISA analysis	- salivary IgA concentration (unstimulated)	- moderate exercise had no significant effect on IgA response at any temperature
Kirschbaum et al., 1992	- presented results from 4 studies which examined whether gender differences existed in cortisol response to psychological stress (public speaking and mental arithmetic in front of an audience)	- 50, 37, 48 and 18 subjects in studies 1-4, respectively - in each study, subjects provided regular samples at baseline and after the stressor - fluorescence immunoassay analysis	- salivary cortisol	- increased cortisol after stressor; increase higher in men than in women - anticipation of psychological stressor resulted in increased cortisol among men; cortisol remained the same or decreased among women

Table 9.1 (cont.)
Selected Research Studies Using Salivary IgA and/or Salivary Cortisol

Authors & Year	Purpose of Study	Subjects/Data Collection	Measures	Selected Findings
Kirschbaum et al., 1995	- to determine whether all subjects show habituation in cortisol response to repeated psychological stress (public speaking and mental arithmetic in front of an audience)	- 20 males - data collected 6 times for 5 days: before and after the stressor - fluorescence immunoassay analysis	- salivary cortisol - personality questionnaires (e.g., extraversion, neuroticism, self-concept) - physical health symptoms	- increased cortisol in all subjects after Day 1 - a group of "high responders" continued to show elevated cortisol responses on subsequent test days; this group characterize themselves as having lower self-esteem, depressed mood, and more physical symptoms than "low responders"
van Eck et al., 1996	- to determine the relationship between stressful daily events, distress and cortisol	- 87 males; 41 and 46 were identified as having high and low perceived stress, respectively - samples collected randomly over 5 days (10 times/day) - direct radioimmunoassay analysis	- salivary cortisol - life events, psychosomatic symptoms, depression, anxiety, anger	- increased cortisol after stressful daily events (regardless if high or low stress group, type of event, or one's evaluation of event) - negative affect and agitation associated with increased cortisol; stronger predictor than perceived stress; no association with positive mood
McDowell et al., 1992	- to determine the effects of high and low intensity training on IgA and cortisol	- 24 male novice runners; randomly assigned into 3 groups: high and low intensity training, and control - data collected before, after and 1 hour after treadmill tests - ELISA; magnetic antibody immunoassay	- salivary IgA concentration and salivary cortisol (unstimulated) - maximal oxygen consumption rate, heart rate, gas exchange parameters	- IgA decreased immediately after exercise but returned to normal 1 hour later (before and after training period) - training intensity did not affect IgA - cortisol higher in pre vs. post training - no relationship between IgA and cortisol before or after exercise in either training group

Table 9.1 (cont.)
Selected Research Studies Using Salivary IgA and/or Salivary Cortisol

Authors & Year	Purpose of Study	Subjects/Data Collection	Measures	Selected Findings
Kugler et el., 1996	- to determine the effect of a real life stressor (coaching competitive soccer) on IgA and cortisol	- 17 coaches and 8 controls - data collected before, during and after a match - RID; radioimmunoassay	- salivary IgA concentration and salivary cortisol (unstimulated) - perceived stress	- IgA increased at the beginning of the match, was highest at half-time and the end of the match, and returned to normal 1 hour post-match (remained stable in controls) - cortisol showed similar pattern; post peak at half-time - IgA and cortisol were not correlated

As illustrated in Table 9.1, salivary IgA and salivary cortisol have been used as indicators of the physiological response to stress with a host of stressors, including physical stressors such as exercise (e.g., Housh, Johnson, Housh, Evans & Tharp, 1991; McDowell, Hughes, Hughes, Housh & Johnson, 1992; Schouten, Verschuur & Kemper, 1988) and psychological stressors such as academic examinations (e.g., Jemmott, Borysenko, Borysenko, McClelland, Chapman, Meyer & Benson, 1983; Jemmott & McClelland, 1989; McClelland, Ross & Patel, 1985; Mouton et al., 1989), public speaking and performing mental arithmetic in front of an audience (e.g., Kirschbaum, Prussner, Stone, Federenko, Gaab, Lintz, Schommer & Hellhammer, 1995; Kirschbaum, Wust & Hellhammer, 1992), daily experiences of stressful events (e.g., van Eck, Berkhof, Nicolson, Sulon, 1996), and coaching (e.g., Kugler, Reintjes, Tewes, Schedlowski, 1996).

In general, results from the studies described in Table 9.1 support the notion that salivary IgA (secretion rate or concentration) decreases and salivary cortisol concentration increases in response to physical or psychological stressors. However, the degree of change may be affected by other factors. For example: individuals with a greater need for power have been shown to have more of a decrease in salivary IgA than individuals with a greater need for affiliation (Jemmott et al., 1983; Jemmott & McClelland, 1989; McClelland et al., 1985); negative affect and agitation have been found to be associated with increased levels of cortisol (van Eck et al., 1996); and higher cortisol responses to psychological stress have been found in men compared with women (Kirschbaum et al., 1992).

Despite its relatively frequent use in studies, not all researchers consider salivary IgA to be an appropriate measure of the physiological stress response. For example, Mouton et al. (1989) only found a weak negative correlation between salivary IgA and stress. They concluded that salivary IgA may not be as useful a measure as that proposed since their data indicated that, at least when using an academic stressor, a psychological stress threshold had to be reached before there was an effect on IgA levels. Stone, Cox, Valdimarsdottir, and Neale (1987) also expressed concern about the use of salivary IgA as a

measure of physiological response to stress. In their 1987 article, they discussed some of the issues that should be taken into consideration with salivary IgA. The first issue concerned the measurement of salivary IgA. *Salivary IgA concentration* is the amount of IgA protein in a certain volume of saliva. *Salivary IgA secretion rate*, on the other hand, gives the amount of IgA protein which is detected per unit of time. Confusion emerges when one considers the relationship between salivary flow, IgA concentration, and IgA secretion rate. When saliva is stimulated (e.g., when a gustatory stimuli, such as citric acid, is used to stimulate salivary flow), salivary flow increases. This increase has a differential effect on IgA concentration and IgA secretion rate; specifically, IgA concentration decreases and the rate of IgA synthesis increases. Given the commonly observed "dry-mouth" response which occurs when one is stressed, it is important to take these relationships into consideration when utilizing salivary IgA as an outcome measure (Stone et al., 1987).

Another issue raised by Stone et al. (1987) concerned the collection of saliva samples. Stone and his colleagues claimed that the collection of whole saliva would not only include IgA protein but also IgA proteases which may break down the IgA protein. To prevent such contamination, they suggested that saliva only be collected from the major salivary glands (e.g., the parotid). However, Jemmott and McClelland (1989) argued that whole saliva provides a better representation of salivary IgA immune status and that research has shown that IgA concentration in whole saliva is stable over time.

Finally, Stone et al. (1987) as well as other authors (e.g., Henningsen, Hurrell, Baker, Douglas, MacKenzie, Robertson & Phipps, 1992; Mouton et al., 1989) maintain that analysis of salivary IgA with enzyme-linked immunosorbant assay (ELISA) is more sensitive and less expensive than radial immunodiffusion assays (RID). Consequently, these authors advocate the use of the ELISA analysis in analyzing salivary IgA.

Salivary cortisol has been less controversial as a measure of the physiological response to stress. However, there are also some considerations that need to be taken into account when utilizing this

indicator. For example, it has been shown that salivary cortisol concentrations decrease throughout the day (e.g., Fibiger, Singer & Kaufman). Therefore, in order to minimize diurnal variation, the collection of saliva samples should take place at the same time of day for all subjects. Diurnal variation associated with salivary IgA has been found to be less pronounced (Fibiger et al., 1985), but should also be a consideration.

In addition, some research suggests that salivary cortisol may be affected by confounding factors such as smoking (van Eck et al., 1996), food intake (Quigley & Yen, 1979; van Eck et al., 1996), caffeine (Pincomb, Lovallo, Passey, Brackett & Wilson, 1987), and gender (Kirschbaum et al., 1992; Schouten et al., 1988). Such factors should, therefore, be taken into account in studies involving salivary cortisol.

It is clear that use of salivary IgA and salivary cortisol as indicators of the physiological response to stress is complex. Therefore, salivary IgA and salivary cortisol were used in this study in an exploratory manner.

9.3 Methods

9.3.1 Design

Substantial resources were required to conduct this component of the study; included were the costs for: data collection materials, assay kits, and a laboratory technician. To make best use of the resources available, saliva samples were only collected at two time points (i.e., at baseline and after four months). If it had been feasible to collect samples over the duration of the study, undoubtedly the quality of the data would have been enhanced.

Because the saliva samples were only collected at baseline and after four months, the statistical analysis involved a comparison of the treatment and control groups over a four month period.

9.3.2 Sample

In order to minimize diurnal variation, all saliva samples were collected at the same time of day (i.e., between 2 pm and 5 pm). Collection was selected to occur at this time because the majority of the HCAs in the study worked between these hours. The problem with selecting this time was that if HCAs who worked the night shift wanted to participate in this component of the study, they would have to make a special trip into the facility during this time in order to provide a sample. This was also the case for HCAs who were not scheduled to work on the days the researcher was at the facility to collect samples.

All HCAs who were asked to participate in the questionnaire component of the study (see Chapter 4) were asked to provide saliva samples; this included those HCAs who refused to partake in the questionnaire and/or interview components of the study.

9.3.3 Measures

Recent Events Questionnaire: The Recent Events Questionnaire (see Appendix G) was developed by the researcher and a faculty member in the Department of Health Studies and Gerontology at the University of Waterloo with expertise in immunology. The purpose of this questionnaire was to gather information on factors that might affect the levels of salivary cortisol and/or salivary IgA. Data were collected on the following factors: food consumption; beverage consumption and caffeine consumption specifically; smoking; recent illness and the nature of the illness; whether the aide had recently been outdoors (which was an indirect indicator of environmental temperature); recent non-work related stressful experiences; and the number of consecutive shifts worked.

9.3.4 Informed Consent

Prior to the collection of the saliva samples, a letter was given to each HCA participating in the study. The letter explained: why the saliva samples were being collected, how they would be collected,

and how the information obtained from the samples would be used. At the time of data collection, the researcher reviewed the information in the letter with each HCA and explained exactly what was involved in providing a sample. After answering any questions the HCA had, the researcher asked the aide if he/she would be willing to participate in this component of the study. Written consent was obtained from those who were interested in participating. The information and consent letters used were similar to those used with the questionnaire component of the study (see Appendix C).

9.3.5 Procedure

Because samples were collected between 2 pm and 5 pm, the majority of the samples provided by the HCAs on the day shift were from the end of their shift and those provided by the HCAs on evenings were from the beginning of their shift. In an attempt to have the data obtained from the samples reflect the HCA's experiences at work (versus those outside of work), the HCAs on evenings were asked to work for at least forty-five minutes before providing a sample.

Samples were typically collected from one HCA at a time in order to have minimal disruption on the unit. When a HCA agreed to provide a sample, he/she was asked to go into a quiet room, sit down, and relax for five minutes. During this time, the collection procedure was reviewed and consent was obtained.

After the five minute relaxation period, the collection procedure began. The HCA was asked to stop swallowing for thirty seconds. At the end of that time, whatever saliva had been collected in the HCA's mouth was deposited into a Fisher 12 ml plastic urine collection tube. After another thirty seconds, the HCA was again asked to stop swallowing for thirty seconds. The saliva collected was deposited into the same tube. Thus, saliva was collected from each participant for a total of sixty seconds. The tube was immediately put on ice.

After the first sample was collected, the HCA was asked to relax for ten minutes. During this time, the Recent Events Questionnaire was completed. After the ten minute period, a stimulated saliva sample was collected. The sample was collected using the same method as with the unstimulated sample. However, just prior to the collection of the saliva sample, the HCA was given a lemon-water solution (5% lemon concentrate and 95% water) which he/she was to gargle for thirty seconds. After the thirty seconds, the aide discarded the solution. Thirty seconds later, the collection procedure began. This second sample was deposited into a second tube. Samples were subsequently stored at -80°C until they were analyzed.

9.4 Laboratory Analysis

9.4.1 Salivary IgA

Salivary IgA was assayed using enzyme linked immunosorbant assay (ELISA). Rabbit anti-human IgA (Sigma I 9889) was diluted with phosphate buffered saline (PBS) (30 μl anti-IgA to 5,970 μl PBS). This solution was plated to each well on the polyvinyl chloride plates. The plates were covered and incubated overnight at 4°C. The following day, the saliva samples were thawed and spun for 10 minutes at 2,000 revolutions per minute. The saliva was then diluted with PBS (10 μl saliva to 490 μl PBS). Fifty μl of this solution was plated to the wells. Known concentrations of human liquid IgA (human IgA Sigma 2636) were also plated for standard values. The plates were covered and incubated for 2 hours at room temperature. After washing the plates 3 times with a PBS/Tween solution, 50 μl of goat anti-IgA conjugated to alkaline phosphatase (Sigma A 3063) was added to the plates (6 μl conjugate to 6 ml PBS). The plates were covered and incubated overnight at 4°C. The plates were then washed 3 times with the PBS/Tween solution and a phosphatase substrate solution was made (8 mg substrate to 20 ml substrate buffer). One hundred and fifty μl of this solution was added to each well. The plates were incubated at room temperature for 25 minutes for colour. Colour intensity (i.e., optical density) was

measured by a spectrophotometer at 405 nm. All samples were assayed in duplicate and average values were used as the representative values.

The standard values (i.e., the known concentrations of human liquid IgA) were used to determine the IgA concentrations in the other wells (i.e., the IgA concentrations of each sample). Specifically, the spectrophotometer provided the optical densities for the standard values. These optical densities were plotted against the IgA concentrations using Microsoft Excel. As expected, a linear relationship was found. Using this, the optical densities obtained from each sample were read against the standard curve, and the concentrations of IgA for each sample were determined. The IgA concentrations were then used in the statistical analysis.

9.4.2 Salivary Cortisol

Salivary cortisol was assayed using Coat-A-Count Cortisol Kit, manufactured by the Diagnostic Products Corporation.

Before the analysis, all components were brought to room temperature. Four plain uncoated 12x75 mm polypropylene tubes were labelled T (total counts) and NSB (non-specific binding) in duplicate. Twelve cortisol antibody (Ab)-coated tubes were labelled A (maximum binding) and B through F in duplicate. These latter tubes were used as the standards. Ab-coated tubes were labelled in duplicate; these tubes were used for the HCA samples.

Each standard was diluted 1-in-10 in water and mixed. Saliva samples were not diluted. Two hundred microlitres of the diluted standard A was added to the NSB and A tubes. Similarly, 200 μl of each of the remaining diluted standards was added to their appropriate tubes (i.e., B through F). Two hundred microlitres of each saliva sample was added to their corresponding Ab-coated tubes. One millilitre of ^{125}I Cortisol was then added to each tube and vortexed. The tubes were incubated for three hours at room temperature.

After the incubation period, the tubes were decanted thoroughly and counted for one minute in the gama counter. RIA software (Beckman Company) was used to determine the cortisol concentrations. Similar to the procedure conducted with the salivary IgA, a standard curve was plotted using the known cortisol concentrations. Cortisol concentrations of the HCAs' samples were determined by reading the data obtained from the gamma counter against the standard curve.

The IgA and cortisol concentrations were transferred into SAS statistical software and analyzed.

9.5 Hypotheses

If T.E.A.M. was successfully implemented, it was expected that job burnout would be reduced and perceptions of the work environment would be improved among HCAs in the treatment group. If such changes occurred, it was further hypothesized that the changes in job burnout would be accompanied by physiological changes in stress response. Specifically, it was hypothesized that salivary IgA concentrations would increase and salivary cortisol concentrations would decrease among HCAs in the treatment group compared with those in the control group.

9.6 Statistical Analysis Strategy

9.6.1 Comparison of Groups

As with the HCA questionnaire data, the researcher was interested in examining the effect of T.E.A.M. on the HCAs. Therefore, comparisons were made between HCAs in the facilities that implemented T.E.A.M. (i.e., Facilities A and C) and HCAs in the facilities that did not implement T.E.A.M. (i.e., Facilities B and D). Since the saliva samples were only collected at Times 1 and 2, comparisons between the treatment and control groups were made over these two time periods.

9.6.2 Overview of Analysis Strategy

Descriptive and Bivariate Analysis

The first step in the statistical analysis was to summarize the descriptive data obtained from the Recent Events Questionnaire at Times 1 and 2. Following this, the data were analyzed to determine whether significant associations occurred between Group and the variables of interest (i.e., caffeine consumption, smoking, illness, location, and the occurrence of non-work related stressful events). These data were analyzed using chi-square tests of association; Fisher's exact tests were employed when a chi-square test may not have been valid.

Two sample t-tests

After the descriptive information was analyzed, the data obtained from the saliva samples were examined. The first step was to determine whether the concentration levels of unstimulated and stimulated IgA and cortisol differed between Groups at Time 1 since such differences may affect the study's results. Two sample *t*-tests were conducted with each of these indices to test for differences at Time 1.

Repeated Measures ANOVA

The primary analysis of interest was to determine whether there were significant Group by Time interactions in the repeated measures ANOVAs conducted with each of the physiological stress response indicators. Similar to the HCA questionnaire data, the researcher was interested in determining whether changes over Time on these measures were dependent on Group. Examination of the Group by Time interactions is particularly useful since baseline differences between Groups are taken into account. In situations where a significant Group by Time interaction was not found, the data were examined to determine whether a main effect for Group occurred.

The repeated measures ANOVA model used in these analyses included the same terms as the model used in the repeated measures analyses in the questionnaire component of the study. In addition, comparisons were made of the between- to within-facility variability, where appropriate.

Change in Concentration Levels over Time

Since the employment of the physiological stress measures was considered exploratory, additional analyses were planned to examine the absolute changes in concentration levels over time. Data on unstimulated and stimulated IgA and cortisol were collapsed into discrete variables (i.e., an increase versus a decrease in concentration level from Time 1 to Time 2). Chi-square tests of association (or Fisher exact tests) were conducted to determine whether significant associations existed between Group and change in concentration level for the four physiological stress measures.

CHAPTER 10: RESULTS FROM THE PHYSIOLOGICAL STRESS RESPONSE DATA

10.1 Response Patterns

Table 10.1 provides a summary of the number of HCAs who provided samples in each of the Facilities at Times 1 and 2. Because saliva samples were only collected on certain days and at a specific time of the day, HCAs who were not working during these data collection times had to make a special trip into the facility if they wanted to participate in this component of the study. As a result, it was not possible to determine whether HCAs who did not provide a sample were not willing to provide a sample or were not able to do so because they were not working on those days. Thus, response rates were not calculated for this component of the study. Instead, data on the number of HCAs who provided samples at each Time point and the number of HCAs who refused to participate are presented. In general, those who participated in the questionnaire component agreed to provide saliva samples and those who refused to participate in the questionnaire component refused to give a sample.

10.2 Descriptive Data and Bivariate Analysis

The information collected from the Recent Events Questionnaire at Times 1 and 2 is summarized in Table 10.2. In order to determine if the HCAs in Groups 1 and 2 were similar in terms of their behaviours and experiences prior to the collection of the Time 1 saliva samples, the data from the Recent Events Questionnaire was analyzed for associations with Group. These results are presented in Table 10.3.

The data in Table 10.3 indicate that there were no significant associations between Group and caffeine consumption during the twelve hours before the Time 1 sample was collected (Fisher's: $p = 0.628$), Group and the number of HCAs who smoked in the twelve hours prior to data collection at Time 1 ($\chi^2(1) = 1.054$), Group and illness during the week before the Time 1 data were collected (Fisher's: p =

0.209), or Group and the location of the HCAs during the hour before the Time 1 sample was provided (i.e., comparison of HCAs who were indoors versus those who were both outdoors and indoors, or outdoors) ($\chi^2(1) = 0.571$). The association between Group and HCAs who did and did not experience a non-work related stressful experience during the hour before the Time 1 saliva samples were provided approached significance (Fisher's: $p = 0.073$). HCAs in Group 1 were somewhat more likely to have experienced a non-work related stressful event prior to providing the Time 1 sample than the HCAs in Group 2. Thus, overall the HCAs in Groups 1 and 2 were very similar in terms of their behaviours and experiences prior to the collection of the Time 1 data.

10.3 Differences in IgA and Cortisol at Time 1

The data were then examined to determine whether the mean unstimulated and stimulated salivary IgA and salivary cortisol values differed between Groups at Time 1. The results in Table 10.4 indicate there were no significant differences between Groups 1 and 2 in terms of the mean values at Time 1 for unstimulated IgA ($t = 1.67$, $p > |t| = 0.11$), stimulated IgA ($t = -0.23$, $p > |t| = 0.82$), unstimulated cortisol ($t = -0.57$, $p > |t| = 0.57$), or stimulated cortisol ($t = 0.65$, $p > |t| = 0.52$).

10.4 Results from the Repeated Measures ANOVA

Mean values and standard deviations from Times 1 and 2 are presented for unstimulated and stimulated salivary IgA and salivary cortisol in Table 10.5. Table 10.6 provides a summary of the source tables from the repeated measures ANOVA for each of these measures. As with the HCA questionnaire data, the primary result of interest was the Group by Time interactions from the repeated measures ANOVAs; that is, whether the changes in the salivary measures were dependent on Group status.

Table 10.1
The Number of HCAs who Provided Saliva Samples at Times 1 and 2 and the Number of HCAs who Refused to Provide Saliva Samples

	GROUP 1		GROUP 2	
	Facility A	**Facility C**	**Facility B**	**Facility D**
Number of HCAs who provided a sample at Time 1	9	5	10	9
Number of HCAs who provided a sample at Time 2	10	5	10	12
Number of HCAs who refused to provide a sample	1	5	1	12

Table 10.2
Descriptive Data from the Recent Events Questionnaire

	GROUP 1				GROUP 2			
	Facility A		Facility C		Facility B		Facility D	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
Consumed caffeine in previous 12 hours								
yes	66.7 (6)	100.0 (10)	100.0 (5)	100.0 (5)	100.0 (10)	100.0 (10)	77.8 (7)	100.0 (12)
no	33.3 (3)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	22.2 (2)	0.0 (0)
Number of cups of caffeine consumed								
mean	1.67	2.11	4.40	4.80	3.40	3.60	3.14	2.67
range	1 - 4	1 - 5	2 - 6	3 - 6	2 - 6	1 - 5	2 - 5	1 - 7
standard deviation	1.21	1.27	1.67	1.30	1.27	1.35	0.90	1.61
Smoked in previous 12 hours								
yes	44.4 (4)	40.0 (4)	80.0 (4)	80.0 (4)	40.0 (4)	50.0 (5)	33.3 (3)	41.7 (5)
no	55.6 (5)	60.0 (6)	20.0 (1)	20.0 (1)	60.0 (6)	50.0 (5)	55.6 (5)	58.3 (7)
Number of cigarettes smoked								
mean	5.50	7.25	10.75	11.50	8.00	8.40	8.00	7.00
range	2 - 10	5 - 10	9 - 14	10 - 15	6 - 10	5 - 15	5 - 10	5 - 10
standard deviation	3.42	2.22	2.22	2.38	2.31	3.91	2.65	1.87

* Percentages may not total 100% because of missing values.

Table 10.2 (cont.)
Descriptive Data from the Recent Events Questionnaire

	GROUP 1				GROUP 2			
	Facility A		Facility C		Facility B		Facility D	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
Ill during previous week								
yes	0.0 (0)	10.0 (1)	20.0 (1)	0.0 (0)	20.0 (2)	20.0 (2)	33.3 (3)	33.3 (4)
no	100.0 (9)	90.0 (9)	80.0 (4)	100.0 (5)	80.0 (8)	80.0 (8)	66.7 (6)	66.7 (8)
If ill, type of illness								
infectious	0.0 (0)	0.0 (0)	100.0 (1)	0.0 (0)	100.0 (2)	100.0 (2)	0.0 (0)	100.0 (4)
non-infectious	0.0 (0)	100.0 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	100.0 (3)	0.0 (0)
Location in previous hour								
indoors	33.3 (3)	40.0 (4)	80.0 (4)	80.0 (4)	70.0 (7)	30.0 (3)	55.6 (5)	50.0 (6)
outdoors	0.0 (0)	0.0 (0)	0.0 (0)	20.0 (1)	0.0 (0)	0.0 (0)	11.1 (1)	8.3 (1)
indoors and outdoors	66.7 (6)	60.0 (6)	20.0 (1)	0.0 (0)	30.0 (3)	70.0 (7)	33.3 (3)	41.7 (5)
Non-work related stressful event in previous hour								
yes	22.2 (2)	10.0 (1)	20.0 (1)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	16.7 (2)
no	77.8 (7)	90.0 (9)	80.0 (4)	100.0 (5)	100.0 (10)	100.0 (10)	88.9 (8)	75.0 (9)

* Percentages may not total 100% because of missing values.

Table 10.2 (cont.)
Descriptive Data from the Recent Events Questionnaire

	GROUP 1				GROUP 2			
	Facility A		Facility C		Facility B		Facility D	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
Number of consecutive shifts								
0	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)	20.0 (2)	11.1 (1)	0.0 (0)
1	33.3 (3)	40.0 (4)	20.0 (1)	20.0 (1)	50.0 (5)	10.0 (1)	55.6 (5)	83.3 (10)
2	22.2 (2)	20.0 (2)	40.0 (2)	60.0 (3)	0.0 (0)	20.0 (2)	0.0 (0)	8.3 (1)
3	33.3 (3)	30.0 (3)	20.0 (1)	0.0 (0)	20.0 (2)	40.0 (4)	33.3 (3)	0.0 (0)
4	11.1 (1)	10.0 (1)	20.0 (1)	0.0 (0)	20.0 (2)	0.0 (0)	0.0 (0)	8.3 (1)
5	0.0 (0)	0.0 (0)	0.0 (0)	20.0 (1)	10.0 (1)	10.0 (1)	0.0 (0)	0.0 (0)

* Percentages may not total 100% because of missing values.

Table 10.3
Results of Associations Between Recent Events and Group

COMPARISON	RESULTS
Consumed caffeine during previous 12 hours (yes/no) by Group	Fisher's: p = 0.628
Smoked during previous 12 hours (yes/no) by Group	$\chi^2(1) = 1.054$
Ill during previous week (yes/no) by Group	Fisher's: p = 0.209
Location during previous hour indoors versus both indoors and outdoors	$\chi^2(1) = 0.571$
Experienced non-work related stressful event (yes/no) during previous hour	Fisher's: p = 0.073

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 10.4
Time 1 *t*-test Results for Unstimulated and Stimulated IgA and Cortisol by Group

INDICATOR	GROUP 1 MEAN (SD)	GROUP 2 MEAN (SD)	*t*-TEST
Unstimulated IgA (nmol/L)	284.20 (84.18)	235.56 (81.75)	$t = 1.67$
Stimulated IgA (nmol/L)	174.91 (81.23)	181.08 (71.28)	$t = -0.23$
Unstimulated Cortisol (μg/dL)	6.20 (2.31)	6.80 (3.35)	$t = -0.57$
Stimulated Cortisol (μg/dL)	5.25 (2.46)	4.79 (1.69)	$t = 0.65$

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 10.5
Means (and Standard Deviations) at Times 1 and 2 for Unstimulated and Stimulated IgA and Cortisol

INDICATOR	GROUP 1	GROUP 2
Unstimulated IgA (nmol/L)		
Time 1	284.20 (84.18)	235.56 (81.75)
Time 2	249.92 (138.38)	189.96 (160.84)
Stimulated IgA (nmol/L)		
Time 1	174.91 (81.23)	181.08 (71.28)
Time 2	92.50 (74.20)	89.28 (101.71)
Unstimulated Cortisol (μg/dL)		
Time 1	6.20 (2.31)	6.80 (3.35)
Time 2	6.37 (5.19)	6.15 (3.45)
Stimulated Cortisol (μg/dL)		
Time 1	5.25 (2.46)	4.79 (1.69)
Time 2	4.43 (2.62)	5.16 (2.89)

Table 10.6
Source Tables from Repeated Measures ANOVA, Unstimulated and Stimulated IgA and Cortisol

Indicator	Source	Degrees of Freedom	Sums of Squares	Mean Squares	F-Value
Unstimulated IgA	Group	1	52086.52	52086.52	6.65 *
	Facility(Group)	2	140034.98	70017.49	8.93 **
	ID(Facility)	39	646538.15	16577.90	2.12 *
	Time	1	50243.87	50243.87	6.41 *
	GROUP*TIME	1	2347.14	2347.14	0.30
	Time*Facility(Group)	2	34035.36	17017.68	2.17
	Error	23	180269.62	7837.81	
Stimulated IgA	Group	1	3.67	3.67	0.00
	Facility(Group)	2	41938.78	20969.39	5.81 **
	ID(Facility)	39	342765.10	8788.85	2.44 *
	Time	1	138249.32	138249.32	38.31 ***
	GROUP*TIME	1	363.58	363.58	0.10
	Time*Facility(Group)	2	338.82	169.41	0.05
	Error	23	82994.41	3608.45	
Unstimulated Cortisol	Group	1	0.46	0.46	0.04
	Facility(Group)	2	20.24	10.12	0.93
	ID(Facility)	39	581.35	14.91	1.37
	Time	1	0.64	0.64	0.06
	GROUP*TIME	1	14.38	14.38	1.33
	Time*Facility(Group)	2	4.46	2.23	0.21
	Error	21	227.70	10.84	
Stimulated Cortisol	Group	1	0.43	0.43	0.10
	Facility(Group)	2	1.78	0.89	0.20
	ID(Facility)	39	300.59	7.71	1.71
	Time	1	0.12	0.12	0.03
	GROUP*TIME	1	0.59	0.59	0.13
	Time*Facility(Group)	2	2.21	1.11	0.25
	Error	23	103.62	4.51	

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

The results in Table 10.6 indicate that there were no significant Group by Time interactions for unstimulated IgA ($F(1,23) = 0.30$, $p < 0.59$), stimulated IgA ($F(1,23) = 0.10$, $p < 0.75$), unstimulated cortisol ($F(1,21) = 1.33$, $p < 0.26$), or stimulated cortisol ($F(1,23) = 0.13$, $p < 0.72$).

Because no significant Group by Time interactions were found, the data were analyzed to determine whether main effects for Group occurred. The results revealed that there were no significant main effects for Group with unstimulated IgA ($F(1,23) = 0.74$, $p < 0.48$), stimulated IgA ($F(1,23) = 0.00$, $p < 0.98$), unstimulated cortisol ($F(1,21) = 0.03$, $p < 0.86$), or stimulated cortisol ($F(1, 23) = 0.06$, $p < 0.81$).

10.5 Comparison of IgA and Cortisol Changes by Group, over Time

Since the repeated measures ANOVA failed to show significant Group by Time interactions for any of the saliva measures, additional analyses were conducted which examined whether there were associations between change in salivary IgA and salivary cortisol concentration levels and Group. Table 10.7 summarizes the number of HCAs in each Group whose concentration of unstimulated and stimulated salivary IgA and salivary cortisol increased or decreased from Time 1 to Time 2. Chi-square tests of association (or Fisher's exact tests) were used to determine whether significant associations occurred between Group and change in concentration level. The results from these analyses are presented in Table 10.8. The results indicate that there were no significant associations between Group and unstimulated IgA (Fisher's: $p = 0.42$), stimulated IgA (Fisher's: $p = 1.00$), unstimulated cortisol (Fisher's: $p = 0.44$), or stimulated cortisol (Fisher's: $p = 1.00$).

Table 10.7
The Number (and Percent) of HCAs Whose Unstimulated and Stimulated IgA and Cortisol Concentrations Increased and Decreased from Time 1 to Time 2

CHANGE FROM TIME 1 TO TIME 2	GROUP 1 (N=12)	GROUP 2 (N=15)
Increase in unstimulated IgA from Time 1 to Time 2	9 (75.0)	8 (53.3)
Decrease in unstimulated IgA from Time 1 to Time 2	3 (25.0)	7 (46.7)
Increase in stimulated IgA from Time 1 to Time 2	12 (100.0)	14 (93.3)
Decrease in stimulated IgA from Time 1 to Time 2	0 (0.0)	1 (6.7)
Increase in unstimulated cortisol from Time 1 to Time 2	5 (41.7)	10 (66.7)
Decrease in unstimulated cortisol from Time 1 to Time 2	5 (41.7)	5 (33.3)
Increase in stimulated cortisol from Time 1 to Time 2	7 (58.3)	9 (60.0)
Decrease in stimulated cortisol from Time 1 to Time 2	5 (41.7)	6 (40.0)

* Only includes HCAs who provided samples at both Times 1 and 2

Table 10.8
Associations Between Group and Changes in Unstimulated and Stimulated IgA and Cortisol

COMPARISON	RESULTS
Unstimulated IgA increase vs. decrease in unstimulated IgA by Group	Fisher's: p = 0.424
Stimulated IgA increase vs. decrease in stimulated IgA by Group	Fisher's: p = 1.000
Unstimulated Cortisol increase vs. decrease in unstimulated cortisol by Group	Fisher's: p = 0.442
Stimulated Cortisol increase vs. decrease in stimulated cortisol by Group	Fisher's: p = 1.000

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

10.6 Discussion

Results from the research literature suggest that the introduction of a physical or psychological stress will lead to a decrease in salivary IgA concentration and an increase in salivary cortisol concentration. The work of the HCA in long-term care is considered stressful. Thus, it was expected that if the implementation of T.E.A.M. was successful in reducing job-related stress among HCAs, that a physiological change would also be observed among HCAs in the facilities which implemented T.E.A.M. That is, it was predicted that the implementation of T.E.A.M. would lead to elevated levels of salivary IgA and depressed levels of salivary cortisol among HCAs in the treatment group compared with those in the control group.

Analysis of the physiological stress response data revealed that there were no significant Group by Time interactions for unstimulated or stimulated salivary IgA or salivary cortisol. In addition, there were no significant associations found between Group and change in concentration level for any of the four physiological measures. It is unlikely that the failure to find significant results was due to differences in the behaviours and/or experiences of the HCAs prior to data collection. In fact, only one association with Group approached significance when the data from the Recent Events Questionnaire was examined: the association between Group and the occurrence of a non-work-related stressful event during the hour before the Time 1 saliva sample. Thus, other theories must be explored as possible explanations for the observed results.

Upon examining the mean values for unstimulated and stimulated salivary IgA and salivary cortisol, there appears to be few clear trends in the findings. Concentration levels for both unstimulated and stimulated IgA decreased from Time 1 to Time 2 in both the treatment and control groups. However, the results for cortisol differed with the unstimulated and stimulated samples. Unstimulated cortisol increased from Time 1 to Time 2 in the treatment group but decreased during this time in the control group. Stimulated cortisol showed the opposite result: cortisol decreased in the treatment group and

increased in the control group when the Time 2 concentrations were compared with those from Time 1. These observations, however, only reflect trends; as previously indicated, there were no significant Group by Time interactions found with these data.

The data in Table 10.7 can also be examined for trends. This table summarizes the number and percentage of HCAs (who provided samples at both Times 1 and 2) whose salivary IgA and salivary cortisol concentrations increased and decreased from Time 1 to Time 2. A higher percentage of HCAs in the treatment group exhibited an increase in the concentration level of unstimulated IgA than those in the control group. This observation supports what would be expected from the study hypotheses; however, the association with Group was not significant. On the other hand, all of the HCAs in the treatment group and all but one of the HCAs in the control group showed an increase in stimulated IgA concentration from Time 1 to Time 2. These results are opposite to the trends observed with the average values in Table 10.6.

The results from the cortisol data were similar to those from the IgA data. Specifically, a higher percentage of HCAs in the treatment group experienced a decrease in unstimulated cortisol concentration from Time 1 to Time 2 compared with HCAs in the control group, although this difference was not significant. The findings from the stimulated cortisol data indicate that the HCAs in the treatment and control groups experienced the same number of changes in concentration level from Time 1 to Time 2.

The results from the unstimulated IgA and cortisol data in Table 10.7 are encouraging. While not significant, the data indicate that there were changes in concentration levels in the directions expected after the implementation of T.E.A.M.. However, data from the stimulated IgA and cortisol samples do not support the study hypotheses. In fact, HCAs in the treatment and control groups responded in a similar way when the stimulated samples were analyzed. This difference between the findings from the unstimulated and stimulated samples is of interest. Some authors have expressed concern about the use of stimulated saliva samples. For example, Stone et al. (1987) report that stimulation increases salivary

flow and that this increase has a differential effect on IgA concentration and IgA secretion rates in saliva. Consequently, they warn that IgA concentrations and secretion rates from stimulated and unstimulated samples may not respond in similar ways to a stressor. Indeed, when the mean salivary IgA values are examined in this study, IgA concentration decreases as would be expected from a stimulation-related increase in salivary flow. Thus, the effect that stimulation has on salivary flow and, hence, IgA concentration levels, may assist in explaining the differences observed between unstimulated and stimulated samples in the current study.

Failure to find significant Group by Time interactions in the repeated measures ANOVA or significant associations between Group and change in concentration level may have been due, at least in part, to the timing of the saliva sample collection. Because data on the physiological response to stress were only gathered at Times 1 and 2, the full effects of T.E.A.M. may not have been realized. Perhaps if saliva samples were collected after T.E.A.M. had been in place for a period of time, significant results may have been observed. In fact, this pattern of results was found with the data on absenteeism; that is, a significant association between Group and the number of HCAs who reported being absent was only found at Time 4.

Other factors may also have affected the ability to detect significant associations with the saliva sample data. One factor may be gender. While it has been found that differences in IgA and cortisol concentrations do not appear to exist at baseline (e.g., Fibiger et al., 1985; Mouton et al., 1989; Shouten et al., 1988), some studies have suggested that there may be differences in the way that males and females react to stress in terms of their salivary IgA and salivary cortisol responses. For example, Shouten et al. (1988) observed higher salivary IgA concentrations among males than females after exercise; in fact, IgA concentrations increased among men after exercise but decreased among women. Kirschbaum et al. (1992) found differences in salivary cortisol levels. Men exhibited higher cortisol concentrations after being exposed to a psychological stressor than females. In addition, cortisol levels increased among men

who anticipated a psychological stressor; among women, cortisol levels remained the same or decreased. After considering possible biological mechanisms to explain this difference, Kirschbaum et al. (1992) concluded that it was unlikely that there was a difference in cortisol responsiveness among men and women and instead, suggested that there may be a difference in psychological factors which may, in turn, affect cortisol response.

Because much of the research that has been conducted with salivary IgA and salivary cortisol has involved men, applicability of these results to the sample in this study, which primarily consisted of women, may not be straightforward.

Another factor which may affect the results observed with the cortisol data is habituation. Two recent studies have shown that salivary cortisol levels may be less responsive to more frequently occurring events than to novel events (Kirschbaum et al., 1995; van Eck et al., 1996). However, in both studies there was evidence that some individuals may be less susceptible to habituation than others. Specifically, habituation was less likely among individuals with higher perceived stress, anxiety and depression scores (van Eck et al., 1996) and those with lower self-esteem, depressed mood and more physical health problems (Kirschbaum et al., 1995). Since HCAs face the stressors involved with caring for individuals with ADRD every day, they may be less physiologically responsive to these stressors. If salivary cortisol (and salivary IgA) are vulnerable to a habituation effect, these measures may not be appropriate as indicators of chronic stress such as work-related stress.

10.7 Methodological Limitations

Various methodological limitations associated with this component of the study deserve consideration.

Perhaps the most significant limitation with the physiological stress response data involves the validity of using salivary IgA and salivary cortisol as indicators of chronic stress. The studies reviewed in

Table 9.1 involve the assessment of an acute stressor. The work of a HCA, however, is considered a chronic stressor with intermittent episodes of acute stress. Research suggests that the physiological response to an acute stressor may be different than that of a chronic stressor (e.g., Kirschbaum et al., 1995). Thus, it is not clear whether salivary IgA and/or salivary cortisol are appropriate indicators of the physiological response to chronic stress.

Another limitation of the physiological stress response component of the study may have been the failure to take salivary flow rate into account when the saliva samples were collected from the HCAs. Stone et al. (1987) recommended calculating salivary flow rate since they and others had observed a negative association between flow rate and salivary IgA concentration. However, this association was based on studies involving stimulated saliva samples. Jemmott and McClelland (1989) suggest that salivary flow may have little effect on unstimulated saliva samples. Thus, the results from this study based on the unstimulated saliva samples may be less affected by confounding factors such as flow rate.

Another limitation, which was previously discussed, relates to the fact that saliva samples were only collected at two time points: baseline and after four months. Since T.E.A.M. had only been in place for a short period of time when the Time 2 samples were collected, the benefits of T.E.A.M. may not have been realized. Consequently, the inability to detect significant results may have been a result of the relatively short follow-up time period.

Another limitation with this type of research is the substantial variability that exists in terms of different individuals' responses to stressors (Housh et al., 1991; Mason, 1975). Not all HCAs perceive their work environment in the same way. Unfortunately, perceived stress among HCAs in this study (determined by questionnaire data) was not assessed at the same time that physiological response to stress was assessed. In fact, some assessments may have occurred a few weeks apart. As a result, it is not surprising that there were few significant correlations between these two assessments. Stimulated cortisol at Time 1 was significantly correlated with the Work Pressure at Time 1 ($r = 0.37$); however,

Work Pressure was not correlated with unstimulated cortisol or unstimulated or stimulated IgA. Unstimulated cortisol was negatively correlated with Autonomy ($r = -0.34$), Innovation ($r = -0.34$), and Physical Comfort ($r = -0.44$). In terms of salivary IgA concentration, only one significant correlation was found: stimulated IgA was negatively correlated with Control ($r = -0.32$). None of the physiological stress measures was significantly correlated with any of the MBI subscales.

CHAPTER 11: QUALITATIVE DATA - METHODS AND ANALYSIS STRATEGY

11.1 Introduction

This chapter and the following one describe the final component of this study: the qualitative interviews with the HCAs. In this chapter, the methods and analysis strategy used in the initial surface analysis of these data are presented, along with a summary of their results. This is followed by the methods and analysis strategy used in the in-depth qualitative analysis. The results from the in-depth analysis are presented in Chapter 12.

11.2 Purpose and Rationale

Qualitative data were collected and analyzed to satisfy two objectives. The first was to identify and explore the HCAs' perceptions of their work life during the implementation of T.E.A.M.. This included an examination of their perceptions of the work environment prior to the implementation of T.E.A.M. and at various stages of its development. Because T.E.A.M. was a new model of care, and the study was an exploratory one, the researcher was specifically interested in the effects that T.E.A.M. had on how the HCAs' conducted their work and on their relationships with other HCAs and registered staff. The second objective of the qualitative component was to compare the perceptions of the HCAs in the treatment group with those of the HCAs in the control group. The interventions implemented in the two groups were different; however, of interest were the shared and differing perceptions of the work environment among the two groups of HCAs.

Qualitative methods were selected to meet these objectives because "[q]ualitative methods permit the [researcher] to study selected issues in depth and detail. Approaching fieldwork without being constrained by predetermined categories of analysis contributes to the depth, openness, and detail of qualitative inquiry" (Patton, 1990, p.13). Therefore, by using qualitative methods, the researcher can

gain a more complete understanding of the HCA's world and the effects that the implementation of the interventions (i.e., T.E.A.M. and the educational in-services) may have had on this world.

11.3 Theoretical Framework

A symbolic interactionist approach was selected as the theoretical framework for the qualitative component of the study. Symbolic interactionists are concerned with the meaning people give to actions and events within their worlds. These meanings are determined by interacting with other individuals and objects within one's world (Rothe, 1993).

The symbolic interactionism approach has been suggested for research which examines "processes"; that is, in studies examining a group or setting over time or after a change has been implemented (Morse, 1994). The symbolic interaction framework was considered appropriate for this study since one of the objectives of the study was to understand the meaning of the work environment, from the perspective of the HCA, before, during, and after the implementation of T.E.A.M..

11.4 Design

Interviews were conducted with HCAs in each facility at baseline and after approximately four, eight, and twelve months.

11.5 Sample

In qualitative research, there are no calculations to determine sample size. Instead, the number of participants depends on the research question, the purpose of the research, and practical issues such as time and resources (Patton, 1990). Qualitative researchers often rely on purposeful sampling. "The purpose of purposeful sampling is to select information-rich cases whose study will illuminate the questions under study" (Patton, 1990, p.169). The sampling strategy used in the current study was

maximum variation sampling, one type of purposeful sampling. In maximum variation sampling, the researcher attempts to capture and describe the variation among participants by sampling different groups. For example, in this study the shift that the HCA worked (i.e., days, evenings, or nights) and the HCA's employment status (i.e., full time, part-time, or casual) were identified as factors which may influence the HCA's perceptions of T.E.A.M.. Therefore, HCAs from each shift and each level of employment status were selected to participate at each of the four data collection times.

The researcher selected as many HCAs as possible to participate in the qualitative component of the study at each data collection time, adhering to the maximum variation sampling strategy. If a HCA did not participate, it was because he/she was not working on any of the data collection days (i.e., he/she was not scheduled to work, was ill, or was on vacation) or because he/she refused (i.e., he/she did not have time to participate or was not interested in participating). Relatively few HCAs refused to participate. The HCAs were informed at the beginning of the research project that they could participate in any, or all, components of the study (i.e., in the questionnaire, interview, and/or physiological stress response components). This was done to in order to achieve maximum participation by the HCAs since it allowed HCAs who may have been hesitant to participate in one aspect of the study to participate in another aspect.

The number of interviews conducted with the HCAs in each facility at each time period is summarized in Table 11.1. The number in parentheses represents the number of group interviews conducted. For example, in Facility A at Time 1, ten interviews were conducted: nine were individual interviews and one was a group interview. Group interviews were conducted when the HCAs asked for the interview to be conducted together. All of the group interviews involved no more than two HCAs. Group interviews were normally conducted with the HCAs on the night shift.

Table 11.1
The Number of Interviews with HCAs in Each Facility by Time

	Time 1	Time 2	Time 3	Time 4
Facility A	10 (1)	14 (1)	10 (1)	9 (1)
Facility C	7 (1)	4 (0)	6 (0)	6 (1)
Facility B	13 (0)	10 (0)	10 (2)	11 (0)
Facility D	12 (1)	7 (1)	12 (2)	15 (1)

* The number in parentheses indicates the number of interviews that were group interviews.

11.6 Methods

There are three types of qualitative data; those obtained from: interviews, direct observations, and written documents (Patton, 1990). In the current study, interviews were conducted with the HCAs since, according to Patton (1990), "[t]he purpose of interviewing ... is to allow us to enter into the other person's perspective" (p.278).

Patton described three types of interviews: the informal conversational interview, the general interview guide approach, and the standardized open-ended interview. The interview guide approach was selected to be used in this study. An interview guide is an outline of the issues and topics to be examined with the interviewees. With this approach neither the order of the questions nor their wording are determined prior to the interview; the questions merely serve as a guide for the interviewer. The advantages of the interview guide approach are: (1) that generally, the same type of information is collected from all participants, (2) the interviewer has the ability to explore specific areas in more detail, and (3) in situations where there are time constraints, this approach is valuable because it allows the interviewer to make the most use out of the time available. The disadvantages are: (1) that certain topics may not be discussed (either because they were forgotten or there was insufficient time to cover all of the

issues) and (2) responses to questions may be difficult to compare since the same question may be asked in various ways (Patton, 1990). This approach was selected for the current study because it gave the interviewer the freedom to explore certain areas in more detail and because each HCA was limited in the amount of time available to be interviewed.

Two interview guides were developed for the current study: one to be used at baseline and the other to be used at the follow-up times (see Appendix H). The interview guide for the baseline interviews was developed to obtain an understanding of what work life was "typically" like for HCAs in a long-term care facility. The portraits of work life which emerged from the HCAs in the control and treatment groups were compared to determine how their perceptions were similar and different. The interview guide for the follow-up interviews explored changes that might have occurred within the work environment (whether in the treatment or control group) since the previous interview and the effect that these changes had on the work environment and the HCA's relationships at work.

Prior to the first interview, each HCA was given information and consent letters similar to those used with the questionnaire and physiological stress response components of the study (see Appendix C). After the HCA completed the consent letter, the researcher asked the participant for permission to tape record the interview. In cases where the participant did not want to be recorded written notes were taken.

The HCAs were interviewed at times which were convenient for them, typically between 1 and 3 pm for the day staff, 9 and 11 pm for the evening staff, and 11 pm and 12 am for the night staff. The average interview was approximately fifteen minutes in length.

The HCAs were interviewed in a variety of locations within the four facilities. In almost all cases, a quiet and private setting was selected. The tape recorded interviews were transcribed verbatim. After the interviews were printed, they were coded with new identification numbers (i.e., identification numbers that were different from those used with the HCA questionnaires); the identification numbers were recorded on the first page of the interviews. Each interview also included codes for the individual,

facility, and time period of the interview; this information was recorded on the back of each interview. The name of the interviewee and any other obvious identifiers were removed from each interview. The interviews conducted at Time 1 were separated from those conducted at the other time periods since the purpose of the Time 1 interviews was to obtain baseline information, whereas the purpose of the follow-up interviews was to examine any changes over time and the effects of those changes on the HCAs' perceptions of their work environment.

11.7 Minimizing Bias

Before proceeding to the analysis section, it is important to consider the potential biases that the interviewer (i.e., researcher) may have brought to the interviews. Marshall (1990) suggested that the interviewer reflect on his/her personal biases and identify the steps taken to minimize the potential effects of these biases. A number of steps were taken in both the data collection and analysis stages of the project in an attempt to minimize any potential bias on the part of the researcher. These will be described below.

The researcher's knowledge about long-term care facilities and the provision of care to residents with dementia was a potential source of bias. However, this knowledge proved useful since it facilitated: (1) entry into the facilities and (2) the development of relationships between the researcher and the HCAs. When asked for permission to conduct the research project, the management in each of the long-term care facilities were receptive because the researcher not only had expertise in research methods and data analysis, but an understanding of the long-term care environment and the struggles and limitations faced by those working within this environment. Knowledge of long-term care and dementia also assisted the researcher in developing a relationship of trust with the HCAs since the researcher understood the situation of the HCAs and was, therefore, able to empathize with them and acknowledge their frustrations and challenges. Moreover, the fact that the researcher was an "outsider" to the facility, was beneficial

during the interviews since the HCAs were comfortable sharing their thoughts and frustrations without fear of negative consequences.

Nevertheless, in an attempt to reduce potential bias imposed by the researcher due to the researcher's interest in the outcome of the study, bracketing was used. Bracketing refers to distancing oneself from one's own ideas about a topic (e.g., an intervention) (Patton, 1990). Thus, the researcher purposely withheld her opinions about the work environment and possible effects of the interventions during her interactions with the HCAs and other staff members. In fact, during the HCA interviews, the researcher encouraged the HCAs to share all viewpoints about the interventions, both positive and negative.

Second, it was recognized that because the researcher developed T.E.A.M., implemented both T.E.A.M. and the educational intervention, and collected and analyzed all of the data, the researcher had a vested interest in the outcome of the study. While it may have been preferable to have research assistants assist with various aspects of the project in order to reduce the potential for bias, this was not feasible. In addition, having one person involved in all aspects of the research project may have increased the HCAs' willingness to participate since a relationship between the researcher and the HCAs developed. Numerous qualitative researchers, in fact, have acknowledged the importance of developing a rapport with those being interviewed (Patton, 1990; Spradley, 1979). Beginning with the introduction of the HCAs to the research project, the researcher was able to develop a rapport with all but a few of the HCAs in the four facilities; this rapport flourished as the research project progressed.

A variety of approaches were also used in the data analysis phase in an attempt to reduce potential bias. First, in order to increase the anonymity of the interviewee, the researcher removed all obvious identifiers from the transcribed interviews and coded the interviews with new identification numbers. As previously described, the Time 1 interviews were separated from those at Times 2, 3, and 4 because the two data sets were used for different purposes. The Time 1 interviews and those from Times

2, 3, and 4 were shuffled so that they were not in order of Facility and/or Time. Despite these attempts to disguise the data, the information within the interview often indicated which facility the HCA was from, although the specific HCA and the data collection time were usually not apparent.

In order to consider the data more 'openly' and without restriction, the interview questions were ignored when they were reviewed and categorized. Thus, all of the data were considered during categorization.

Throughout this thesis, pseudonyms are used when quotes are presented; this was done in order to protect the identity of the interviewees. Excerpts from some quotations are italicized. Italics were used by the researcher to highlight words or phrases within the quotations which related to the category, domain, or theme of interest; they do not reflect the intonation of the speaker.

11.8 Analysis Strategy

In a surface analysis, the researcher attempts "to gain a surface understanding of a culture or cultural scene as a whole" (Spradley, 1979, p.134). In this study, the first step in the qualitative analysis was to conduct a surface analysis of the Time 1 data followed by a surface analysis of the data from Times 2, 3, and 4. The goal of the surface analysis of the Time 1 data was to obtain a basic understanding of the HCAs' work environment prior to any intervention and to determine whether the HCAs' perceptions of the work environments in the treatment and control groups differed.

Based on these analyses, five domains emerged from the data: Relationships, Consistent Staffing, Communication, Input, and Job Demands. These domains were then the focus of an in-depth analysis involving all four time periods. The primary objective of the in-depth analysis was to compare the perceptions of the HCAs in the treatment and control groups. A thematic analysis was then conducted to identify common themes which emerged from these data. Each stage of the analysis is described as follows.

Table 11.2
Summary of Surface Analysis from Time 1: Categories and Subcategories

CATEGORIES	
Work Environment: Positive and Negative Aspects	**Relationships**
SUBCATEGORIES: **Positive Aspects** - working with people/the elderly/people with dementia - finding a connection with a resident - unexpected responses from residents - rewarding experience **Negative Aspects** - resident behaviours (e.g., aggression, agitation, resistance to care) - staff (e.g., lack of teamwork, not enough staff, unhappy staff, unequal workloads) - lack of support from registered staff/management (e.g., not being listened to, being blamed in aggressive incidents, not dealing with problems on the unit) - job demands (e.g., limited time for work and residents, noise, physical workload)	**SUBCATEGORIES:** - working together/being able to ask for help - staff on the unit are like a family - understanding by registered staff/management - lack of understanding by registered staff/management - registered staff help in providing care - registered staff do not help in providing care - registered staff allow you to make decisions - favouritism - inconsistent management by the registered staff

11.9 Surface Analysis of Time 1 Interviews

11.9.1 Purpose

Upon reviewing the Time 1 interview questions, two categories which related to the work environment were identified as important areas to pursue in the analysis: (1) positive and stressful aspects of the work environment and (2) relationships with HCAs and registered staff.

11.9.2 Methods

Passages within each interview which included statements about either categories (i.e., positive and negative aspects of the work environment or relationships) were highlighted and coded. In reviewing the Time 1 data, it was apparent that these categories sufficiently summarized the information collected during the Time 1 interviews.

Each category was reviewed separately using the coding scheme. That is, all passages relating to enjoyable aspects of the job were reviewed first, followed by passages which discussed stressful aspects, and then passages which referred to relationships. For each category, the comments were grouped into subcategories. Several subcategories emerged from the data. The categories and subcategories for the Time 1 surface analysis are summarized in Table 11.2. The subcategories within each category were written on separate sheets of paper; each reference to the subcategory was recorded using the identification numbers on the front of the interviews. This enabled the researcher to see which subcategories had been discussed and how often the participants commented on each subcategory. The following is a summary of the HCAs' perceptions of the work environment at Time 1.

11.9.3 Results of the Time 1 Surface Analysis

11.9.3.1 Category 1 - Aspects of the Work Environment: The first category in the Time 1 surface analysis was positive and negative aspects of the work environment. The positive aspects of the work environment will be discussed first, followed by the negative aspects.

Enjoyable Aspects of the Work Environment

Three main sources, or subcategories, of enjoyment related to the work environment were identified. These subcategories pertained to: the residents, unexpected events, and a sense of accomplishment. In terms of the first subcategory, the residents, there were a number of HCAs who reported that one enjoyable aspect of the work environment was working with the elderly or with individuals with dementia. For example, Caroline said that the residents "can be nasty and they can be funny and it's a lot of fun up here". (143-2) Ryan commented on the way he tried to challenge himself with each resident, "... I really enjoy it some way or another. *I like trying to find that certain aspect of that resident that I can do well with*". (105-2)

Another subcategory involved the positive feelings associated with unexpected occurrences. Ryan explained: "Sometimes you get a little response that you weren't expecting from somebody and that's *rewarding*. There is all kinds of really little things that I really like about this job". (105-2)

The final subcategory related to the sense of accomplishment one received from their job. Linda commented on this, "At the end of the day I feel that I have done *something worthwhile*". (101-2)

Stressful Aspects of the Work Environment

The following subcategories were identified by the HCAs as sources of stress in their work environment: resident behaviours, dealing with other HCAs, lack of support from the registered staff and management, and job demands. Numerous HCAs from each facility identified resident behaviours as a

source of stress. Resident aggression, in particular was considered difficult to deal with. The frustration experienced by staff was exemplified in a statement by Donna, "I find it difficult after a while being hit too many times. *I really, really just can't handle it after a while*". (130-6)

A second subcategory related to the stress caused by other HCAs. For example, Marcia said: "I think the *hardest part is working with other staff, not residents*, but with staff that maybe are more task oriented". (106-4) Madison also discussed the difficulties involved in working with other staff, "I find the most stressful part of this job is if I am working with other staff, especially on a floor like this where the members don't want to work together and pull together and help each other". (108-3)

A third subcategory, lack of support and understanding from the registered staff, was also identified as a source of stress. This was implied in a statement by Paula, "[The registered staff are] worried about the residents falling, about the residents hurting themselves, *but you never hear about the staff [the HCAs]*. And there's a lot of abuse and there's a lot of [HCAs] that are scared to work back here [clarify] because of that". (119-11)

The final subcategory that was identified related to demands on the job. Job demands such as the heavy work load and the focus on time were identified as being stressful by a number of HCAs. For example, Jennifer stated:

> Like even two years ago it wasn't as stressful. There wasn't as much to do with [the residents]. There is always some with heavy care but it just seems the ones that are light care aren't light care anymore. They are heavy. Before we could joke around with them. We still joke around with them but we don't have the time. *You get so busy that you get yourself in a tunnel vision almost.* It is like we have to get this work done and if you see somebody upset you will stop and maybe talk to them for a minute, whereas maybe two or three years ago you would have stopped to talk to them for five or ten minutes. But *you don't have that option anymore.* (139-1)

11.9.3.2 Category 2 - Relationships at Work: Relationships with other HCAs and with registered staff were also discussed by the HCAs at Time 1. Many HCAs indicated that their relationships with other HCAs were positive. Caroline provided this description, "... We have a lot of fun. *It's like a family.* It is. I feel better here than I do at home". (143-3) However, as indicated above, co-workers were also

identified as a source of stress.

Relationships with registered staff were also discussed by a number of HCAs. However, after all of the interview data were reviewed, it was evident that there was a lack of consensus regarding the HCAs' perceptions of the registered staff. Some HCAs said that the registered staff were understanding and approachable; for example, Katy said this when she was asked about the registered staff, "I think they're great back here. Like they're really good. Like I find, anyways, that if I have a problem or if I don't understand, I can have them explain it to me and they're good". (123-15) On the other hand, Leah commented on the RN's lack of understanding regarding the HCAs:

> And the different shifts, like the day shift the residents are a lot more calmer, on afternoons some of them are different personalities totally. And the day supervisors can't understand the afternoons because they don't work afternoon shift. (135-17)

11.9.4 Summary of Surface Analysis of Time 1 Data

While there was some consensus in the data collected at Time 1 from the four facilities in terms of the aspects of the work environment that the HCAs considered stressful and enjoyable, there was discrepancy with respect to the HCAs' perceptions of their relationships with other HCAs and registered staff. After examining the perceptions of the HCAs in each facility separately, there did not appear to be any systematic differences in their perceptions by Group (i.e., treatment versus control facilities). However, when one examined the comments by Facility, the relationships among HCAs in one of the treatment facilities, Facility C, were more positive compared with the other facilities, and the relationship with registered staff were less positive in Facility B, one of the control facilities, than in the other three facilities (see Table 11.1).

11.10 Surface Analysis of Interview Data from Times 2, 3, and 4

11.10.1 Purpose

The questions asked during the interviews at Times 2, 3, and 4 focused on events occurring within the research units and the atmosphere of the work environments as perceived by the HCAs. Some of the events which occurred were new (e.g., the implementation of T.E.A.M.) whereas some aspects of the work atmosphere could be considered on-going (e.g., relationships with coworkers, the status of the residents). In planning the analysis of these data, it was recognized that the events and the atmosphere could affect different aspects of the work environment including the: residents, HCAs, registered staff and management, and the work environment in general. Further, each of these aspects could be affected in either a positive or negative way. Thus, the purpose of the surface analysis of the interviews from Times 2, 3, and 4 was to identify the positive and negative effects that the events and the work atmosphere had on: the residents, the HCAs, the registered staff and management, and the work environment. Therefore, it was these categories that were used to organize the qualitative data from Times 2, 3, and 4.

11.10.2 Methods

As with the Time 1 interviews, passages that referred to one of the categories (i.e., effects on the: residents, HCAs, registered staff and management, or the work environment) were highlighted. After reading all of the interviews, the highlighted passages were reviewed one category at a time. For each category, a different colour was used to indicate whether the comment made was positive or negative; this was done be underlining the comment with the appropriate colour. Use of a colour-coded scheme was helpful in identifying comments made about each category; it also provided a visual picture of the tone of the interview. For example, if magenta was used to indicate negative comments made about the effect of an environmental factor on staff and an interview was primarily coloured in magenta, one would conclude that the overall tone of the interview was negative.

Table 11.3
Summary of Surface Analysis from Times 2, 3, and 4: Categories and Subcategories

CATEGORIES			
Effect on Staff	**Effect on Resident**	**Effect on Environment**	**Effect on Registered Staff/Management**
SUBCATEGORIES: **Positive Effects** - work as a team/help each other - increased communication - understand resident more - feel respected/supported by registered staff - increased self-esteem - have more time - like to have change **Negative Effects** - increased stress - lack of trust among HCAs - communication problems - do not know residents - unequal workloads - HCAs do not get along - less confidence	**SUBCATEGORIES:** **Positive Effects** - know residents more - residents know the HCAs - less agitation - residents receive better care - rotation gives residents a break from staff **Negative Effects** - HCAs do not know all of the residents - lack of time for care - rotation had negative effect on residents - lack of trust on part of the resident	**SUBCATEGORIES:** **Positive Effects** - more relaxed environment - rotation/change is beneficial - T.E.A.M./consistency is beneficial - HCAs have input - pros of monitor position **Negative Effects** - new residents are heavy, aggressive - change caused confusion - stress from job uncertainty - negative aspects of consistency - poor communication - cons of monitor position - effect of new staff	**SUBCATEGORIES:** **Positive Effects** - increased trust - help the HCAs - good relationship - mutual respect - ask HCAs for input **Negative Effects** - lack of trust, respect, & understanding of HCAs - lack of communication - unequal treatment of HCAs - inconsistent RNs - do not ask HCAs for input - management do not care about residents - do not help the HCAs - do not acknowledge problems

As each category was reviewed and underlined with the appropriate colours, subcategories were identified and recorded on separate sheets of paper. All references to that subcategory were recorded using the identification numbers on the interviews. Positive and negative subcategories were recorded on separate sheets of paper. The subcategories identified are summarized in Table 11.3.

11.10.3 Results from Surface Analysis of Time 2, 3 and 4

In analyzing the subcategories and their interrelationships, five domains emerged: Relationships, Consistent Staffing, Communication, Input, and Job Demands. All of the identified subcategories fit into one of these five domains; thus, it was concluded that these domains appropriately summarized the data.

The five domains were then analyzed in an in-depth analysis. The following section describes the methods and analysis used in the in-depth analysis. Results from this analysis are presented in the following chapter.

11.11 In-Depth Analysis of Interview Data

11.11.1 Purpose

The purpose of the in-depth analysis was to analyze the data in more detail by: (1) comparing the perceptions of the HCAs in the treatment and control groups and (2) examining how the HCAs' perceptions within these Groups changed over time.

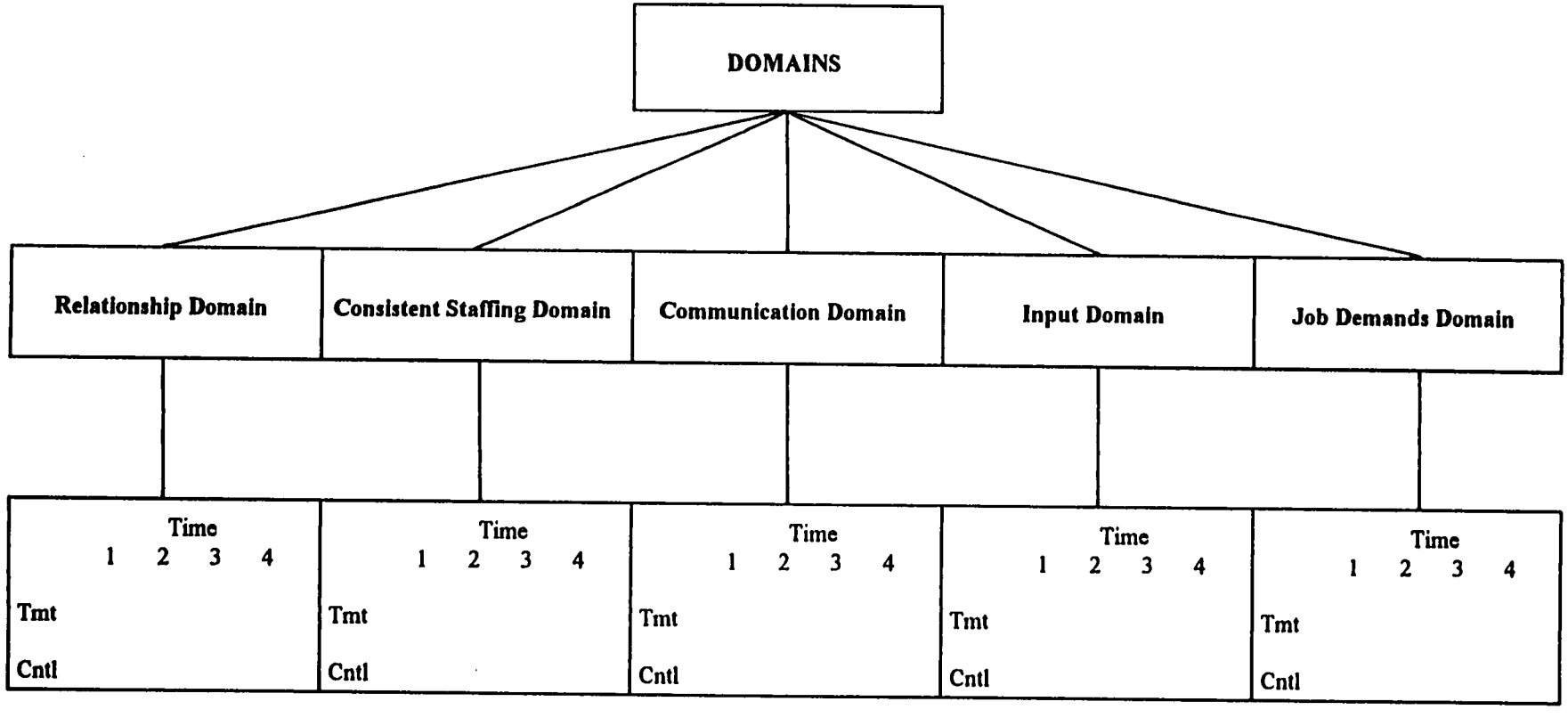
11.11.2 Methods

For each interview conducted at Times 2, 3, and 4, the passages which had been highlighted during the surface analysis were reviewed and summarized according to the five domains. These summaries were recorded on the back of each interview. That is, comments made about Relationships were summarized, followed by comments on Consistent Staffing, and so on. The data from Time 1 were

also used in this analysis in order to obtain a complete picture of the HCAs's perceptions of the work environment over time. In order to have the organization of the Time 1 data consistent with that from Times 2, 3, and 4, the Time 1 interviews were reviewed and re-categorized using the five domains. As with the interviews from Times 2, 3, and 4, these summaries were recorded on the back of each interview.

The interviews were then sorted by facility and separated into the four time periods. The comments made by all of the HCAs for each domain at each time period were summarized for each Group, the two facilities within each Group, and each time period. For example, the comments about the Communication domain were recorded for the HCAs in Facility A, a treatment facility, at Times 1, 2, 3, and 4. This enabled the researcher to determine what emerged within each Group and each Facility over time for the five domains. Figure 11.1 provides a graphical display of the organization of the in-depth analysis.

Figure 11.1
Graphical Display of In-Depth Analysis



* Tmt = Treatment Facilities
Cntl = Control Facilities

CHAPTER 12: QUALITATIVE INTERVIEW DATA - RESULTS FROM THE IN-DEPTH ANALYSIS

12.1 Introduction and Overview

This chapter presents the findings from the in-depth analysis of the qualitative interview data. In terms of the organization of this chapter, the findings from each domain are presented separately. First, the domain is defined. This is followed by a presentation of the findings by Group and Facility. Finally, within each Facility, the change over time with respect to that domain is delineated.

12.2 Domain #1 - Relationship Domain

Three types of relationships were discussed by the HCAs: (1) relationships *among* the HCAs on one's shift, (2) relationships *between* the HCAs on different shifts (e.g., between the HCAs on days and the HCAs on evenings), and (3) relationships with registered staff or management. For each Facility and each Time period, the three types of relationships are discussed. Comments which exemplify the HCAs' perceptions of the Relationship Domain in each Facility at each Time period are presented in Table 12.1.

12.2.1 Treatment Group

12.2.1.1 Facility A

Time 1

The Time 1 interviews with the HCAs in Facility A indicated that the relationships among the HCAs on each shift were positive and improved over time. For example, Paul described a typical day as, "Staff helping you and smiling." (104-1)

Relationships between the HCAs and the registered staff were also positive. For example, when asked about the registered staff, Lindsay said, "No problem there. They are pretty good. They are understanding." (112-8)

Table 12.1
Relationship Domain: Summary of Findings over Time by Facility

	RELATIONSHIP DOMAIN			
	Time 1	**Time 2**	**Time 3**	**Time 4**
Facility A	**HCAs:** - "help each other" - "get along" - "some are not nice" **Reg:** - "pretty good" - "understanding"	**HCAs:** - less fighting - "help each other" - "no trust" **Reg:** - "more trust"	**HCAs:** - "work together" - "difference of opinions" **Reg:** - "supportive" - respect HCAs	**HCAs:** - "get along" - "good to try to improve teamwork" **Reg:** - "good relationship"
Facility C	**HCAs:** - "work as a team" - "like a family" **Reg:** - "the best"	**HCAs:** - "help each other" **Reg:** - "okay"	**HCAs:** - "support each other" **Reg:** - "understanding"	**HCAs:** - "work hand-in-hand" **Reg:** - "really good"
Facility B	**HCAs:** - "depends on staff" **Reg:** - blamed for aggression	**HCAs:** - "fine"; "have spats" **Reg:** - "okay" relationship	**HCAs:** - "moodiness"; some fighting **Reg:** - "don't care how you feel"	**HCAs:** - "happier" - "get along better" **Reg:** - "getting better" - "lack of trust"
Facility D	**HCAs:** - "get along"; "help each other" - lack of teamwork **Reg:** - "all work together"	**HCAs:** - "good ones and bad ones" **Reg:** - "good ones on this floor"	**HCAs:** - "work as a team" **Reg:** - "equal basis" - not all help out	**HCAs:** - depends on the staff **Reg:** - "not bad" - "treat you like you are dirt"

* 'Reg' refers to registered staff

However, some of the HCAs hinted at a problem between the HCAs on the day and evening shifts. For example, Lindsay said the following about her co-workers, "My co-workers are very good. We get along well. They are very helpful. ... *Some shifts are not very nice. Especially on days.*" (112-7) Ann, a HCA on evenings, said:

> To me the problem was that I found lately ... it was making my whole evening awful. *We come in and there was numerous people in bed and certain ones that shouldn't be* ... If they slept all afternoon, there are ones that will crawl out of bed or they will shout and shout where normally they would be glad to go to bed. *So there is this resentment.* (113-9)

Times 2 and 3

At Time 2, the problem between the day and evening HCAs became more apparent. For example, Bill said:

> *There is no trust.* I find that there is no trust at all right now. To build that trust is going to take time between each shift. Trusting the person that is going to be relieving you is going to take over good care during that shift. (240-6)

Similarly, Ryan said, "I think there is still some problems between shifts but not between people that work on the shifts. That is kind of a rocky road but that *has a long history* - between the shifts." (236-2)

While the problems between shifts became more explicit, the relationships among the HCAs on individual shifts were improving. For example, Helen commented, "Staff morale is a lot better. [This unit] used to be, nobody wanted to work it. Now the morale is really, really working well and I find the residents quieter" (313-5). Helen also commented on the relationship among the HCAs on her shift, "It is not fights like it was before. We get along really well." (313-12) Jackson also commented on the positive relationships among the HCAs on his unit:

> A lot of times on [another unit], one of the guys would see me rushing ... and would help. I would know immediately who did it. So maybe two days down the road he would be rushing and I would grab whoever it is that was his bath and I would do the bath. It is that kind of give and take. *I see that a lot on [our unit] now with our group.* It's pretty neat. I think that is the only way to work. If you are going to go to work with the attitude that I'm just here to do my job and that's it, one of these days it is going to backfire. When it backfires it s not going to be

pleasant. With the give and take it is always rewarding. You feel good doing something for somebody and feel even better when they do something back for you without even mentioning it. *I see that often.* (245-2)

Positive relationships with the registered staff were also noted by the HCAs at Time 2. Two HCAs commented on the greater sense of trust on the part of the registered staff. Paul said, "[The RN] is a lot less hyper and *trusts us more. We aren't always being watched*" (201-9) Renee made a similar comment when she described the relationship with the registered staff as: "More relaxed. *Don't feel so much that you are beneath them.* They are not afraid to leave me alone in a room because I am going to steal something. *More trustworthy.* They are more outgoing. You can talk better with them." (286-7)

Similar comments were made about these relationships at Time 3.

Time 4

A few weeks prior to the Time 4 interviews, the HCAs decided that, after caring for the same group of residents for approximately a one year period, they were in need of a change. Therefore, the HCAs decided to change hallways (i.e., those working on Hallway A moved to Hallway B and vice versa). The Time 4 interviews were conducted a few weeks after this change occurred. While the relationships among the HCAs on each shift remained positive, there was some stress associated with the change of residents. Renee explained:

> There has been a lot of chaos on the unit since we switched hallways. A lot of confusion going on and a lot of lack of trust between our partners ... *It was really tough for about three weeks, then we worked it out.* It is still calming down but we are getting along now. You are not crying, thinking 'I have to work tomorrow'. (205-2)

In terms of the relationships between HCAs on different shifts, few comments were made at Time 4. However, Ann did comment on the attempt to improve teamwork:

> In general, I thought it was a good idea. Maybe it didn't turn out the way I thought it would have. At first maybe I was a little reluctant but once I got into it I really thought it was a good idea trying to build up teamwork among the shifts and whatever. Not always perfect but basically, *I thought the idea was great.* (281-11)

12.2.1.2 Facility C

Time 1

The relationships among the HCAs and between the HCAs and the registered staff in Facility C were, for the most part, positive at all four time points. At Time 1, Terri described the relationships among the HCAs in the following way, "you know if you're not feeling too well, you know you're going to get help. *Any time you need help, you can ask. We work as a team* ... If you're behind, someone will help you, or you'll help someone else if they need it." (110-11) Caroline described the relationship with the registered staff in this way, "Great. We have the best. *We're like one big happy family up here.* Everybody gets along, everybody helps one another. I wouldn't work on any other floor, I don't think". (143-26)

Time 2

At Time 2, the relationships were also described as positive. However, between Times 1 and 2, some restructuring had taken place in the facility's management and, as a result, the day RN who had been the Unit Manager on the floor lost her position and a new RN was responsible for the research unit as well as another unit. While the HCAs expressed positive thoughts, there was a sense of uncertainty about the new RN. For example, Dan said this when discussing the new RN, "So far it is okay. It seems to be the same. *I think she is delaying changes.* Everything is mostly the same". (223-12) Paige expressed a similar sentiment, "We have kept things basically the same. *I don't know whether there will be changes later on.* But right now she is pretty well keeping it the way we had it". (224-15)

Time 3

At Time 3, there were no problems mentioned about the relationships among the staff, although a few HCAs implied that they were having some personal difficulties. For example, Caroline described the

relationship among the HCAs this way, "Actually we have a lot of support for each other. It is pretty bad when the staff and the residents are on the same medication, don't you think? *We have to be there for each other.*" (312-13) When describing the relationship with the registered staff, Caroline said, "They are just like us. They are understanding". (312-15)

Time 4

The relationships were described as positive at Time 4. In terms of the relationship among the HCAs, Dan said:

> We help each other when we need to. It works out. *We work hand in hand.* You really have to do that otherwise you will be stuck ... Just shout and call and somebody comes. It would be harder if they said, 'I am busy now, I can't do it', but they don't do that. (212-6)

Some of the HCAs indicated that there had been some improvement in their relationship with the RN. For example, Paige commented:

> It was a lot better when [the other RN] was here, but now [this RN] is changing her ways a bit too and getting more used to it, I think. She has been really good actually. *Maybe it just took some time and adjustment and stuff like that.* She has really been good. (330-10)

12.2.2 Control Group

12.2.2.1 Facility B

Time 1

The relationships among the HCAs at Time 1 could be described as adequate. In fact, when the HCAs discussed the relationship among the HCAs, many qualified their responses. For example, Deb said that a typical evening was "Normally pretty good. *It all depends on who the staff is* ... there is people that do their share and there is people that don't and *that makes or breaks your night.*" (124-1)

A few HCAs also pointed out some of the problems among the HCAs. One example was from

Anna:

> For the most part I get along with everybody. There is certain things that do frustrate me back here. There is a lot of people that tend to work a lot slower and you almost feel that you are picking up their work load, and that I can sort of deal with because I know these girls always work this way, so you just go along with the flow and do what you have to. *What I find frustrating is listening to everybody else bitch about them.* (117-7)

In terms of the relationships the HCAs had with the registered staff, there were differences of opinion. Some HCAs indicated that the relationships with the registered staff were good. For example, Goldie said, "We have good supervisors. We really do." (132-17) and Marcia commented, "[The RNs] are great". (106-3) On the other hand, some HCAs discussed their frustration with the registered staff. A few HCAs said that there was favouritism; for example, Donna said "some staff can do no wrong". (130-9) Other HCAs were frustrated because they felt they were being blamed when they were hit by residents. Leah, while speaking about the registered staff, said:

> I find sometimes they're not out on the floor as much with us so sometimes they think that when we do get hit or whatever, it's our approach ... sometimes it may be our approach, but not all the time ... like I wish they were on the floor more often when we're doing our cares and maybe, once in a while, do a whole shift that a HCA does and maybe they would realize more so. But that's just my opinion. *Sometimes I don't think they look at it from our view.*" (135-16)

Time 2 and 3

At Time 2, there were relatively few comments about the HCAs' relationships. By Time 3 the HCAs' feelings appeared to intensify, particularly in terms of their relationships with the registered staff. The perception of favouritism was again discussed. Other frustrations were also expressed. Sharanie, for example said, "I think the RNs treat you like you are two years old [on this unit], where [on another unit] they treat you like you are normal and you know what you are doing; they seem to listen better to how you feel ... *here, they don't seem to care how you feel*". (276-2) Katy expressed her frustration with the registered staff who, she thought, did not acknowledge the problems that a moody staff person was causing for the other HCAs:

> You come in and you have this moody person. I don't feel that I should have to change my personality to fit this person ... *A lot of girls have left this unit because of these problems.* I refuse to leave because I like it here ... Why should everybody have to leave? But the registered staff think there is no problem. They don't help. *They refuse to even notice there is a problem* ... All they say is 'Oh well you have to get along', 'You better all get along'. Its like they threaten you ... So you come in and do your job. It makes it hard some days. (218-3)

Another frustration was described by Lauren:

> I think there should be a lot more understanding between ... the HCAs and the registered staff ... if you feel something should be done and they disagree and you feel for sure it should be done because we are working with that person ... where the registered staff might more or less do the theory part of it and they know the resident, of course, but not as well as the HCAs ... they understand their illness, but sometimes I find the RNs try and stop their medications, certain medications, which I can understand *but when they stop certain medications for certain residents, you can get hurt. It is not fair to the HCAs*. (227-10)

Time 4

At Time 4, some HCAs reported that the relationships among the HCAs were improving. For example, Katy described the environment as, "Just happier I guess. Not that moodiness. It is just, all the way around, better." (270-2) And Liz said, "The HCAs get along better now than ever with each other, I find." (319-4) In terms of their relationships with the registered staff, some indicated that the relationships had improved. For example, Katy characterized the relationship as "Getting better". (270-5) However, other HCAs described the continuing problems between the HCAs and registered staff. Goldie described a problem with one of the RNs:

> *She doesn't trust her staff.* If there is somebody that isn't necessarily new, but not regular part-time, she kind of dogs them. *Makes them feel real incompetent.* A lot of us have been here probably a lot longer than she has. She doesn't trust that we're going to do the best for residents that we can ... It makes it hard. You need to trust your staff. You can't do it all yourself. (215-7)

12.2.2.2 Facility D

Time 1

In Facility D, many of the HCAs said that they got along with the other HCAs and worked together. For example, Kelly said, "This floor is excellent. Everybody gets along, help out each other."

(116-7) When the HCAs discussed their relationships with registered staff, some, such as Heidi, described a helping relationship, "... I find even the RNs, you all work together - RPN, RN, we all do it. We have an understanding - whoever is available." (134-4) On the other hand, Jennifer discussed the lack of teamwork on the unit:

> I come from another floor and we are really big on teamwork. If we work short, the RNs would jump in and make beds. The Unit Manager would jump in and make beds. It seemed like everybody cared about everybody ... When I came to this floor, there was a couple of people on this floor who are no longer here, but they were like 'I just do my work and that is it' ... Everybody else got fed up and said 'You do your work, I do my work, and leave it at that'. *The teamwork just went all to hell ... It is just so geared to 'these are your people and your responsibility', anything goes wrong with them, then it's your fault.* (139-5)

Time 2

At Time 2, the descriptions of the relationships among the HCAs were generally positive. For example, Liz said, "Relationships are good. You get your good ones and you get your bad ones." (209-7) Madison said this about the registered staff:

> We have really good ones on this floor too. I have worked some other floors where I find it has been more difficult because people didn't want to work together. We don't have a problem. I guess here you have to work together, so people just do. That is the best thing about this floor. (210-5)

Time 3

The relationship among the HCAs were described as positive at Time 3. However, there were differences of opinions with respect to relationships with the registered staff. A number of HCAs indicated that they had good relationships with the registered staff. For example, Tracy said:

> The registered staff over here is really good. That is one good thing. *They know you are busy; they don't call you and tell you to do something stupid that they could very well do themselves.* That I like. If they ask you to do something, it is something worthwhile, calling me away from what I was doing. We are busy too. That way it is really good. *Everybody is like on an equal basis.* (219-10)

Mary-Lynn and Cindy, however, described the opposite scenario:

> The RNs don't feel that they should be doing direct hands-on care, that is not part of their job, that is the HCA's job. So while we are really busy and fighting with residents, or trying to do something with the resident, and somebody else needs a sweater or needs to go to the bathroom or to be fed or whatever, the RNs will tell us that this person needs a sweater or whatever, *rather than getting it themselves and helping us out that way.* Not all of the RNs do this; some will come to help you. (298-2)

Time 4

At Time 4, the HCA relationships were described positively; however, a few HCAs commented on the difficulty faced when working with staff who did not want to be on the unit. For example, Heidi said:

> As long as we have the regular part-time and the regular full time, we are okay. Some staff doesn't like being here. That does make it difficult if the staff is here just because they have to be here. They don't particularly like the floor. You can sense that. *The work just doesn't get done as it should.* (216-6)

In terms of the relationships that the HCAs had with the registered staff, many of the HCAs qualified their responses. For example, Diane said that things with the registered staff were, "Not bad, as long as I do my job. *Just doing what they say.*" (318-4)

Another problem was evident from the following exchange which occurred in an interview with two HCAs:

Dana: ... because you are HCAs, they think you are uneducated and you are treated very poorly (271-16)

Cory: I said the same thing last night. I went for a job interview in [a city] and they asked me the same question, 'What don't you like about [your job]...' I said, 'You are treated like you are uneducated.' I have education, more than some RPNs here, and you are put down. *They will put you down to your face.* That is difficult. (271-16)

Dana: *They treat you like you are dirt* ... (271-16)

Cory: That goes right from top on down. Because we went to a meeting last month and the gist of the meeting was, *'we are all at the top of the ladder and the HCAs are at the bottom, and you listen to us and that is it'.* They just went about it the wrong way. But I mean, you get that anywhere you go, I am sure. (271-16)

12.2.3 Summary of Relationship Domain

Relationships Among HCAs

In one treatment facility, Facility A, the relationships among the HCAs on each shift were described as positive at Time 1 and improved over the course of the study. In Facility C, the other treatment facility, the relationship among the HCAs on days was very good at all time points, often described as family-like. As for the control facilities, the HCAs in Facility B indicated that there were a few problems between individual HCAs at Time 1; however, these relationships improved with time. In Facility D, some of the HCAs indicated at baseline that the relationship among the HCAs was positive, while others indicated that it varied depending on the HCA. These conflicting feelings persisted throughout the study.

In comparing the treatment and control facilities, the relationship among HCAs at baseline may have been more positive in the treatment group than the control group. However, by the end of the study, the relationships among HCAs were described as positive in all of the facilities. The one exception was in Facility D where, at the end of the study, some reported positive relationships among the HCAs and others qualified their assessments.

Relationships Between HCAs on Different Shifts

The day and evening HCAs in Facility A indicated that the relationship between these two shifts had been strained for years. This tension was present throughout the study although some progress was made toward improving these relationships. In the final interview at Time 4, some of the HCAs indicated that they wanted the relationship between the two shifts to improve but the time required to do so was not available. In the other facilities, the HCAs did not discuss the relationships between HCAs on different shifts.

Thus, problems between shifts, specifically, between the day and evening shifts, were only identified in Facility A. This problem may not have been discussed in the other facilities because there were no problems between the shifts or because there was no 'relationship' to discuss (i.e., there was relatively no contact or communication between the shifts). A lack of communication between shifts was identified by some of the HCAs in Facility D; this point will be discussed in section 12.4 on the Communication domain.

Relationships Between HCAs and Registered Staff

In terms of the relationships with registered staff, there was improvement over time reported by the HCAs in one of the treatment facilities, Facility A. As the study progressed, the HCAs in this facility felt more respected and trusted by the registered staff. The situation was somewhat different in the other treatment facility. In Facility C, the relationship with the registered staff was positive at Time 1. However, at Time 2, when a new RN was assigned to the unit, concern was raised. The relationship between the HCAs and the new RN improved by the end of the study, although not to the level it had been with the previous RN.

In one of the control facilities, Facility B, there was a discrepancy at all time periods with respect to the relationship between the HCAs and the registered staff: Some HCAs characterized their relationship with the registered staff as positive while others did not. Finally, in the other control facility, Facility D, the relationship with the registered staff appeared to deteriorate over time. At the beginning of the study, many of the comments indicated that there was a good relationship between the HCAs and the registered staff. However, by Times 3 and 4, some of the HCAs remarked about the lack of respect that the registered staff had for the HCAs. This negative change may have, at least in part, reflected the HCAs that were interviewed. Most of the HCAs who were interviewed at Time 1 were also interviewed at Times 2, 3, and 4. There was, however, a small group of HCAs who did not want to participate in any

aspect of the study at either Time 1 or Time 2. As the study continued, some of these HCAs began to trust the researcher and eventually agreed to participate in the interview component of the study (although some refused to be tape-recorded). Some of these HCAs had negative feelings about their relationships with the registered staff. This negative relationship (i.e., lack of trust of the registered staff and management) may, in fact, have been part of the reason why these HCAs did not want to participate in the research project. However, this is merely conjecture on the part of the researcher; there was no clear evidence to support this hypothesis.

The relationships between HCAs and registered staff, particularly in the control facilities, could be described as mediocre. However, there was often discrepancy in HCAs' perceptions of these relationships with some characterizing them as positive and others as negative and demeaning. In contrast, the HCAs in the treatment facilities tended to describe their relationships with registered staff more positively. For example, in Facility A, the relationship with the registered staff evolved over time into one of trust and respect. In Facility C, the HCAs expressed concern when the new RN was transferred to their floor; however, their relationship with the RN improved over time and the HCAs never described their relationship with her as demeaning as the HCAs in Facilities 2 and 4 had done with their registered staff.

12.3 Domain #2: Consistent Staffing

Consistent Staffing referred to statements about the length of time HCAs were assigned to a group of residents. This domain also included statements about the effects of consistent staffing (e.g., on residents and HCAs). For a summary of the statements made in each Facility, see Table 12.2.

The longer a HCA is responsible for the care of one group of residents, the more consistent the care is said to be. Typically, each HCA on a unit is assigned to a group of residents for a one or two week period and is then rotate to a new group of residents. Thus, the HCAs are continuously rotated through

groups of residents on the unit. With T.E.A.M., one goal was to provide more consistent care to the residents. However, in order to empower the HCAs, another goal of T.E.A.M., the HCAs were responsible for determining how long they would be assigned to the same group of residents. The HCAs in one of the treatment facilities, Facility A, cared for the same residents for a one year period. At the beginning of the study, the HCAs in this facility decided to work in small teams. Therefore, teams of two or three HCAs were responsible for each group of residents. Together, these teams provided all of the care to the residents in their groups. In the other treatment facility, Facility C, individual HCAs were assigned to groups of residents. These HCAs cared for the same residents for approximately nine months and then began to rotate the group of residents they cared for weekly.

As for the control facilities, the HCAs in Facility D were each assigned to a group of residents for a one week period. In Facility B, the majority of the HCAs worked part-time and, as a result, resident assignments were more complicated. HCAs who worked full-time were assigned to a group of residents for a one month period. Part-time HCAs were kept with the same group of residents as much as possible. For example, if a part-time HCA worked for two or more consecutive days, that HCA would care for the same residents each day, unless the resident group the HCA was caring for had been assigned to one of the full time HCAs that month. In this case, the full time HCA would care for that group and the part-time HCA would be assigned to a new group of residents.

12.3.1 Treatment Group

12.3.1.1 Facility A

Times 1 and 2

None of the Facility A HCAs commented on consistent staffing at Time 1. At Time 2, the HCAs had been caring for the same group of residents for over four months. All but one HCA commented on the benefits of consistent staffing. For example, many of the HCAs said that because of consistent

staffing, they knew the residents better. Christine provided this example:

> I think this thing about staying with the resident, I think that is *the best thing that could ever happen* ... Sunday morning I saw one of the ladies I look after all the time ... and I was at the desk and she was way down the hall and I could tell something was wrong with her. *Just the look on her face.* Sure enough when I went to her, she was a sick lady. I got her into the bathroom and she started vomiting. *Just a glance at them now, you can actually see.* (285-4)

Jodi related this story about knowing the residents better:

> One resident would often try and climb out of bed. One day we saw that she was reaching for her shoes. So we put her shoes and socks in her bed with her and she cuddled them and fell asleep. This happened two nights in a row, so now when she's unsettled and is trying to crawl out of bed, we give her her shoes and socks and that seems to comfort her. She seems to be worried about losing her shoes or something. *This is something that you wouldn't know if you didn't work the floor all the time.* (299-1)

Many HCAs also said that the residents knew them better as well. One HCA noted the benefits of having a consistent team of HCAs work with the same residents. Helen said

> ... I find the residents quieter ... *less agitated* and they respond better. Before they weren't. There was only a certain person and if they weren't there, they didn't respond. *Now that we all go in together, those patients make it easier.* (313-5; 313-7)

Renee made another observation about the benefit to the residents:

> I think they are getting done quicker. They aren't staying wet as long because we are doing it so quickly. People aren't sitting as long in urine and *we are able to clean them up quicker because there is no stigma as to who is yours and who isn't.* (286-4)

Only one HCA, Dawn, said that consistent staffing had a negative effect. However, this HCA had left the research unit after approximately four months. Shortly after T.E.A.M. had been implemented, some problems emerged among the day staff. Dawn did not like T.E.A.M. and was not willing to work as a team member. After discussions among the team members (i.e., the HCAs and registered staff), the team decided that it would be best if Dawn was allowed to leave the research unit and return to the unit she had worked on previously. Dawn agreed with this decision.

Table 12.2
Consistent Staffing: Summary of Findings over Time by Facility

	CONSISTENT STAFFING DOMAIN			
	Time 1	**Time 2**	**Time 3**	**Time 4**
Facility A	nothing said	- "quieter"; "less agitated" - HCAs know residents - residents know HCAs	- "they know us" - "don't know [other residents] as well"	- "they went loopy" - "didn't trust us"
Facility C	nothing said	- "residents get used to you" - "there is a couple of residents you can only take so much of"	- "it seems to be easier if you have a break"	- "For the resident it is better. Probably not for us"
Facility B	nothing said	- "I don't think anybody should work back here full time"	- "get to really know them" - "doesn't matter"	- "try to see what other people do" - "consistency is good"
Facility D	- "too stressful" - rotating staff can be beneficial	- "everybody needs a change"	- "recognize you more" - "a week is plenty" - "I like the every day rotation"	- "a change is as good as a rest"

When the Time 2 interviews were conducted, Dawn agreed to do an exit interview. The purpose of the exit interview was to obtain Dawn's perceptions about T.E.A.M. and to identify problem areas which may require improvement. In addition, the researcher wanted to ensure that Dawn did not have any feelings of guilt about leaving the study.

Dawn's reasons for leaving the study were not entirely clear. This was apparent in the transcript of her interview. It appeared that during the exit interview, Dawn tried to justify leaving the unit. After speaking with the registered staff and other HCAs, the problems Dawn had with T.E.A.M. became more evident to the researcher. For example, in describing what she did not like about T.E.A.M., Dawn said, "I don't like the idea of starting at one end of the hallway and coming down ... I don't feel that there is any personal attachment to the residents. I feel you are just like an assembly line." (336-3) While one concern in any method of assigning HCAs to residents is that the residents fail to receive individual and compassionate care, this aspect of working one's way down a hall is common to almost all HCA-resident assignments. In fact, on Dawn's previous unit, and the unit to which she returned, the HCAs worked this way, from one end of the hall to the other.

During her interview, Dawn also said, "I don't want somebody else to be responsible for what I am suppose to do. I want to get the blame ... I couldn't handle that idea that I had the whole hallway. I didn't know which one I was responsible for." (336-4) Another comment she made was:

> ... it is easier for the staff but was it better for the residents? I don't think so. I did not think so. They got lost in the shuffle. If I am not responsible for one certain person, I have to go say, 'Renee did you do this person?', 'Ryan did you do this person?' I have to do him myself to feel that he is done. I would rather do it myself than rely on somebody else. (336-10)

While Dawn seemed to have felt an increased sense of responsibility, other HCAs thought that this type of organization enabled them to share responsibility of the residents (see comments by Cheryl below). As well, Dawn indicated that she did not like to rely on others to provide care to the residents and that she was more comfortable when she had performed the care duties. However, in discussions with the

registered staff and other HCAs about why Dawn left the unit, these individuals indicated that Dawn did not want to work together as a team and did not do an equal share of the workload. According to the other staff members, these issues were common sources of tension between the HCAs and Dawn.

Thus, while it is important to consider the reservations Dawn expressed about T.E.A.M., her comments must be taken in context.

Time 3

In the interviews conducted at Time 3, the HCAs again expressed the fact that T.E.A.M. and, in particular, providing consistent care, enabled them to know the residents better and enabled the residents to know the HCAs. For example, Renee noted that some residents noticed when a HCA had been away:

> They know us. Helen was off for a week and [a resident] knew she was gone and when she came back, ... [the resident] took one look at her and she said, 'the blonde is back' ... *They do get to know us, maybe not by name but by personality and by little things they know we do for them.* They notice it. (322-5)

While it was considered beneficial to know one's group of residents well, Lori pointed out that with consistent staffing, the HCAs did not always know the other residents on the unit very well:

> I think I have gotten to learn most of the residents. I know I have learned to get my eight residents very well. I know sort of what they like and what they don't like, and when they go to bed and when they don't ... Some of the other residents, I know them by name and face, I can say hello to them. *I don't know them as well.* The thing is, if we have to do a switch or if I am doing another shift, it is like what is this routine or what does this person do? *It makes it very frustrating that I have to keep asking questions* ... (256-6)

Thus, it appears that when HCAs provide consistent care, they gain an intimate understanding of the residents they are responsible for but may not know the other residents on the floor as well as they would if the HCAs rotated resident groups more frequently. However, a similar problem may exist when HCAs rotate the residents they care for weekly or biweekly. That is, the HCAs may only have a basic, rather than a more in-depth, understanding of the residents.

Time 4

At Time 4, the HCAs reiterated what they had said about knowing the residents and the residents knowing the HCAs. They also discussed the benefits of working in teams. For example, Cheryl said:

> This program has been one of the better things that I have seen in the nursing home since I started. I used to have the feeling that I had this many people and I was responsible for them. But now, it sort of *takes a little bit of pressure off because there is two people responsible for one resident*, even though we have the whole hall. We are still responsible. I find it a lot better. Much easier. (282-10)

A few weeks prior to the Time 4 interviews, the HCAs decided that a change was needed and, therefore, switched hallways (i.e., the HCAs who worked on Hallway A moved to Hallway B and vice versa). A number of HCAs commented on the effect of this change. The most pronounced effect seemed to be on the residents. Ryan described the change this way:

> They [the residents] *went loopy* for about a week. *A lot of them seem to be quite upset about it.* I would say more residents down A hall I noticed were more upset than the residents down B hall, but I think that is probably a higher cognitively functioning level on the A hall residents to some degree. For a week everybody was really uptight, resident-wise, they were all quite uptight about it, which is unusual because any time I have ever rotated before, I mean *we were at least rotating so much that it didn't mean a thing ... Almost trauma reaction to it sometimes.* It is really something. (230-11)

Renee also commented on the effect of the change on the residents:

> Patients for the first month or so when we transferred over, *didn't trust us at all.* [The RN] said she noticed it more than we did because when she would sit at the desk, she would see *weird things that would happen that didn't happen before.* They would act differently because of the changes that were going on ... Not being on the hall that I used to be on, I didn't see what was happening down there. Later in the day you would hear, 'so-in-so did this', and you would think, 'She would never do that. Are you sure?'. Then they we're hearing the same thing about our hall. We would be complaining about this person doing something and they would go, 'Wow, she has always been really quiet for us'. Now they are starting to trust us. *But you noticed it when you switched over, you really noticed the difference. I didn't think you would.* (205-3)

12.3.1.2 Facility C

Times 1 and 2

The HCAs did not discuss consistent staffing at Time 1. As with Facility A, the HCAs in Facility C had been caring for the same group of residents for at least four months when the Time 2 interviews were conducted. The majority of the comments made at Time 2 regarding consistent staffing were positive. Some HCAs indicated that because of consistent staffing, some residents knew the HCAs and noticed when they had been away. For example, Paige said, "I like working on the same unit because the residents get used to you. *They miss you when you are not there.* Like the other day, [a resident] asked me, 'Where have you been?' They know because you are always there." (224-1) Dan relayed a similar experience, "They know you more. If you do them every day they sort of look forward to the same person. *They don't know me by name, but they know me when they see me.* They say, 'Oh, it's you again.' (223-3)

In terms of dealing with difficult residents, Paige made this comment, "My unit is usually pretty good. I don't have anybody on there that is aggressive or anything. Kimberly does on her unit so she sometimes gets someone to do someone for her and she will do someone for them." (224-3) The practice of switching residents who were difficult was also mentioned by Caroline, "The routine is good but I know a couple of the other girls, there is a couple of residents you can only take so much of, so they switch off." (246-1) In both of these comments, the HCAs indicated a potential problem associated with caring for the same residents, namely, caring for residents who are very aggressive. Another possible disadvantage of consistent staffing was also mentioned by Caroline. She indicated that with consistent staffing, the HCAs do not always know specific details about other residents on the unit. Caroline explained, "It is different because you don't know if you have to change somebody in somebody else's unit, you don't remember, do they wear Attends or what is happening here?" (246-1)

Time 3

Prior to participating in the Time 3 interviews, the HCAs had decided to discontinue caring for the same group of residents but to begin changing the group of residents they cared for on a weekly basis. They acknowledged that providing consistent care was beneficial to the resident since the HCAs knew the residents better and the residents knew the HCAs. However, providing consistent care to aggressive and/or heavy care residents for an extended period of time was said to be too difficult for the staff. For example, Dan said:

> It was heavy. Then you don't have enough time to spend with them because you have to get everything done. Soon as you start to rush them, they get confused and it is worse. It seems to be easier if you have a break away from that unit to the next one. (316-8)

Some of the HCAs reported that they preferred changing the residents they cared for on a weekly basis. Caroline said that weekly rotations were, "Pretty good because ... if you are on a tough unit, you are only there for a week. You know you only have to stay there for a few days and then you are on to the next one. So it's not too bad." (312-5) Thus, the HCAs indicated that when they rotated the residents they cared for, they were able to have some relief from the aggressive and heavy care residents. Despite the benefits of more frequent rotations, some HCAs indicated that the job was still difficult. For example, Terri said, "... *I think it is still stressful.* I think it is just the floor. Very heavy. It is quite stressful." (277-6)

Time 4

At Time 4, the HCAs summarized their experiences with providing consistent care. In terms of the benefits of consistency, Terri said, "*I think for the residents it is better. Probably for us it is not.* It is easier as far as you know the residents like the back of your hand. You can handle them better. As I said, Caroline and I didn't have it hard like the others did." (267-11) Paige expressed a similar viewpoint:

> The other way was better for the residents I think because they got so used to your ways and they really look forward to that I think. When you weren't there, they kind of looked to see where you were. Like the next day if you weren't on and they saw you when you came back they would say, 'It's so nice to see you again'. A lot of them did notice it but it was more stressful for us. (330-8)

The HCAs indicated that it was too difficult to provide consistent care to the heavy residents. Paige explained:

> After a while, not the first few months, but then everybody in that unit that you were on for a year, like mine in particular, changed so much because there was so many that had died on that unit and then different residents came on. It became really heavy to keep up to it. It became very stressful. (330-8)

While weekly rotations were considered beneficial in many ways, some drawbacks were mentioned. Terri stated this about weekly rotations:

> You do get to know the residents because you are still there working with them every day. But there is little things such as one resident, actually the one that I can handle really well, no problem at all, sometimes we don't have any problems with him, but other times he gives us a hard time, but Dan can just do him like that ... They know you too. They don't know who you are, but they know your face. *They know they can trust you and the others they are not so sure about.* But you do get to know every resident on the floor, *but not like you did when you had them every day. You knew everything about them.* (267-16)

12.3.2 Control Group

12.3.2.1 Facility B

Times 1 and 2

As with the HCAs in the treatment facilities, the HCAs in Facility B did not make any comments about consistent staffing during the Time 1 interviews. At Time 2, only one HCA made a comment related to consistent staffing. Paula said, "I don't think anybody should work back here full time." (273-11) She went on to say, "I really like the Alzheimer unit, that is my unit, but *you do need off because the pressure is there.* [The residents] can't understand. You can tell [a resident] ... twenty thousand times, and you may as well tell that flower because it doesn't register." (273-13)

Time 3

A few HCAs commented on consistent staffing at Time 3. In terms of rotating to different areas in the facility, during a discussion with three HCAs, two of them said that they were in favour of rotating to different areas in order to get a break from the residents. The third HCA did not agree with this, she thought that that decision should be up to the individual HCA. (239-2) Two other HCAs commented on caring for the same group of residents for an extended period of time. Marcia, a full time HCA, said that when you care for one group for a entire month, "you get to really know them well" (327-9). She also said, "I know they recognize staff. The only hard part is that they don't understand that you don't [care for] them [when you are caring for another group]." (327-10) On the other hand, Katy made this comment about consistent staffing, "[it] doesn't matter ... because I think with being such a small unit, it is only 30 people, and I know them all anyway. I don't think it matters." (218-30; 218-31)

Time 4

At Time 4 a few comments were also made about consistent staffing. On the one hand, there were some HCAs who said that change was good. One HCA explained to the researcher that the facility had recently begun to use availability calendars. These were calendars on which staff could indicate when they were available to work on their days off and what area within the facility they wanted to work. This provided staff with an opportunity to work in other areas. Deb explained how working in other areas of the facility gave you a better perspective with respect to the stressors existing in each area:

> ... I think in a home like this, you have three different floors and it is like we are in three different worlds here ... *I think that everybody would get a dose of what everybody else does*. That is part of the problem. I am not saying resident-wise, but stress-wise. You always feel that you are doing more than the other guy. I think you do anyway. I think it really is good that everybody gets to try and see what other people do. (211-21)

Sherry explained that she preferred change, "I like it better right now because like our night staff is pretty constant and I find working first and second floor good because I find when I can change like

that, I enjoy coming to work more." (306-1) Sherry's comments also indicated that it was beneficial to have the same staff work together. Robin echoed this thought, "The consistency is good. The same staff on all the time. The consistency is good and we are working well together." (305-3)

12.3.2.2 Facility D

Time 1

In Facility D, two HCAs made comments related to consistent staffing at Time 1. Both indicated that rotation was beneficial. Jennifer commented on the benefits of weekly rotation:

> You have the same people for a whole week. It used to be two weeks but I found it was too stressful to take care of the same people for two weeks. It is really stressful especially if you are having one that is very aggressive towards you and you have to deal with that every day. After about a week of it, it's like, 'let's move on'. It used to be a month at one time, they changed it two weeks, and *now we do it for just a week and that is plenty.* (139-6)

Madison suggested that rotating staff to different units in a facility can be helpful in breaking up staff cliques which may be compromising the quality of the care provided to the residents:

> There are sometimes maybe groups that have something in common that is not positive and they get together and they can really bring down the quality of care ... If you know somebody is a staff member that is not going to put up with it, then they will put them on that floor. They will try and remedy that. I am talking about somebody with a different point of view who is going to change things a little bit ... *Sometimes the rotating is good for that.* They started doing that now. The only time you run into a problem with the rotating is if you put somebody in an area where they really feel that they don't want to look after that resident ... Probably they shouldn't be in that area ... It has to be stressful for the staff. (108-5)

Times 2 and 3

Only one HCA commented on consistent staffing at Time 2. Diane said that she liked rotating residents every week and when asked if she would like to care for the same residents for longer than one week, she said, "No, everybody needs change". (251-17) At Time 3, however, a number of HCAs commented on consistent staffing. All of the aides except one said that she preferred rotating the residents they cared for on a weekly, as opposed to daily, basis. They also said that they would not want

to care for the same residents for more than a one week period. Madison made this comment when asked about rotating residents weekly:

> I find it is really good 'cause I do think the residents are, *after about the second or third day, it seems it is easier to do them. They recognize you more. They know what to expect.* They see you and they know. Some of them it is so hard to talk to them, to communicate. They know when they see you what is going to happen to them, so there is not so much fear there. I imagine otherwise they might think, 'oh, here is some stranger taking a hold on me, what are they going to do?' I notice a couple of them that I have had difficulty with are actually easier to do, that rapport really does help. *But I think a week is plenty for the staff because they get so stressed out after that, they wouldn't have the patience, especially on this floor. Some people are really, really difficult.* (253-6)

Heidi was the exception, she preferred daily rotation. Heidi described working on the "heavy" side:

> We have a heavy side. This side here, they are all resistive, most of them are stronger, while [on the lighter side] some of them are a ... little bit cooperative when you are doing them and so when you are on this side ... you almost like have a break. So before when we were changing every day, you don't seem to notice it. Your body goes with the flow. While being on the same number for a week, day after day, especially *if you have the whole week stretch and only have one day off, that is a lot on the heavy side* ... That is why I think I like the every day rotation rather than the weekly ... Although there is also an advantage, for a week you know automatically what you are going to do, you can organize yourself. (213-5)

Time 4

A few comments were made about consistent staffing at Time 4. These comments were similar to those made at Time 1. Linda, when discussing weekly rotations, said, "*It is nice to have a change.* I find if you get a heavy number, it is very hard on you for a longer period of time. *Four to seven days is enough to have a heavy care.* Demanding and aggressive. That is how I feel." (204-9) And Karen made this comment about their facility's practice of rotating to another unit for a short period of time, "*A change is as good as a rest.* I think they need it. This after a while can be very stressful for you." (334-12)

12.3.3 Summary of Consistent Staffing Domain

In the first treatment facility, Facility A, numerous comments were made about consistent staffing and the benefits which resulted from providing more consistent care. The residents, in particular, appeared to benefit from this type of care. For example, after the HCAs had been caring for the same residents for a period of time, the residents were described as less agitated and more responsive. The HCAs also indicated that they had a much better understanding of the residents and that at least some of the residents recognized the HCAs that cared for them. The effect on the residents was particularly evident after the HCAs switched hallways. For the first few weeks after the change, the residents reacted negatively: they were noisy, behaved in ways that were not considered typical for them, and did not trust the HCAs. The residents became less disruptive a few weeks after the change had been made; the HCAs assumed this change occurred because the residents became more accustomed to their new care providers.

In the other treatment facility, Facility C, the benefits of more consistent staffing were also noted, in particular, the increased knowledge and understanding of the residents on behalf of the HCAs. However, concerns about caring for residents who were aggressive and/or physically demanding were raised at Time 2. Prior to Time 3, the HCAs had ceased caring for the same residents and began to rotate the residents they cared for on a weekly basis. The HCAs acknowledged that consistent staffing was beneficial for the residents but indicated that it was not always advantageous for the staff. This difference between Facilities A and C with respect to the impact of consistent staffing on the HCAs is noteworthy. The HCAs in Facility C indicated that it was too difficult to care for residents who were very aggressive and physically demanding for an extended period of time. Perhaps having to care for aggressive residents was not as difficult for the HCAs in Facility A because they worked in small teams. In this situation, one HCA was not necessarily providing care to the same person numerous times a day for an extended period of time. In fact, a few of the HCAs in Facility A discussed their feelings of a shared sense of responsibility for the residents on their unit; this may have enabled them to cope better with the

aggressive residents.

Another possible reason for the difference in perceptions between HCAs in Facilities A and C regarding aggressive and/or physically demanding residents may be that the HCAs in Facility A were more likely to make changes to their resident groups (either on a short term or long-term basis) than the HCAs in Facility C. At the beginning of the study, the HCAs in both Facilities were informed that changes in resident assignments would be necessary during the study. Short term changes (i.e., changing residents for one day) would be needed when either a HCA or a resident was having a difficult day. Long-term changes (i.e., a permanent change of residents) would be necessary to ensure that each HCA's workload remained relatively equal. Workloads were expected to change during the course of the study because of resident deterioration and the loss and acquisition of residents due to deaths or transfers. If the HCAs in Facility A were more likely to make these adjustments in assignments, the workloads among the HCAs would have been more equal and the HCAs would have had more control over their resident assignments, which may have enabled the HCAs to cope with their residents better. While the HCAs in both of the treatment facilities discussed making short term changes with residents, one HCA in Facility C mentioned his heavy workload to the researcher after a few months of providing consistent care. When the team of HCAs in Facility C discussed whether or not there was a need to make long-term changes to resident assignments, the HCA who expressed his concern about his workload minimized his need to have a change. In the end, no changes were made. Therefore, there may be some evidence for the second explanation regarding the difference in HCAs' perceptions of caring for aggressive and/or physically demanding residents. However, the exact reason for this difference cannot be determined with the information available.

In one control facility, Facility B, there were mixed feelings about providing consistent care. In this facility, most of the comments about consistent care related to whether one should always work on the same unit or occasionally work on other units. Some HCAs thought that it was beneficial to

occasionally work on other units since this would enable the HCAs to understand and appreciate the pressures experienced by aides working in other areas. Other HCAs, however, thought that consistency was beneficial and they said it was helpful to work with the same staff members.

In the other control facility, Facility D, there was agreement among the HCAs in terms of their perceptions of resident assignments. All of the HCAs indicated that frequent rotations were beneficial. Rotating residents weekly enabled the HCA to gain an understanding and rapport with the residents but also limited the length of time they spent caring for the same aggressive residents. The HCAs indicated that caring for the same group of residents for more than one week was too difficult. One HCA said that she preferred daily, rather than weekly, rotations.

In comparing the treatment and control facilities, it was apparent that over the course of the study, the HCAs in the treatment facilities gained a greater appreciation for the potential benefits of more consistent staffing; namely, the increased knowledge of the residents and the greater familiarity and comfort that some of the residents had with the HCAs. The HCAs in Facility C, however, also recognized the drawbacks that consistent staffing could have for staff (i.e., the stress associated with caring for aggressive residents) and implied that the effects on residents had to be weighed against the effects on HCAs. In the control facilities, however, there was limited recognition of the potential benefits of consistent staffing for either residents or HCAs. Instead, the overriding feeling was that because of the type of resident being care for, HCAs should be frequently rotated to different groups of residents.

Table 12.3
Communication: Summary of Findings over Time by Facility

	COMMUNICATION DOMAIN			
	Time 1	**Time 2**	**Time 3**	**Time 4**
Facility A	- "do not know how to communicate with each other"	- "chance to communicate" - "blaming"	- "afraid" - "increased level of communication"	- some communication problems
Facility C	nothing said	nothing said	nothing said	nothing said
Facility B	- "hard for people to open up" - lack of communication with registered staff	nothing said	- "share problems and frustrations" - "no communication at all"	- "more open" - "nobody listens"
Facility D	- "we don't communicate"	nothing said	nothing said	- "not as good as it used to be"

12.4 Domain #3: Communication

The *Communication domain* referred to communication among the HCAs and between the HCAs and registered staff and management. Statements which relate to the Communication domain are summarized in Table 12.3.

12.4.1 Treatment Group

12.4.1.1 Facility A

Time 1

There was only one comment made at Time 1 which related to communication. Sue said:

> ... I think we do need more meetings and in-services on communication with other people. *People just do not know how to communicate with each other anymore*. ... instead of just listening to the other person, they only hear themselves, they don't want to compromise ... we only learn how to approach residents, but they don't use that same skills when approaching another person, like another staff member. I found there is a lot of misunderstandings. (140-5)

Time 2

At Time 2, there were a number of HCAs who commented on communication. For example, Renee explained that when T.E.A.M. was first implemented, the HCAs did not communicate enough with each other. However, once they began to communicate more, it was easier to work together:

> *The first two weeks or so because we didn't get into the habit of telling each other what we were doing* and I would go and toilet someone and it was, "I just did her". So we have gotten used to coming back from break and saying, "so and so and so and so". Then we are not doubling up anymore. It took that two weeks to settle that down. I am enjoying it. I think its great. Working level has dropped a little. I am happier. I don't feel so stressed. (286-3)

Jackson explained that the research project enabled staff to communicate more:

> As far as the research project is going, I think it is a good thing for several reasons. One, *it is giving the staff on all shifts a chance to communicate with each other*, which is really important. That has been a long time coming ... also the staff are starting to develop a respect for the other shifts. (137-6)

Helen also commented on communication and one of the benefits that she had observed:

> I found when I first started here when someone would die nothing was said and now that we all work together, we are a group, it feels now when somebody passes away the health care aides down the hall will talk about them. It is better you can talk about them leaving, together, and what we liked or what the funny parts were, so then *it is like our own little good bye towards them*. So it is nice. (313-10)

One HCA mentioned that the communication between shifts, especially between days and evenings, was difficult. Ryan said:

> I don't hear quite as much of bickering and the blaming and that sort of thing going on. I think the communication thing, no matter how you try to communicate between shifts, *people seem to automatically take it as not communication, it is blaming*. (236-3)

Some measures were implemented in Facility A as part of T.E.A.M. to enhance communication. One was a communication book which was developed by the HCAs. Staff were to use the communication book as a way to share information between shifts about the residents. However, a number of problems arose as a result of the book including misunderstandings about what was written in the book (e.g., some staff took offense to some of the comments written) and the fact that the book was not used by all of the staff. Another means of improving communication was the use of shift representatives. Each shift selected a representative who was to act as the contact person for that shift. The representatives from the three shifts were to work together to help resolve any issues or difficulties which arose.

Time 3

At Time 3, one HCA indicated that there was still a problem with communication between the HCAs on days and evenings. A comment was also made about the problems associated with one of the measures implemented to improve communication. For example, Ryan said:

> There is just a *general lack of willingness for anybody to communicate* because I think everybody is just afraid of starting another incident so nobody wants to really discuss anything with anybody between the two shifts. *I think we are going to be doing away with the reps*. We will just communicate through the RPNs when they do report because that book has just caused so many problems, not the book but *the rep thing has just not worked out*. Nobody wants to do it. It is just becoming a real hassle and it is just not functioning. (324-5)

On the other hand, Jackson provided an example of how the day and evening staff found a way to resolve one of their problems. For the evening staff, a contentious issue had always been starting their shift with numerous residents in bed who they thought should not be in bed. The evening staff's concern was that some of these residents would try to climb out of bed before a HCA on evenings was able to assist them and, thus, put themselves at risk of injury. After much deliberation between days and evenings, a list was produced which delineated those residents who could be left in bed by the day staff. Other residents could be left in bed under special circumstances (e.g., illness). Jackson described the positive effect that this list had and also commented on the increased communication between the shifts:

> This project ... really has made a lot of difference to [our unit] ... one example ... I heard somebody the other day say, 'God, we came in today and everybody was in bed' and I thought to myself I should ask somebody else from another floor if that always happens ... We have a list on [our unit] that all the day staff members honour and unless there is something out of the ordinary, like somebody has come down with a cold or something and they are in bed ... Other floors it is not like that. So I think it makes life a lot easier for both shifts that you have a set number and there isn't that conflict on that one small point. Now if you can only get agreement on everything across the board, then how much nicer would work life be? I am glad the research project is here and happening, and hopefully it will go to other floors and we will see the same results because *there is an increased level of communication between the staff, and it is not just the registered staff. It is down below as well.* What often happens when it was like that, if you are a registered staff member on evenings and I am on days and my staff tell me something, I will come and tell you something but you are getting my spin. You tell your staff and they get your spin, and then my staff told me 'A' and by the time it gets to your staff it's 'D'. That doesn't work. (304-10)

Time 4

At Time 4, communication between the day and evening shifts was still considered problematic by some of the HCAs. Ryan explained:

> I think the staff problems are getting worse. Tension level among staff is really going up. I am not sure why, I think probably a combination of things, like first of all we are busier than we ever were, which seems to be a chronic problem, *we keep getting busier and there just doesn't seem to be the time to put the effort into making communication happen* that well because good communication, especially with the people you are not working immediately with, takes a lot of time and effort and we really don't have any extra time for anything. (230-1)

Cheryl also mentioned the problem with communication, "Like I say, it is communication really, but everyone is getting along pretty well. *If everybody would talk to one another things would be so simple*. But the only time they talk is if you get into a big bash, which is ridiculous. *We can't think for somebody else*." (282-8)

The problem with communication was primarily with the day and evening shifts. Jodi commented on the good communication that nights had with the other shifts:

> You have a lot of good communication with days ... And evenings are very good too. We have all been getting along really well. We pass information back and forth. We don't have too much problem with either shift. Enough stress without having that kind of stuff. (242-6; 242-7)

12.4.1.2 Facility C

There were no specific comments about communication that were made at any time point by the HCAs in Facility C. (The possible explanations for the difference between this Facility and the others will be discussed in section 12.4.3.)

12.4.2 Control Group

12.4.2.1 Facility B

Time 1

At Time 1, two HCAs referred to the communication among the staff. Wendy, for example, talked about the fact that problems among HCAs were often not discussed openly among those involved and the difficult position that the HCAs sometimes found themselves in because of that:

> I think that is another area that we need to share. It is hard for people to open up and share things. It is the confrontation thing. If I hear anything it is usually not spoken to the person directly ... I feel back here that I am sort of caught in the middle because I try to work with everybody as they are. (122-5)

Paula indicated another problem with communication, namely, the lack of communication between the HCAs and registered staff, particularly in terms of understanding resident aggression and the use of medication with aggressive residents. Paula explained:

> The aggression and the stress and frustration because some feel they shouldn't be medicated, some feel they should be medicated, and do you use restraints, and where do you draw the line? If they're going to physically abuse you daily, and I know, *I've always said it with my father, I'd rather have him medicated on the bed, like a zombie, than hurting somebody, because if he was right, then he wouldn't do that* ... I know the idea of not restraining them is wonderful, it looks good on paper, its not good and its not good when they're hurting other people, other residents. And we're getting an awful lot of aggression back here. (119-18)

Times 2 and 3

There were no comments made about communication at Time 2 by the HCAs. At Time 3, however, two HCAs briefly discussed some problems with communication. Regarding the communication among the HCAs, Sharanie said, "*I think we can talk to each other*. That helps. To share problems and frustrations." (276-9) However, when asked about the communication between the HCAs and registered staff, she said there was " no communication at all". (276-10) Robin also commented on the lack of communication between HCAs and registered staff. When asked if she could provide an example of a time when communication could be improved, she said:

> Let's say activities. We are going to take out ten residents at 2:00 pm. [Activity staff] report it to the charge nurse and she doesn't tell us and those residents would have had to be toiletted before 2:00 pm. Bang, it is 1:50 pm and you are running around. Or they will change someone's diet, put them on reducing, and not tell the whole staff. (274-16)

Robin said later in the interview, "*I think the RNs should open up to the staff more and explain why things are being done a certain way.*" (274-33)

Time 4

At Time 4, communication among the HCAs was said to be good. For example, when discussing an in-service on stress management, Robin said, "I think you opened things right up and the staff talks a lot more, *we are more open about our feelings*. I think it was wonderful." (305-8) However, when the same stress management in-service was discussed with Wendy, she indicated that the communication between HCAs and registered staff was still poor:

> The girls were saying after, they just felt that they could vent their feelings and you were listening. *That has been a very big problem back here, is that nobody listens*. At least that night everybody aired their feelings and felt better after. Because even if you just get it out and they know that somebody is listening, but sometimes when we say things in our meetings it is like you don't even know if it has been heard or not ... *it seems that the issues that the girls speak up with just sort of get brushed aside and that is why some of them are angry* ... It has been aggression and medication and why can't they have the medication. (284-6; 284-7)

12.4.2.2 Facility D

Time 1

Relatively few comments were made about communication by the HCAs in Facility D. However, a few aides commented on the lack of communication between the shifts. Jennifer described the situation:

> We don't communicate. *I know I don't communicate with 3 to 11 or 11 to 7*. When I worked 3 to 11, I never communicated with days either. We have a communication book where you read. That is how you talk to one another. What you do on 3 to 11 and what you do on days is like night and day. It is so different. [The residents] are more relaxed during the day, then they wind up. So by the time 3 to 11 staff come they are really wound up and they are a lot more aggressive and they are harder to handle and there is less staff. (139-3)

Times 2, 3 and 4

The HCAs did not comment on communication at either Times 2 or 3. When asked about the relationship between the HCAs and registered staff at Time 4, Rose said this about the RNs:

> *There is no communication anymore between the RNs and the rest of staff*. It is just they are always at the desk. You never see them, never hear from them. All of the responsibilities is the RPNs basically now. That is who you communicate most with. *The communication here is not as good as it used to be*. (206-12)

12.4.3 Summary of Communication Domain

The HCAs in Facility A indicated that there was a history of communication problems between the day and evening staff. The problem was first identified during the Time 1 interviews and was discussed during subsequent interviews. However, many of the HCAs said that they were concerned about this problem and wanted to improve the situation. Progress had been made by the end of the study, but some tension remained. The majority of the comments about communication in Facility A involved communication between the HCAs. Little was said about communication between the HCAs and registered staff.

In the other treatment facility, Facility C, communication was never raised as an issue. There are a number of possible explanations for this difference. For example, perhaps the day and evening staff in Facility C had not had problems like those in Facility A. Both the Communication and Relationship domains spoke to the tension that existed between shifts in Facility A whereas the HCAs in Facility C never indicated that there were problems between shifts. Another possible explanation for the difference was that there actually were problems between the day and evening shifts in Facility C but the HCAs did not discuss the issue. Perhaps the HCAs in Facility C did not want to discuss negative aspects of their work environment with the researcher (although other problems had been addressed) or maybe the HCAs did not mention these problems because the interview questions did not explicitly ask about these relationships. Another explanation is that the problems between shifts were raised in Facility A because the HCAs recognized that tension between the shifts had been a long-standing problem and they wanted to remedy this situation. Indeed, some of the Facility A HCAs did express their desire to improve this aspect of their work environment. Unfortunately, the actual reason for this difference cannot be determined from the data available.

With respect to the control facilities, the level and quality of the communication among the HCAs in Facility B appeared to improve over time. This improvement was attributed to some of the in-services

that were conducted which provided the HCAs with opportunities to discuss problems in the work environment and share their feelings. Communication between the HCAs and registered staff was generally poor and remained that way throughout the study.

Relatively little was said about communication in Facility D. However, the comments that were made indicated that the communication between shifts and between HCAs and registered staff was minimal.

Therefore, with the exception of Facility C, HCAs from all of the facilities indicated that there were some communication problems within their facility. The control facilities, however, were more likely than the treatment facilities to discuss communication problems between the HCAs and the registered staff.

12.5 Domain #4: Input

Input refers to the HCA's ability to express their opinions about residents and other work-related issues and to have their suggestions and opinions listened to by registered staff and/or management. Examples of quotations which relate to the Input domain are found in Table 12.4.

12.5.1 Treatment Group

12.5.1.1 Facility A

Time 1

At Time 1, one HCA commented on the fact that the HCAs had little opportunity to have input into decisions related to resident care. Sue made this comment:

> Sometimes it can be very stressful. I have gone home in tears sometimes. It is not just the residents, it is a combination that day like feeling frustrated because as a HCA you can only go so far. ***Not everything you said was listened to, you were dismissed because you only have a health care aide certificate*** - so what would you know what you are talking about? And families coming in and asking us questions and giving us heck for things that we really had no control over, but what can you say? (140-3)

Table 12.4
Input: Summary of Findings over Time by Facility

	INPUT DOMAIN			
	Time 1	**Time 2**	**Time 3**	**Time 4**
Facility A	- "you were dismissed"	- "respect us more now" - "have input in things"	- "have a little bit of input now"	- "we have an opinion" - "you need to have the freedom"
Facility C	- "lets us use our judgement"	nothing said	- not able to make decisions like before	- "don't have so much say now"
Facility B	- able to decide if they should leave a resident and try to provide care later	nothing said	nothing said	nothing said
Facility D	- "don't feel that [HCAs] are heard"	nothing said	nothing said	- "ask us some opinions" - "sign of respect"

Time 2

At Time 2, there were a number of HCAs who said that since T.E.A.M. had been implemented, they had more input in their jobs. For example, Christine explained, "*I think they respect us more now. We are asked our opinions and we have input in things and we are equal now.* I like it this way." (285-6) Jackson made a similar comment:

> I have been here for almost five years, I have seen a lot as far as the old ideas where you had an RN, you had an RPN, and you had staff. The RN ran the show, the RPN followed the orders and the health care aides got everything dumped on them ... *I have seen that change.* It is much better now ... A lot of the registered staff have gotten a lot better at dealing with the health care aides, and I think the other good thing about this is *our input is actually asked for and it is actually taken to heart.* One of the things that happened before was we would be asked for input, we would make a suggestion, and it would be dismissed out of hand sort of thing. You sort of felt, 'why even bother asking my advice?' Now that is not happening very much. (137-6)

Time 3

A similar sentiment was expressed by Renee at Time 3, "We are not afraid to go up to them or approach them about anything and *they are willing to listen to us and not just push us aside* or anything. It is nice. I have a little bit of input now. It is kind of good." (322-6)

Time 4

At Time 4, two HCAs commented on their satisfaction with having more input. Jackson described how having greater freedom and the ability to make decisions could be beneficial to both the HCAs and residents:

> When I first started [on this unit], I had a resident that I have known ever since I have been here. And she knew me but she had deteriorated to the point where every time I walked in there, because I am male, I was trying to get her clothes off to put her nightie on and get her to bed, I firmly believed that she thought I was going to do something to her that she didn't want done. So Ann and I switched residents. Ann would go in there and not have a problem at all. That was a good switch. *It is things like that that you need to be able to do. You need to have the freedom.* (275-4)

When asked about the research project, Christine described it this way, "Very good. Very, very, very, very good. It gets us together ... *[The registered staff] treat us like people*. I mean, we have brains. We can use 'em too. They never used to treat us that way. *We have an opinion.*" (332-8)

12.5.1.2 Facility C

Time 1

At Time 1, some of the HCAs said that the RN on the floor allowed them to make decisions regarding resident care. For example, Paige explained:

> Like I know on the new wing there's a certain time that they all have to have them up for breakfast, and they all have to be out and that. But up here, if they're sleeping and they're tired or whatever, then [the RN] *lets us use our judgement* and let them stay in bed and get them up later. Because if they're half asleep and they're tired and everything, then why force them to get out of bed? You know, this is their home. (138-26)

Times 2 and 3

There were no comments made at Time 2 about having input. However, at Time 3 there was the new RN on the floor and she had a different philosophy. Paige, one of the HCAs, explained the difference in the two RNs:

> When [the other RN] was here, she kind of let you use your own judgement. If you thought that somebody was tired or whatever in the morning, you could leave them in bed and get them up later. She kind of let you use your own judgement. Where with [the new RN], she just kind of wants everybody up. With [the other RN], she let you judge things, what you thought was best for the residents. *We could make decisions. With her, no.* (311-12)

Terri also commented on the fact that the new RN liked to have all of the residents out of bed in the morning. She explained, "It is hard to get them out of bed when they don't want to get out of bed. So *that is when you get the aggressiveness*." (277-8)

Time 4

At Time 4, Terri commented again about the change in their ability to make decisions:

> ... *we had a lot of say then but we don't have so much say now*, although [the RN] is pretty good ... *You felt as though you had more control about what was happening with the residents*. You got to know the residents. If every day you weren't getting them until lunch time, that is different. That is not right either. But some like to lay in the morning. Some have been up all night ... *You can tell, especially if you know the residents*. (267-14; 267-15)

12.5.2 Control Group

12.5.2.1 Facility B

Time 1

In Facility B, the only comments about having input were made at Time 1. Both comments referred to the HCA's ability to make some decisions about the tasks perform. For example, Liz explained that they have the freedom to move on to another resident if the resident they were trying to provide care to was being resistant, "We leave them alone in the hard times, which works really well. Like if they're having a bad day, we don't push them back here, which is very good, it takes a lot of pressure off you and makes for a nicer place." (131-8) Katy described the fact that staff were able to switch duties, "... switch baths. Most girls are really good, you know. You can say, 'I don't feel like it today', and that's fine."

12.5.2.2 Facility D

Time 1

There were only a few comments made by the HCAs about having input during any of the interviews. At Time 1, Madison described this situation:

> I had a hard time with one member who was just yelling at all the staff and I approached her and tried to explain calmly to her, 'That was not appropriate', and I really was upset because I felt on the floor was the worst possible place. I remember her just say, '*Well you are just a health care aide' and 'Who do you think you are?'*, and that is frustrating. *I think for health care aides it is frustrating because they don't feel that they are heard*, and the part-timers especially. They come up with an interesting idea and *nobody wants to listen to them*. (108-3)

Times 2 and 3

The HCAs did not make any comments about having input at Time 2. At Time 3, one HCA commented on the fact that the HCAs sometimes switched residents if one of the residents resisted care.

Time 4

At Time 4, one HCA discussed the fact that the RNs asked the HCAs their opinions about ways to improve the work environment. Heidi explained:

> *They [the RNs] ask us some opinions*, like things for improvement. Like how to make supper time quieter, or who is appropriate to sit with whoever ... We practically know who are the aggressors and who are the most cooperative ones. So we try to separate them as to causing problems and stuff like that. They do ask us. [Researcher: Do you like to have that input?] In a way, yes I am glad because that makes us feel like at least we know our residents ... I think that is also *a sign of respect to us in a way* ... The health care aides know the residents even more so than the RNs because they do the medications and that is all they do ... We do all the cares. We are the ones that get beaten up. We sure do know. (216-10; 216-11)

12.5.3 Summary of Input Domain

The HCAs' perceptions of having input increased throughout the study in Facility A. Having more input and having their opinions taken into consideration was said to be a very positive change for the HCAs, one that helped them to feel more respected by the registered staff.

On the other hand, in treatment Facility C, the HCAs indicated that at Time 1, the RN gave them the freedom to use their own judgement and to make decisions (e.g., about when to get residents up in the morning). However, after the new RN came to their floor, the HCAs were not able to make many of the decisions that they had previously been able to make, despite the fact that this was one of the aims of the study. The HCAs were unhappy about this change and preferred the management style of the previous RN.

In terms of the control facilities, relatively little was mentioned about having input by the HCAs in Facility B. Two HCAs commented at Time 1 on the fact that they had some freedom in making

decisions about resident care. Nothing more was said about providing input.

Similarly, the HCAs in Facility D made only a few comments about having input. Moreover, there was a lack of agreement with respect to their perceptions about the level of input the HCAs had. That is, some HCAs thought that they were not listened to by the registered staff while others indicated that their opinions were asked for and considered.

In Facility A, after the implementation of T.E.A.M., the HCAs were empowered. They had the freedom to make decisions on their own and their advice on residents and resident care was sought and listened to by the registered staff. On the other hand, the HCAs in Facility C lost some of their ability to make job-related decisions. HCAs in both of these facilities, as well as one HCA from Facility D, indicated that they preferred to have input and that having input provided them with a feeling of control within their work environment and a greater sense of respect. Thus, having the ability to provide input and have that input listened to was important to the HCAs.

12.6 Domain #5: Job Demands

Job demands refers to comments made by the HCAs regarding stressful aspects of their work environment or changes that have occurred in their work environment (see Table 12.5). Changes do not include those related to the research project (i.e., T.E.A.M. or the education and teamwork in-services).

Upon examining the aspects of the work environment that the HCAs found stressful, it was apparent that the HCAs in all of the facilities discussed the same sources of stress. Specifically, the HCAs expressed concerns about the nature of their work; that is, the fact that they were very busy, had a great deal of work to accomplish, and often did not have sufficient time to complete their work. The HCAs also commented on the anxiety associated with the threat of job loss and about the demanding and aggressive residents they cared for.

Table 12.5
Job Demands: Summary of Findings over Time by Facility

	JOB DEMANDS DOMAIN			
	Time 1	**Time 2**	**Time 3**	**Time 4**
Facility A	- "very busy" - "demanding" - "very noisy" - "not enough staff"	nothing said	- "confusion" - "too loud, too crowded"	- "getting wild again"
Facility C	- "very hectic" - "unpredictable"	nothing said	- "twice as much work" - "stressful"	- "no management was touched"
Facility B	- "abuse" - not enough time	- monitor is needed on weekends and evenings - "stinks"	- "anxiety" about cutbacks - RNs are "not consistent"	- "constant strain of new faces" - "a lot of two's"
Facility D	- "physically exhausting" - "playing beat the clock" - "helpless and unappreciated"	nothing said	- "too much work" - "assembly line" - "hit and miss"	- "under pressure" - "more demanding"

Because HCAs from each Facility expressed essentially the same concerns, the Job Demands domain will not be examined on a Group and Facility basis. Instead, quotations from HCAs in all of the facilities are provided in the following sections as support for this conclusion. Any differences between the facilities in terms of the concerns expressed are identified.

12.6.1 Nature of the Work

The first concern expressed by the HCAs in each facility related to the nature of their work. HCAs discussed the fact that their jobs were physically demanding and that they were often under time constraints to complete all of their work. For example, Ann, a HCA in Facility A described the work environment as, "Demanding. Very busy from the time I get on. The residents themselves are demanding in different ways. Stressful." (113-1) Marcia, a HCA from Facility B, also described the time demands of the HCA's job, "The hardest part may be getting everything done at x o'clock". (106-4) Jennifer, a HCA from Facility D, also expressed this concern. She described the work environment as "... really hectic. You're playing beat the clock." (139-1) Finally, a HCA from Facility C indicated that the work environment was, "very hectic" and "unpredictable". (109-1)

12.6.2 Job Cutbacks

Many HCAs also commented on the anxiety associated with possible job cutbacks and the effect that these cutbacks had on the staff and residents. For example, Caroline, a HCA from Facility C, discussed the effects of possible job cutbacks. She said, "That is stressful too because you don't know what is coming. A lot of people are stressed out about that too because *you don't know whose job is safe anymore. It is a lot to deal with.*" (312-20) During the Time 4 interviews, some of the HCAs from Facility D commented on the negative effect of job cutbacks and the associated uncertainty. For example, Rose explained:

It is uncertain. *You don't know if you are going to be laid off or your hours cut back because nobody tells you until the last minute.* This has been going on for months, where they are cutting back ... Everybody else is under pressure because of that. (206-6; 206-7)

Another concern that was discussed involved the effect that previous cutbacks had had on staff and residents. Goldie, a HCA from Facility B, described the effects of job cutbacks on staff:

[Things] have probably been a little more stressful in the last little while ... Staffing problems. Just disputes and that type of thing. I think it is probably due to the fact that a lot of people have been cut in their hours or they are *being placed [on this unit] and they don't really want to be there.* They are just taking it because they want to work days whereas anywhere else in the building, they are only offered afternoons. So we have that, so there is some staffing problems so that is *causing anxiety.* (268-1)

Madison, a HCA from Facility D, also discussed the effects that cutbacks had on staff:

Sometimes I think with caregivers it is *really stressful when you see a lot of cutbacks and you see quality of care going down.* Some of the girls are just killing themselves to do the work. I remember working up on [another unit] and I would be so tired at the end of the night, 'How am I going to get to my car?' ... The problem we find is that management then say, 'The load is getting done, what is the problem?', not realizing that the staff is just killing themselves to do it. I have seen that and I think that is where most of the stress comes from, and the fact that under-staffing, and the fact that sometimes the health care aides do tend to feel kind of helpless and unappreciated." (108-3)

Other HCAs, such as Tracy from Facility D, described the effects that job cutbacks had on residents:

They keep taking ... staff away from the floor and they expect you to do the same amount of work but with less people. It is getting to be like an assembly line. You don't really have time to spend with them and these people over here, you can't really rush them, then they get agitated and it makes it more difficult. You have to rush them to get done ... I am not really worried about getting laid off 'cause I have been here long enough that I probably won't ... *The care is like getting hit and miss* ... like shave them today and don't shave them tomorrow. Maybe brush their teeth today and you can't do it tomorrow. I wouldn't want to be looked after like that ... *You have to cut corners to get everything done* ... That part of it I don't really like and sometimes it is frustrating because you don't know if all these people that are making these cuts, I don't think they really care about that kind of stuff Not the way we do, 'cause we are working with them ... You care about them. I don't think there is that same level of care the higher up you go, they are just more interested with shuffling papers and getting this documented and that done. When it comes down to it, none of that stuff really matters. It is the resident that matters. (219-7; 219-8)

Thus, the threat of job cutbacks and the impact of previous cutbacks on staff and residents were acknowledged by HCAs in all of the Facilities except Facility A. The HCAs in this Facility did not identify job cutbacks as a stressor. One possible explanation for this difference is that the HCAs in this Facility may not have believed that there was a threat of cutbacks. This, however, seems unrealistic since funding for long-term care facilities is determined annually and all facilities face the possibility of having their funding decreased by the government. Another possibility is that because the HCAs in Facility A had a number of other aspects to discuss in their interviews (i.e., the implementation of T.E.A.M.), the issue of cutbacks was not as pertinent or there was not enough time to discuss this issue. However, the HCAs in the other treatment facility discussed the effect of job cutbacks despite the fact that T.E.A.M. had also been implemented in this facility.

12.6.3 Type of Resident

The final job demand discussed by many of the HCAs was the type of residents they care for and the associated difficulties. For example, Lindsay, a HCA from Facility A, commented on the change in their workload. She said, "*It is getting wild again* ... I find the care is getting much heavier." (231-1; 231-2) Two HCAs from Facility B indicated that it was resident aggression that was the most difficult aspect of their jobs. Anna said, "Dealing with aggression is the hardest part" (117-3) and Paula explained that it was, "The abuse. Especially against the staff and no backing for it." (119-4) Kelly, a HCA from Facility D also discussed the difficulties associated with the aggressive resident, "The residents are fighting. Some kick you. It is physically exhausting. Sometimes mentally too, but mostly physically. Tugging them and pulling them. They hit you." (116-3)

12.6.4 Other Components of the Job Demands Domain

There were two issues that were only discussed by HCAs in Facility B. Nevertheless, the researcher thought it was worthwhile to include them in the current discussion. The other two aspects of the work environment that caused stress in Facility B were: the monitor position and the inconsistency of the RNs on the day and evening shifts. Each will briefly be considered.

Prior to Time 2, a new system was implemented in Facility B on the day and evening shifts. A monitor position was created. The role of the monitor was to reduce agitation and aggression, and to prevent any potentially volatile situation from escalating. The monitor was to circulate around the floor and utilize techniques such as redirection and distraction to diffuse problems with the residents, and to spend one-on-one time with residents in order to prevent problems. If the floor was relatively calm, the monitor would assist the other HCAs with resident care. On the day shift, monitoring began after lunch and continued until the end of the shift. On evenings, monitoring began at the beginning of the shift and continued until dinner time. These times were selected since they were identified as the times when the residents were the most agitated and aggressive, a time referred to as 'sundowning'. Sundowning refers to an increased level of agitation and aggression sometimes observed in the late afternoon and early evening hours among individuals with dementia (Bliwise, 1994).

On each shift, one of the HCAs on duty acted as the monitor; there were no additional staffing on the unit during this time. Many of the comments made by the HCAs at Times 2, 3, and 4 related to job demands were about the monitor position. At Time 2, the HCAs commented on the pros and cons of the new monitor position. For example, Paula said:

> I am all for that. *That sure takes a lot of stress off the staff. It calms the residents a lot better too.* You can spend all that time with them. Not being monitor and doing cares and having pressure, trying to get done. *I really think it is working* ... Especially on evenings. I have not heard too much about days. On evenings it is a lot better. Well that is when they are most stressful. I imagine you have seen that by now, 3:01 they wind up. (273-2; 273-4)

Anna had mixed feelings about the monitor position:

> We now have a monitor that floats around the halls. Personally, *I don't see the use of that Monday to Friday*, but I am just one of the Indians ... Well Monday to Friday we have activity aides ... we have all the staff on and I don't understand what the point of having the monitor when we have plenty of other people around. Yet on the weekends we don't have those extra people so you could see the need for it. I can see the need for it on evenings, definitely. They definitely need somebody for that. (250-1; 250-2)

Deb on the other hand, was not in favour of the monitor position. When asked about it, she said:

> [It] stinks ... because *two people are doing the work load.* We didn't get an increase in staff. We actually lost one staff person ... I wouldn't say there is too much work to do. We can handle it, obviously. I find it really helps when they pick the ones that aren't hard workers [to be monitors] anyway because then that way you aren't losing as much. (295-4; 295-6)

Similar comments about the monitor position were made during the interviews at the other data collection times.

Another difficulty that was expressed by a number of the HCAs in Facility B involved inconsistency between the RNs. On both the day and evening shifts, there were two part-time RNs that shared the RN position. Goldie explained the difficulty with having two RNs:

> Difficult, just because *they are not consistent.* Some RNs want certain things and the next one wants something totally different, so you have to know what the RN wants so that they are not freaking out about what you are doing ... It would be great if they got together and they were doing the same thing. [Researcher: Is this on both days and evenings?] More on evenings I would say. That is where we have had new RNs come in ... *the two RNs that we have are totally opposite ... in what they want you to do.* For instance, there is one resident in particular that one wants her evening care done before supper and the other one definitely doesn't ... One RN helps with cares, the other doesn't ... Sometimes you are guessing. (268-6; 268-7; 268-8)

At Time 4, Anna also described the difficulties associated with having two part-time RNs:

> I think that was part of the thing that was frustrating the most, was that with our two RNs that strictly work back here, *they both have different ideas* so that you come in one day and what you did yesterday for one doesn't work for this one today, so that you are always having to flip flop back and forth. I didn't find that was very beneficial for the residents. We can always adapt, but *I don't think it is continuity of care for residents* ... (232-12)

12.6.5 Summary of Job Demands Domain

As indicated, many of the job demands discussed were the same across all facilities. Namely, HCAs in each facility indicated that the nature of their work was stressful, that there was substantial anxiety associated with the threat of job cutbacks and from the effects of previous cutbacks on staff and residents, and that the residents they cared for were aggressive and physically demanding. The one exception was Facility A where the threat of job cutbacks was not discussed by any of the HCAs.

In addition to these job demands, the HCAs from Facility B also discussed the effects of the monitor position and the inconsistency of the RNs on the day and evening shifts. While there were few differences between the HCAs in the treatment and control facilities in terms of their perceptions of job demands, overall, the HCAs in each Facility experienced similar stressors in the work environment.

12.7 Thematic Analysis

Spradley (1979) described a cultural theme as "any cognitive principle, tacit or explicit, recurrent in a number of domains and serving as a relationship among subsystems of cultural meaning" (p.186). The technique used to identify themes was immersion. Immersion refers to engrossing oneself in one's data to the point when new relationships emerge (Spradley, 1979). Through this process of immersion, three themes were identified: balance, empowerment, and information sharing.

12.7.1 Balance

This refers to balancing the needs of residents with the needs of the HCAs. The balance theme emerged most obviously from the Consistent Staffing domain but also, indirectly from the Job Demands domain. HCAs provide the majority of the direct care to residents, estimates have suggested that it is as much as 90% (Waxman, et al., 1984). Thus, there is a close interactive relationship between the residents and the HCAs. As a result, what affects one will either directly or indirectly affect the other. With the

T.E.A.M. intervention, the HCAs in both treatment facilities highlighted the beneficial effects that T.E.A.M. had on the residents. While beneficial effects were also noted for the HCAs, maintaining consistent care over an extended period of time became more and more difficult because of the population being cared for; this was particularly the case in Facility C. Therefore, in trying to determine the optimal length of time that HCAs should care for a group of residents, there is a need to find a balance between what is best for the ADRD residents and what is best for the HCAs. Similarly, there is a need to balance the physical care needs of the residents with the job needs of the HCAs (e.g., the time required to satisfy the resident needs).

12.7.2 Empowerment

Empowerment refers to the HCAs having input into various aspects of their work life including the determination of resident assignments, providing input about the quality of the work environment and how it can be improved, and making decisions regarding resident care. This theme emerged out of the Input, Communication, and Relationship domains.

12.7.3 Information Sharing

The HCAs either explicitly or implicitly indicated that they were entitled to be informed about matters related to their jobs. Examples included sharing explanations as to why the registered staff practiced certain procedures (e.g., medication use with aggressive residents) and how decisions were made (e.g., decisions about staff cutbacks). This theme emerged from the Communication, Relationship, and Job Demands domains.

12.7.4 Underlying Theme: Respect

Within all three themes is the underlying theme of respect, which includes: (1) the HCA's need for respect from registered staff and management and (2) the HCA's respect for the residents. The HCAs' need for respect involves their respect as individuals who think and feel; respect for the difficulties and frustrations (as well as the joys) associated with their jobs; and respect for the knowledge and experience they have gained over the years. The HCAs' respect for residents involves the need for the HCAs to provide high quality care to the residents.

12.8 Discussion

The qualitative component of this study was conducted in order to satisfy two objectives: (1) to identify and explore HCAs' perceptions of their work environment before, during, and after the implementation of T.E.A.M. and (2) to compare the HCAs' perceptions of the work environment in the treatment and control groups. Through the qualitative analysis, five domains that described the work environment were identified: Relationship, Consistent Staffing, Communication, Input, and Job Demands domains. The analysis of these domains revealed that there were both differences and similarities in the perceptions of the work environment among HCAs in the treatment and control groups and between facilities.

In terms of the Relationship domain, Facility A was the only Facility which indicated that there were difficulties between HCAs on different shifts. Relationships among HCAs on the same shift and between HCAs and registered staff improved over the course of the study. The relationships among HCAs in Facility C were characterized as positive. Despite having an improved relationship with the new RN by the end of the study, the HCAs indicated that this relationship was not as strong as it had been with the previous RN. The HCAs in the control facilities were more likely than the HCAs in the treatment facilities to discuss problems in their relationships with the registered staff.

Differences also existed in the Consistent Staffing domain. HCAs within the treatment facilities recognized the benefits of consistent staffing for both residents and staff. However, the HCAs in Facility C indicated that the benefits observed with consistent staffing needed to be weighed against the difficulties associated with caring for aggressive and physically demanding residents for an extended period of time. Similar difficulties were reported by Teresi et al., (1983) in a study of the effects of a primary care nursing model in two U.S. nursing homes. The authors suggested that the primary care model, which involved the provision of more consistent care to residents, may be difficult for staff on a unit comprised of demented residents with significant behaviour problems, unless that unit was staffed with additional HCAs.

In the control facilities, discussion about Consistent Staffing revolved around the benefit of rotation (either to other units or among resident groups on one unit). For the HCAs in Facility B, the primary concern involved the benefits derived from gaining insight into the perspective of HCAs in other areas of the facility. In Facility D, the HCAs were more concerned about the impact of having to care for aggressive residents and suggested that caring for the same residents for more than one or two weeks was too difficult for the HCAs.

HCAs from all facilities except Facility C described problems with Communication among staff. In Facility A, the communication problems were between HCAs on different shifts. HCAs from both Facilities B and D discussed difficulties in communication between the HCAs and registered staff. The HCAs in Facility B also described some difficulties at Time 1 in communication among the HCAs; however, this was said to have improved by the end of the study. The communication difficulties within each Facility mirror the difficulties identified in the Relationship domain.

With respect to the Input domain, HCAs in the treatment facilities as well as a few of the HCAs in Facility D implied that having input was important to them. The HCAs in Facility A had a greater sense of empowerment and autonomy by the end of the study; however, the degree to which HCAs in

Facility C felt empowered diminished during the study. In comparison, HCAs in Facilities B and D implied that they had minimal input in terms of their jobs.

HCAs' perceptions regarding the final domain, Job Demands, were very similar across all facilities. The HCAs identified the nature of their work, the threat of job cutbacks, and the type of resident cared for as sources of stress within their work environments. The HCAs in Facility B identified two other sources of stress which were unique to their environment: the monitor position and the inconsistency among the RNs.

Therefore, it appears that the implementation of T.E.A.M. resulted in differences between the treatment and control groups, albeit some differences occurred between facilities within each group. The differences in the Relationship, Consistent Staffing, Communication, and Input domains developed despite having faced similar stressors, as indicated by the Job Demands domain.

From these domains, three themes emerged: Balance, Empowerment, and Information Sharing. Underlying these themes was the theme of Respect. The Balance theme was most predominant in the interviews with the HCAs in the treatment facilities. This is not surprising given the fact that it was the treatment facilities which implemented changes to their work environment. Consequently, one may expect that these HCAs would be more likely to identify the reciprocal nature of the relationship between HCAs and residents and the need to find a balance in this relationship.

The theme of Empowerment was also more prevalent among the HCAs in the treatment group, although some of the HCAs from the control facilities also acknowledged a need to have input and autonomy. The importance of having input became evident to the HCAs in Facility A after they were provided with an opportunity to become more involved in decision making, The HCAs from Facility C, on the other hand, realized the advantages of being able to make decisions after their the ability to do so diminished. The beneficial effects of greater involvement in decision making (e.g., decreased burnout, increased job satisfaction) has been found in a host of studies (e.g., Jackson, 1983; Lee & Ashford, 1996;

Miller et al., 1990)

The Information Sharing theme was more prevalent among the HCAs in the control facilities. This theme emerged during discussions with the HCAs about the uncertainty associated with job cutbacks and the communication problems with the registered staff. Studies involving long-term care staff have also acknowledged the need for staff to have feedback and the positive effects that this can have on job-related stress (e.g., Melchior et al., 1997).

Embedded within these three themes was the underlying theme of Respect. The HCAs in Facility A indicated that the implementation of T.E.A.M., particularly the Empowerment component, made them feel more respected. Other studies have also suggested that improving the work environment may enhance the self-esteem and sense of respect among HCAs (e.g., Hare & Skinner, 1990). The need for respect was also implied during interviews with the HCAs from the other facilities. Feelings of inferiority and unimportance, having little input into decision making, and receiving minimal feedback contributed to this lack of respect. Thus, the organizational culture within these facilities appears to play an important role in the HCAs' feelings of respect and self-esteem. Consequently, it appears that implementing an intervention such as T.E.A.M. may lead to a change in the organizational culture of a facility which may, in turn, help to enhance respect among the HCAs. The importance of understanding the effect of the organizational culture of a long-term care facility when studying HCAs has been suggested in other research (e.g., Foner, 1994; Tellis-Nayak & Tellis-Nayak, 1989).

12.9 Methodological Issues

The criteria used to evaluate qualitative data are different from those used with quantitative data (i.e., validity and reliability) (Lincoln and Guba, cited in Marshall and Rossman, 1995). Marshall and Rossman (1995) describe the four constructs used by Lincoln and Guba to assess qualitative data. They indicate that qualitative researchers are concerned with the credibility of the data (i.e., that the information

the research participants provide is truthful and accurate), transferability (i.e., the consistency of the findings over settings), dependability (i.e., accounting for changes in the phenomenon being studied), and confirmability (i.e., direct evidence provided by the participants).

Throughout the data collection and analysis stages of the qualitative component of this study, a variety of procedures were used to enhance the credibility of the conclusions drawn from the data (e.g., by minimizing potential bias on the part of the researcher). However, the conclusions drawn from the data analysis were not confirmed externally since the participants in the study were assured in the consent letter that no one other than the researcher and the researcher's supervisor would have access to their interviews. Despite the fact that this decision was made to protect confidentiality, it nevertheless represents a limitation of the study. As a means to combat this limitation, verbatim data have been provided throughout the chapter to enable the reader to verify the researcher's conclusions.

The beneficial effects of T.E.A.M., namely the benefits of consistent care for residents and staff and the preference for having input within their jobs, identified by HCAs in both treatment facilities speak to the transferability and, thus, the reliability of the findings. The examination of the HCAs' perceptions of the work environment over time suggest that the data were dependable since changes in perceptions were followed during and after the implementation of T.E.A.M..

CHAPTER 13: DISCUSSION

13.1 Summary of Results

"The Empowered Aide Model" (T.E.A.M.) is a model of care that was specifically developed for long-term care staff who care for residents with ADRD. T.E.A.M. aims to improve the long-term care work environment by affecting job burnout and perceptions of the work environment among HCAs. This goal is expected to be accomplished through the implementation of the four components of T.E.A.M.: organization, empowerment, education, and teamwork.

In order to determine whether T.E.A.M. could, in fact, affect burnout and the way that HCAs perceive their work environment, a study was undertaken. T.E.A.M. was implemented in two long-term care facilities and the effects of implementing this model were examined over a one year period. Two other long-term care facilities, which implemented education and teamwork in-services, served as control facilities. While T.E.A.M. was also expected to have an affect on the ADRD residents within the treatment facilities, the goal of this initial study was to determine the effects of the model on its primary target, the HCAs.

Three types of data were collected in this study: questionnaire data, physiological stress response data, and qualitative interview data. The questionnaire and physiological data were used to provide information about HCA outcomes as a result of implementing T.E.A.M.. The qualitative interview data served to provide detailed accounts regarding the implementation of T.E.A.M., including its benefits and drawbacks. It also enabled the researcher to have a better understanding of the outcomes observed from the quantitative data and the meaning of these outcomes from the perspective of the HCAs.

Questionnaire Component

A priori predictions regarding the outcomes from the analysis of the questionnaire data were

made prior to data analysis. As expected, significant Group (treatment versus control) by Time (pre- versus post-intervention) interactions were observed with the following subscales: Emotional Exhaustion, Autonomy, Work Pressure, Control, and Innovation. That is, over time HCAs in the control group were more exhausted and emotionally overextended (i.e., Emotional Exhaustion) and had greater feelings of urgency in terms of getting their jobs done (i.e., Work Pressure) than HCAs in the treatment group. HCAs in the treatment group felt that they were more encouraged to make their own decisions and to be self-sufficient (i.e., Autonomy), that there was more emphasis placed on variety, change, and new approaches in their work environment (i.e., Innovation), and that the management within their facilities were less likely to use rules and pressures to keep them under control (i.e., Control) compared with HCAs in the control group.

The only other significant Group by Time interaction was found with the Supervisor Support variable. HCAs in the treatment group felt that management were more supportive of the HCAs and encouraged HCAs to be more supportive of each other over time compared with HCAs in the control group. Because significant interactions were found with all of the subscales which were expected to be affected by T.E.A.M. and only one additional subscale, there is greater confidence that the observed results reflect the impact of T.E.A.M. rather than chance.

The questionnaire data also revealed a significant association between Group and absenteeism at Time 4. Specifically, a significantly lower number of HCAs in the treatment group reported being 'absent' during the month prior to data collection than those in the control group. As discussed in Chapter 8, associations have been found between absenteeism and job-related stress (e.g., Higgins, 1986), job pressure, and autonomy (e.g., Neubauer, 1992). Thus, the difference in job-related stress and autonomy between HCAs in the treatment and control groups after the implementation of T.E.A.M., may account for the results observed with absenteeism.

Physiological Stress Response Component

Salivary IgA and salivary cortisol have been proposed as valid indicators of the physiological response to stress by some authors (e.g., Jemmott & McClelland, 1989); others, however, have been less confident about their validity (e.g., Mouton et al., 1989). Consequently, salivary IgA and salivary cortisol were used as physiological indicators of stress in an exploratory manner in the current study. It was hypothesized that if T.E.A.M. was successful in having a significant effect on job-related stress, that there would be a corresponding physiological effect. That is, a significant Group by Time interaction would be found with salivary IgA and salivary cortisol.

The results revealed that there were no significant Group by Time interactions for unstimulated or stimulated IgA or cortisol. There were also no significant associations between Group and change in IgA or cortisol concentrations for either the unstimulated or stimulated samples.

There is some evidence which suggests that data obtained from unstimulated saliva samples may be more valid than those obtained from stimulated samples (e.g., Jemmott & McClelland, 1989). If one was to consider only the unstimulated samples, the data in Table 10.7 regarding the change in salivary IgA and salivary cortisol concentrations, is promising. These data indicate that a higher percentage of HCAs in the treatment group had an increase in IgA concentration and a decrease in cortisol concentration over time compared with HCAs in the control group. These trends are in the direction expected according to the hypotheses. It may be that if these physiological indicators had been gathered over the same period of time as the questionnaire data (i.e., twelve months), that significant differences between the treatment and control groups may have been observed. However, this is only speculation on the part of the researcher. Indeed, it is still unclear whether salivary IgA and salivary cortisol are appropriate indicators of the physiological response to stress. Of particular concern is the possible habituation effect that has been observed with salivary cortisol (e.g., Kirschbaum et al., 1995; van Eck et al., 1996). More research is needed to determine whether salivary IgA and salivary cortisol are

appropriate as indicators of work-related stress and are sensitive to stress-related changes which occur within work environments.

Qualitative Interview Component

The goals of the qualitative component of the study were: (1) to identify and explore HCAs' perceptions of their work life before, during, and after the implementation of T.E.A.M. and (2) to compare the perceptions of the work environment between HCAs in the treatment and control groups. Analysis of the data from Time 1 revealed that the HCAs' perceptions of their work environments, including what they considered enjoyable and stressful, were similar among the HCAs in the treatment and control groups. The HCAs' perceptions of their relationships with other HCAs and with registered staff were also similar across Groups. However, there were some differences in the HCAs' perceptions of their work relationship between facilities. Specifically, relationships among HCAs appeared to be more positive in Facility C and relationships between HCAs and registered staff appeared to be least positive in Facility B.

Through a surface analysis of the data from Times 2, 3, and 4, five domains emerged: Relationships, Consistent Staffing, Communication, Input, and Job Demands. These domains were explored in an in-depth analysis using the data from all four time points. This analysis involved comparisons between HCAs in the treatment and control groups, as well as comparisons over time.

The findings indicated that there were some differences between HCAs in the treatment and control groups, but also some differences between the facilities within each Group. For example, the relationships (among and between HCAs as well as between HCAs and registered staff) were better, overall, in the treatment group than in the control group. However, problems between HCAs on different shifts were primarily discussed by HCAs in Facility A. Despite the fact that these relationships improved after the implementation of T.E.A.M., some problems continued to exist. In the other treatment facility, Facility C, the relationships with some of the registered staff declined after the Unit Manager position was

eliminated and a new RN was assigned to their unit. While this relationship improved over time, it was not as positive as it had been with the Unit Manager.

In terms of the control facilities, the perceptions of the HCAs in Facility B were more negative regarding the registered staff than those in Facility D. There was no consensus among the HCAs in Facility D regarding the relationships among HCAs or between HCAs and registered staff (i.e., some aides considered these relationships to be positive and healthy whereas others perceived them to be negative).

With respect to the Consistent Staffing domain, HCAs in both treatment facilities recognized the benefits of providing more consistent care to the ADRD residents (e.g., increased knowledge and understanding of the residents and greater familiarity of the HCAs on behalf of some of the residents). However, HCAs in Facility C indicated that these benefits were sometimes outweighed by the negative effects associated with providing consistent care to residents who were physically demanding and very aggressive. This concern was also raised by the HCAs in Facility D who considered caring for aggressive residents for more than a two week period too stressful and demanding for the HCAs.

Communication among HCAs and between HCAs and registered staff were identified as problematic among HCAs in all Facilities except Facility C. Similar to the findings with the Relationship domain, HCAs in Facility A discussed the difficulties they experienced in communications between HCAs on different shifts. On the other hand, HCAs in both of the control facilities primarily described problems in communications between HCAs and registered staff.

Analysis of the Input Domain indicated that having input into decisions and having one's opinions listened to were important for HCAs in both of the treatment facilities and in Facility D. In fact, HCAs in the treatment facilities discussed their desire to maintain their ability to provide input within their work environments after the conclusion of the research project.

Finally, analysis of the Job Demands domain suggested that, overall, the HCAs in the treatment and control groups, as well as the facilities within each Group, experienced similar demands in their jobs. Namely, the demands associated with: (1) the nature of the work (e.g., time constraints), (2) previous and future job cutbacks, and (3) the type of residents cared for (e.g., aggressive) were discussed by HCAs in all four facilities.

When these data were further analyzed, three themes emerged. The first was that it was necessary to find a Balance between the needs of the residents and the needs of the HCAs. The second theme was Empowerment which included, having input into decisions related to the care of the residents as well as input about the work environment itself. The third theme was the Sharing of Information related to one's job (e.g., how decisions are made and why certain practices are followed). Underlying these themes was the theme of Respect. It was clear that in balancing the needs of the residents with those of the HCAs, and by empowering and sharing information with the HCAs, that the aides felt respected by others within the facilities. This respect was important to them and contributed to their self-esteem.

Support from the Qualitative Data of the Quantitative Findings

Examination of the qualitative data indicated that various statements made by HCAs in the treatment group reflected the quantitative changes in the work environment associated with T.E.A.M.. Thus, the qualitative data provided additional support for the quantitative findings. For example, lower levels of work pressure and emotional exhaustion were indicated in statements such as the following by Cheryl:

> This program has been one of the better things that I have seen in the nursing home since I started. I used to have the feeling that I had this many people and I was responsible for them. But now, it sort of ***takes a little bit of pressure off*** because there is two people responsible for one resident, even though we have the whole hall. We are still responsible. I find it a lot better. Much easier. (282-10)

Ryan also commented on feelings of decreased work pressure: "I would say I am *more relaxed at my job*". (236-13)

The qualitative data also supported the quantitative findings regarding decreased control on the part of the registered staff and increased autonomy among the HCAs. For example, Jackson said:

> I have been here for almost five years, I have seen a lot as far as the old ideas where you had an RN, you had an RPN, and you had staff. The RN ran the show, the RPN followed the orders and the health care aides got everything dumped on them ... *I have seen that change*. It is much better now ... *A lot of the registered staff have gotten a lot better at dealing with the health care aides*, and I think the other good thing about this is *our input is actually asked for and it is actually taken to heart*. One of the things that happened before was we would be asked for input, we would make a suggestion, and it would be dismissed out of hand sort of thing. You sort of felt, 'why even bother asking my advice?' Now that is not happening very much. (137-6)

Caroline also provided evidence of the increased feelings of autonomy among the HCAs when she described that the HCAs were able to decide when short term changes in their resident assignments were needed: "... there is a couple of residents you can only take so much of, so [the HCAs] switch off". (246-1)

The qualitative data provided support for the quantitative finding that the implementation of T.E.A.M. was associated with a more innovative work environment. For example, after T.E.A.M. had been implemented, Ryan stated: "It is a little easier going and things are a *little more open to making changes*". (236-13)

Finally, there was evidence of increased supervisor support in the qualitative data. Paige, for example, commented:

> It was a lot better when [the other RN] was here, but now [this RN] is changing her ways a bit too and getting more used to it, I think. *She has been really good actually. Maybe it just took some time and adjustment and stuff like that. She has really been good.* (330-10)

Jackson also described the support provided by the registered staff:

> ... I have been in the situation where registered staff have basically hounded the health care aides and there is low morale, high stress, a lot of agitation. So I have seen both sides. Quite frankly, I like it here. *You always know that [the RN] is there, sort of in the background running things and overseeing things, and she can back you up, you can call her anytime, but at the same time she will stay out of your way and let you do your work.* Which to me, makes her a superior registered nurse. (245-4)

Overall, the qualitative data support the findings from the questionnaire data. However, there were a few instances where the qualitative data appeared to contradict the quantitative results. These instances related to the HCAs' feelings of work pressure and burnout. As discussed in Chapter 12, the HCAs in both the treatment and control groups described their sense of having more demands in their jobs (e.g., in terms of time constraints, job-cutbacks, and being physically abused by some of the residents). Such feelings seem to contradict the findings that work pressure and emotional exhaustion decreased among HCAs in the treatment group. However, the quantitative findings suggested that T.E.A.M. may have had a protective effect on emotional exhaustion and work pressure since these variables increased over time in the control group but remained relatively stable among HCAs in the treatment group. Therefore, it may be that despite the demands within their work environment, T.E.A.M. was able to relieve the HCAs of some of the pressure from their work.

The results from the quantitative and qualitative data indicate that T.E.A.M. was successfully implemented in two long-term care facilities and had beneficial effects on HCAs in terms of their levels of job burnout and perceptions of the work environment. Despite these promising findings, some issues deserve consideration. These will be discussed in the following section.

13.2 Implementation Issues

Despite attempts to standardize the implementation of T.E.A.M. in the two treatment facilities, differences existed. These differences may have contributed to the fact that T.E.A.M. continued beyond the study period in Facility A but ceased after approximately nine months in Facility C.

Differences between the treatment facilities were evident from the beginning of the study; for example, when the long-term care facilities were recruited for the study. While Facilities B, C and D were identified as appropriate facilities by the researcher (i.e., they met the eligibility criteria) and were approached by the researcher regarding their willingness to participate in the study, the Administrator in Facility A approached the researcher about becoming involved in a study. Differences also existed in terms of the HCAs who participated in the study. Facility C utilized an existing unit as the research unit. However, the Administrator in Facility A asked staff from all departments to apply to the research unit. Further, when the study began, the staff on the research unit in Facility A were asked to participate in a one day paid workshop. At this workshop, the staff were oriented to the philosophy of T.E.A.M. and determined how the model would be implemented in the research unit. Finally, because of the geographical distance between Facility A and where the researcher was located, Facility A used their Clinical Coordinator as a Facilitator for the research study. This individual assisted with the day-to-day running of T.E.A.M., particularly at the beginning of the study.

Thus, there were some important differences between the treatment facilities in terms of the recruitment of the facilities and the HCAs within these facilities, as well as in the implementation of T.E.A.M.. These differences suggest that Facility A had a much greater commitment to change and to the T.E.A.M. philosophy than Facility C. This was also apparent in the autonomy given to the HCAs in the two facilities. In Facility C, little changed in terms of the decisions that the HCAs were able to make (other than determining their resident assignments and the length of these assignments). In fact, after the new RN was assigned to the research unit, the HCAs may have lost their ability to make some of the decisions that they had previously been able to make. On the other hand, the HCAs in Facility A were given greater authority to make decisions and were provided with more opportunities to have input into matters related to resident care. Further, the HCAs in Facility A were constantly encouraged to identify aspects of their work environment in need of change and to suggest ways of improving these aspects.

For Facility A's management, the implementation of T.E.A.M. in the research unit was a first step. That is, if T.E.A.M. was successful on the research unit, Facility A planned to implement T.E.A.M. in the remainder of the units within the facility as well as the other departments (i.e., laundry, dietary, housekeeping). Since the study ended this, in fact, has occurred.

In spite of these differences, when the treatment and control groups were compared, T.E.A.M. had a significant effect on job burnout and perceptions of the work environment among HCAs in the treatment group. Thus, T.E.A.M. was considered successful in both treatment facilities, although it may have been more successful in Facility A.

The implementation of T.E.A.M., however, can be complicated and frustrating. For example, a substantial amount of time is required to plan for and implement this model. In fact, the researcher suggests that the first step in this process is to determine whether a facility is "ready" to implement T.E.A.M.. It is the researcher's contention that T.E.A.M. may not be appropriate for all facilities. It is likely that a facility needs to be at a certain stage of "readiness" if T.E.A.M. is likely to be successful. That is, management must accept the overall goal of T.E.A.M.: to improve the quality of care provided to the residents by improving the work environment for staff. Management as well as the registered staff must be willing to give up some of their control and authority and allow the HCAs to make decisions and have input. Further, the registered staff and management need to encourage and foster this autonomy since it is likely that many of the HCAs will not be accustomed to having such influence. In addition, management and registered staff must be willing to listen to the suggestions of the HCAs and seriously consider them. Thus, a facility must be willing to change the culture within their organization such that all staff are empowered.

Time is not only required in the planning stage, but also during implementation. Undoubtedly, obstacles will be faced which need to be overcome. For example, resistance to change can be rampant among staff in any organization, including long-term care. In addition, both staff and residents require

time to adapt to the changes which occur as a result of implementing T.E.A.M.. Some of the other challenges faced during the implementation of T.E.A.M. (i.e., the challenges involved with conducting field research) will be discussed in the following section.

13.3 Methodological Issues

Methodological issues that were relevant to each component of the study are discussed in their respective chapters. This section will focus on general issues related to the study's methodology.

Method Triangulation

This study utilized method triangulation. Method triangulation is the use of more than one research method (e.g., quantitative and qualitative methods) as a check of the consistency of the findings (Marshall and Rossman, 1995; Patton, 1990). While the physiological stress response data did not support the study hypotheses, the results from the questionnaire data and the qualitative interviews were consistent. The questionnaire and interview data indicated that T.E.A.M. had a beneficial effect on the HCAs' levels of stress as well as their perceptions of the work environment. Support for the quantitative findings was also evident in the qualitative data.

In addition to the consistency between the quantitative and qualitative data, there was consistency between different variables examined within the questionnaire component of the study. Specifically, similar findings were observed with the Emotional Exhaustion subscale of the MBI and the Work Pressure subscale of the WES (i.e., there were significant Group by Time interactions with these variables). The findings with the absenteeism variable were also consistent with those observed with the MBI and WES subscales.

The consistency of the results with the quantitative data and between the quantitative and qualitative components of the study, should give the reader greater confidence in the study's findings.

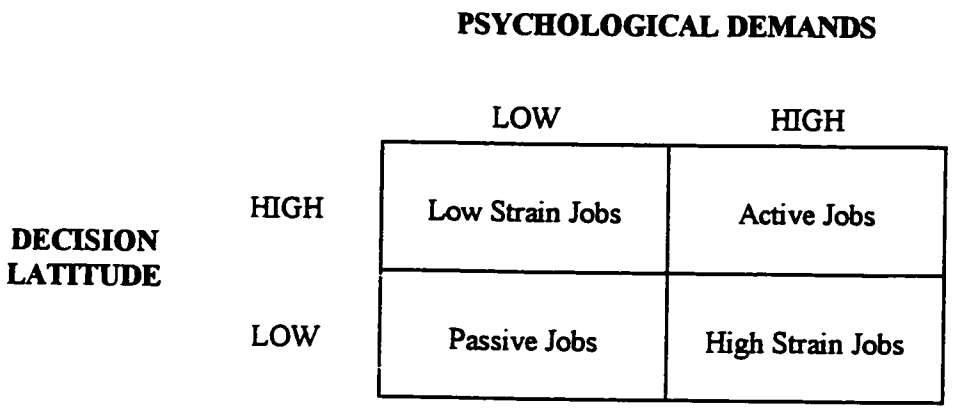
Conducting Research in the Field

There are a variety of challenges faced in conducting a study in the field. In this study, for example, there were: changes in staffing as a result of job cutbacks; other interventions implemented during the course of the study (e.g., creation of the monitor position in Facility B); the occurrence of other events which took attention away from the research study and its goals (e.g., accreditation, resident classification, influenza outbreaks); and difficulties faced when scheduling interviews and meetings with staff. These challenges not only result in frustration but may limit one's confidence regarding the results observed (i.e., were the changes observed a result of the intervention or some other factor(s) that occurred). However, studying the effects of an intervention in the field (such as within a long-term care facility) may be the only possible way to determine an intervention's impact. Further, it provides a much more realistic indication of the feasibility of implementing an intervention as well as its likelihood of success. That is, the challenges that occur during the study are likely to be the same types of challenges that would occur if the intervention was implemented in the absence of the study. Thus, in this situation internal validity is sacrificed for greater external validity.

13.4 Theoretical Model

The concept of T.E.A.M. is best understood using the Demand /Control Model (Karasek & Theorell, 1990). This model posits that the effects of a work environment lie on a continuum from productivity to psychological stress and physical illness. According to Karasek and Theorell, occupations can be categorized according to their psychological demands and level of decision latitude. Examples of psychological strain include: time pressures to complete one's job and the threat of job cutbacks. Decision latitude refers to the employee's authority to make job-related decisions that are within their ability (i.e., they have the skills required to carry out the decision).

Figure 13.1
Demands/Control Model



Source: Karasek & Theorell (1990)

A diagram outlining the Demands/Control Model is presented in Figure 13.1. The four quadrants specify the four job types which stem from this model: high strain, active, low strain, and passive.

According to the Demands/Control model, the highest level of psychological strain occurs in jobs where the psychological demands are high and decision latitude is low. Examples include assembly-line workers, garment stitchers, and key-punchers. These jobs are referred to as high-strain jobs. Active jobs are those which require a high degree of psychological demand but have a high level of decision latitude. Examples include surgeons, electrical engineers, and farmers. Jobs in which the psychological demands are low but decision latitude is high are considered low strain jobs (e.g., natural scientists, architects). Finally, passive jobs refer to those jobs with low levels of psychological strain and low decision latitude. Miners and janitors are examples of passive jobs (Karasek & Theorell, 1990).

The job of the HCA has also been classified according to this model. Not surprisingly, the HCA was categorized as a high strain occupation (i.e., high psychological stress and low decision latitude).

Thus, HCAs are one of the occupations which are at the greatest risk of psychological stress and physical illness. However, as the Demands/Control Model indicates, changing the work environment by increasing decision latitude may reduce an employee's risk of stress and illness and increase the likelihood that they will be productive and motivated employees (Karasek & Theorell, 1990). T.E.A.M. was able to accomplish this result. The focus on empowerment, together with the provision of more consistent care, affected the level of job-related stress and the perceptions of the work environment among HCAs.

13.5 Study Implications

Optimum Length of Time to Provide Consistent Care

With T.E.A.M., Facility A cared for the same residents for approximately a twelve month period and Facility C for approximately nine months. One question which may be asked is, "What is the optimum length of time to care for the same group of residents?". The benefits associated with consistent care were reported by the HCAs in both treatment facilities after only a few months (e.g., increased knowledge and understanding of the residents; an increased familiarity of the HCAs on behalf of some of the residents). These results were again acknowledged at subsequent data collection times. In Facility C, however, concern was raised by one HCA after the HCAs had been providing consistent care for approximately five months. This aide indicated that caring for highly aggressive residents was difficult and stressful and that a change in assignments may be needed. A few months after this initial concern was raised, other HCAs in Facility C described similar difficulties. The challenges associated with caring for aggressive and/or physically demanding residents for an extended period of time were also raised by the staff in the study by Teresi et al., (1993b). Thus, there may not be an "optimum" length of time to provide consistent care that is appropriate for all long-term care staff. Instead, the appropriate length of time may depend on the type of residents being cared for and the characteristics of the HCAs on a particular unit (i.e., their ability to cope; the support they receive from others; and how they are

organized). Teresi and her colleagues (1993b) also indicated that the size of the facility may be a contributing factor. They suggested that smaller facilities may find it more difficult to provide consistent care since HCAs may have to work with the most difficult residents more often. As a result, it should be the HCAs that determine the length of time that they will provide consistent care. Further, the concerns raised by the HCAs about consistent care must be listened to by registered staff and acted upon. As seen in Facility C, some HCAs may be reluctant to acknowledge the effect that consistent care is having on them. Other HCAs may try to take advantage of this system by dividing residents into groups of unequal workload. This is one area where the team leaders (i.e., the registered staff) need to ensure that the model is implemented equitably.

The Necessity of the Empowerment and Organization Components

One may argue whether both the Empowerment and Organization components of T.E.A.M. are necessary. Perhaps only the Empowerment component is needed in order to have an effect on job burnout and how HCAs' perceive their work environment. However, the researcher would argue that both components are important for different, yet related, reasons. The Empowerment component is particularly salient for the HCAs. The goal of this component is to provide the HCAs with opportunities to make decisions and to have input into the quality of their work environment. However, the Empowerment component is also beneficial for the residents being cared for in that this component enables the HCAs to assist the residents in becoming empowered. For example, if a HCA is allowed to let a resident sleep past the usual wake-up time, this is indirectly empowering the resident since the resident is able to determine when he/she would like to get up in the morning. Similarly, the Organization component may be of greatest benefit to the residents since the provision of consistent care enables the residents to become more familiar with their caregivers. This is particularly important for residents with dementia since constantly having new caregivers can be confusing, frightening, and overwhelming. Thus,

consistency of care may result in greater comfort levels among the residents. Consistent care, on the other hand, can also be beneficial to the HCAs. First, residents who are more comfortable with their caregivers may be less aggressive and agitated when the HCAs care for them. Second, consistency of care provides HCAs with greater knowledge and a better understanding of their residents and may, therefore, enable the HCAs to meet the needs of their residents more satisfactorily. While one could argue about the benefits of the individual components of T.E.A.M., it is the researcher's position that both components are important for residents and HCAs and should thus be implemented together.

An Inexpensive Model

T.E.A.M. is a relatively inexpensive model to implement. In fact, the cost may be virtually nothing if everything is conducted in-house (e.g., orientation to the model, education and teamwork in-services). However, the potential cost-savings are substantial. If T.E.A.M. is able to have an effect on job burnout, autonomy, and absenteeism as exhibited in this study, then the costs associated with absenteeism and possibly on-the-job injuries and job turnover (e.g., replacing staff who are ill or on worker's compensation; training new staff members) may be reduced. Therefore, in addition to having a beneficial effect on staff and possibly residents, it is likely that T.E.A.M. can benefit the facility financially as well.

Applicability to Other Resident Populations

T.E.A.M. was specifically developed for HCAs who care for residents with ADRD. However, the principles of T.E.A.M. can be applied to long-term care staff (and acute care staff) who care for any population. For example, the emphasis on empowerment and consistent staffing can be used with other resident groups. In addition, some of the topics covered in the T.E.A.M. in-services can be changed to reflect the specific needs of the population being cared for; other in-services offered as part of T.E.A.M.,

such as those on stress management and teamwork, would not require change. T.E.A.M. takes into account the unique characteristics of individuals with ADRD. When staff are caring for other populations, the challenges that staff face with those populations can be addressed (e.g., the physical demands on staff when caring for non-ambulatory residents).

13.6 Future Research

This study was an exploratory one since the treatment facilities were the first facilities to implement T.E.A.M.. Given the positive results obtained, replication of this study on a larger scale is warranted. The findings from this thesis can be used to instruct future research.

If a researcher was to conduct an ideal study involving T.E.A.M., some changes in methodology would be suggested. In terms of the sample, the first step is to identify a group of long-term facilities that are "ready" to adopt the T.E.A.M. philosophy. (More research into the factors that distinguish between facilities which are, and are not, "ready" to implement an intervention such as T.E.A.M. may first be required.) These facilities would then be randomly assigned to either the treatment or waiting-list control group. Use of a waiting-list control (or staggered start) approach is recommended in order to enable all of the facilities to implement the intervention.

As with the current study, it is suggested that a multi-method approach, including both quantitative (i.e., self-report and physiological stress response measures) and qualitative methods, be used. The use of more than one method not only increases one's confidence in the findings, but leads to a greater understanding of the effects of the intervention and the meaning of these effects. It is also suggested that a future study not only consider the impact of T.E.A.M. on HCAs but on other staff members (e.g., registered staff) and residents. Considering the impact of T.E.A.M. from these multiple perspectives will enable the researcher to gain a true understanding of the utility and value of the model.

In the current study, the researcher found that a substantial amount of time was required to collect data and assist the facilities in implementing the model. As a result, it is suggested that there is a longer period of time between data collection times and that data are collected less frequently. For example, data could be collected at baseline and after six and twelve months. Alternatively, quantitative data could be collected at baseline and at the end of the study (e.g., after one year) but qualitative interviews could be conducted throughout the implementation phase in order to obtain a more complete understanding of the effect of the intervention and the challenges that were faced.

In addition to conducting a larger and more extensive study of T.E.A.M., researchers need to develop other means of improving the work environment for staff and enhancing the quality of care provided to long-term care residents.

13.7 Conclusion

T.E.A.M. has been shown to be a model of care that can be successfully implemented within long-term care facilities. The effects of T.E.A.M. have been observed with job burnout, perceptions of the work environment, and absenteeism among HCAs. While originally developed for long-term care staff who care for individuals with ADRD, the concepts of T.E.A.M. are applicable to other resident populations. In times often characterized by increasing demands and shrinking resources, interventions such as T.E.A.M., which are inexpensive and effective, need to be developed and evaluated.

APPENDICES

APPENDIX A:

HANDOUTS FROM THE EDUCATION AND TEAMWORK IN-SERVICES

FACTS ABOUT ALZHEIMER'S DISEASE

What is Dementia?

- dementia is a group of disorders
- in all of these disorders, a person's abilities decline
- examples of these disorders include Alzheimer's disease, multi-infarct dementia, Huntington's disease, alcohol-related dementia, and some psychiatric conditions
- because these conditions often have similar characteristics (for example, loss of memory, problems in judgement, decline in functioning), it is often difficult to know which type of dementia a person is suffering from

What is Alzheimer's disease?

- Alzheimer's disease is the most common type of dementia
- the cause of Alzheimer's disease is not known and there is no cure
- when a person has Alzheimer's disease, their brain cells (or neurons) die and cannot be replaced
- because of the loss of brain cells, a person will gradually lose many abilities; these can include their memory, decision-making and problem solving abilities, parts of their personality, and their ability to do certain tasks such as dressing, bathing, feeding, and so on

Stages of Alzheimer's disease

Stage 1:

- forgetfulness occurs; it is often difficult to distinguish this from normal forgetfulness
- the person and/or the family may deny that there is a problem
- 1 or 2 events may alert the family that there is a problem

Stage 2:

- memory deteriorates; memory of recent events may be lost
- difficulty in recalling words and expressing thoughts
- agitation may increase; there may be pacing, repetitive behaviours, wandering
- the person may be overwhelmed by new situations or tasks

Stage 3:

- loss of memory for some activities such as dressing, walking, how to use eating utensils
- more changes in personality
- extreme mood swings; agitation and aggression may increase
- a person may be paranoid or may hallucinate
- incontinent of bladder and bowel

Stage 4:

- terminal stage
- may be extremely agitated or may be non-responsive
- needs total care: feeding, bathing, dressing, diapering
- often bed-ridden and unable to communicate

Important Facts to Remember

1. Every person with Alzheimer's disease is different. Not everyone will suffer from the same symptoms, and the length of time that each person is within any stage will differ.

2. Interventions will work differently with each person with Alzheimer's. What works with one person may not work with another, and what works with one person one day may not work with that person the next day. **Patience is the key!**

3. People with Alzheimer's disease, especially at the middle or later stages, do not do things on purpose. It can be frustrating when a person can do something one day, but not the next, but this is the way this disease works.

Malott, O.W. and McAiney, C.A. (Eds.) (1995). **Alzheimer Resource Manual.** Alzheimer Research and Education Project, University of Waterloo, Waterloo, Ontario, Canada.

MANAGING AGGRESSIVE BEHAVIOURS

Aggressive behaviours are most likely to occur:

- when a resident is touched (e.g. when providing personal care)
- when personal space is invaded

Causes of aggression:

- resident does not feel safe; resident feels threatened
- pain
- resident may feel that they have no control
- resident may feel stressed
- being visited by a particular individual
- having to leave the building
- unknown reasons

What to do when a resident becomes aggressive:

- ***Approach***: be calm and try to assist the resident by
  - distracting the resident
  - reassuring the resident
  - removing the resident from the situation

- ***Triggers***: try to identify what may have *caused* the aggression
  - record what happened immediately before the aggression
  - over time, you may see a pattern
  - try to avoid the causes(s) in the future

- ***Assessment***: conduct regular assessments of residents to identify possible causes of aggression
  - assess health changes (e.g. pain, changes in vision, hearing, or depression - these things may affect behaviour)
  - review medications for possible side effects and/or drug interactions

INDIVIDUALIZED RESIDENT GOALS

Having individualized goals for each resident may help to prevent or reduce aggression. The following are examples of goals which staff can aim for with aggressive residents.

Goal 1: To help the resident feel safe

- If a resident's personal space is invaded, they may not understand what is happening and may try to defend themselves. They may also perceive staff's actions as threatening and may respond defensively.

- Try to reassure the resident, both verbally and non-verbally (e.g. be calm, speak softly, touch their hand, tell them what you are going to do).

- Developing trust is very important.

Goal 2: To make the resident feel physically comfortable

- A resident may be in pain but is unable to tell staff, or staff may not understand that the way the resident is expressing his/her pain.

- Moving a resident may cause pain and trigger aggression.

- Inform the RN or RPN if you think a resident may be in pain.

Goal 3: Help the resident to experience a sense of control

- Staff are busy and must follow many regulations. Because of this, they may do many things for a resident. This can cause resident to feel like they have no control.

- Offer choices to the resident (without overwhelming them) and support their choices. (E.g. if you try to provide care to a resident and they resist, leaving them and returning at another time is one way to support the resident's personal choice.)

Goal 4: **Help the resident to experience optimal stress**

- Asking residents to do things that are beyond their capabilities may trigger 'catastrophic reactions'.

- Know what the resident is able to do and not able to do.

- Reduce overstimulation (e.g. do not have blaring radios or loud TVs).

- Understimulation can also cause frustration. Activities such as listening to music, playing with pets, and hand massages may help.

- It has been found that noisy residents often lack social contact - spending time with residents can mean a lot to them!

Goal 5: **Help the resident experience pleasure**

- Residents may not be able to experience pleasures from the past or look forward to the future, but can experience the present.

- The senses can offer a great deal of pleasure (e.g. smell, taste, touch).

- Talking and laughing with residents can also be pleasurable.

OTHER IDEAS

- **Knowing the resident** (such as their past occupation, interests, hobbies, etc.) can help staff identify ways to help the resident experience pleasure. This information may also help in preventing aggressive behaviours (e.g. knowing ways to distract them, understanding their reactions to things/people).

- **Each resident is different**. There may be different causes of aggression for different residents and individual reactions can change daily.

- **Communication** among all staff is important. Share what you know about the residents, and work together to help identify what may cause aggression, and the best ways to prevent it.

- Be **flexible**! Being **calm** and **pleasant** is also helpful.

BEHAVIOUR MANAGEMENT: THE SIX R'S

REASSESS	When a change is observed in a resident's behaviour or when an intervention is no longer working.
RESTRICT	To prevent a behaviour from occurring, or to stop a behaviour from continuing. This is the most common form of intervention and usually the fastest way to ensure safety but it may be used when it is not necessary (for example, if no one is at risk).
RECONSIDER	Ask yourself from the resident's point of view: 'Is this a reasonable behaviour?' For example, if the resident does not recognize the context or the setting, the resident may be acting reasonably.
RECHANNEL	Find a way for the resident to continue a behaviour in a way that is not disruptive or dangerous.
REDIRECT	Divert behaviour that is leading toward an outburst. For example, distract the resident, or offer the resident another activity.
REASSURE	Reassure the resident that he/she is safe and that you are there to help him/her. Reassure the resident that you understand their feelings and that they responded appropriately.

Malott, O.W. and McAiney, C.A. (Eds.) (1995). **Alzheimer Resource Manual.** Alzheimer Research and Education Project, University of Waterloo, Waterloo, Ontario, Canada.

COMMUNICATION TECHNIQUES WHEN PROVIDING PERSONAL CARE TO PEOPLE WITH DEMENTIA

1. Use a calm, personal, gentle manner.

- don't rush
- if the resident begins to get agitated, slow down or stop
- cover all parts of the body you are not directly working with
- always explain what you are going to do (unless resident is made more agitated by the explanation)

2. Distraction

- engage the resident in conversation about a topic of interest to him or her

3. Persuasion

- with patience, you can often successfully encourage a reluctant resident to bathe

4. Provide a reason to go with you

- e.g., "You're hair is dirty. Let's wash it."

5. Address the resident in familiar terms, preferably ones used in the past by family members

- e.g., "Come on, papa ..."

6. Provide information

- e.g., "I'm going to soap your face now. I'll be very careful."

7. Have one person approach the resident

- this is much less threatening than having more than one person approach the resident

8. Use past memories to convince or reassure resident

- e.g., to a resident who does not want to disrobe, say for example: "You can't wear these clothes to church."

9. Offer rewards

- e.g., "As soon as you get cleaned up, we'll go upstairs to visit your husband."

10. Give positive feedback for cooperating

- e.g., "That's great. You're going to smell so good."

11. Give the resident a choice

- e.g., "Would you like to unbutton your shirt or should I?"

12. Come back later when the resident's mood is better

- begin bath when resident is more cooperative

13. Use the caregiver who is most likely to be successful

- find out which caregiver is most trusted
- use same-sex caregiver (in most cases)
- have a family member bathe the resident

Sloane, P.D., Roder, J., Barrick, A.L., Hoeffer, B., Dwyer, S., McKenzie, D., Lavelle, M., Buckwalter, K., Arrington, L., & Pruitt, T. (1995). Bathing persons with dementia. **The Gerontologist, 35**, 672-678.

WHAT IS A TEAM?

A team is any group of people who need each other to accomplish a common goal.

What's Needed for Effective Teamwork?

1. Teams need to work toward a common goal.

2. There must be a method set up to discuss ideas, problems, etc. Ground rules for conversation are needed. For example, team members must:
   - be truthful
   - let everyone voice their opinions
   - decide on how decisions will be made
   - set out ways to 'safely' challenge each other
   - be able to forgive team members
   - support team members

3. Team members need to be receptive to new ideas:
   - its okay if people have different points of view
   - look at things from different angles
   - don't get personal

4. Teams must realize that disagreement is a good thing - it shows that people are thinking about things and are being honest.

5. Openness and trust must be the rule:
   - need to feel 'safe' to speak
   - don't criticize, ridicule, or hold grudges
   - trust your team members

TIPS ON COMMUNICATION

Golden Rule: ***Treat others as you would like to be treated.***

- follow the Golden Rule in both verbal and written communications

OTHER TIPS

1) If you have a problem with someone or something, or if you want to question something they do, DO NOT be negative. Be constructive. A little kindness will go a long way!

   Remember, there are many ways to do things. We all have a lot to share.

2) **LISTEN** to others. If someone asks you something or makes a suggestion, take a few seconds to think about what has been said, then respond. Everyone has their own perspective, so there will be differences of opinion.

3) Communication is both verbal and non-verbal. You say a lot with your body language (for example, facial expressions, tone of voice, gestures, touch, eye movements). Make sure that what you say with words is the same as what you say with your actions.

WAYS TO COPE WITH STRESS

1. **Relaxation**
   - relaxing
   - deep breathing
   - meditation
   - go to a peaceful place
   - sleeping
   - taking a bath
   - massage
   - reading

2. **Activities**
   - walking, exercise
   - listening to music, dancing
   - fishing
   - cleaning
   - playing with animals
   - doing a hobby/crafts
   - taking a drive
   - playing games
   - shopping
   - going out
   - praying

3. **Letting out feelings**
   - talking about the situation/problem
   - talking with a friend
   - crying, screaming

4. **Removing yourself from the situation**
   - taking a break/ taking time off (if possible)
   - change of scenery
   - counting to 10

5. **Putting it into perspective**
   - letting things go
   - laughing about the situation, humour
   - thinking of other things

6. **Time Management**

TIPS ON DEALING WITH STRESS

Remember: Our mental health and physical health affect each other.

If you are under a great deal of stress this can affect your physical health. For example, you may be more likely to become ill. Poor physical health can also affect our mental health. For example, people who are tired and run-down physically may be more likely to overreact to stressful situations.

Here are some tips on taking care of both your physical and mental health!

1. **Get adequate rest.** Get enough sleep each night to prevent being overly tired and run-down.

2. **Eat well-balanced meals.** Follow the Canadian Nutrition Guide.

3. **Exercise regularly.** Exercise does not have to be hard. Moderate, regular exercise, such as walking is very beneficial to your health. The important thing is to find something you enjoy!

4. **Take time outs when needed.** Take rest breaks during the day - even a couple of minutes every few hours can be very helpful!

5. **Try to manage your time efficiently.** Make a list of priorities and do the most important tasks first. Set aside enough time to complete each task.

6. **Talk with others.** Talking with other people about what is bothering us can help to relieve stress. It can also help to put the situation into perspective. Let other people help you.

7. **Be positive!** Much of stress comes from how we look at a situation. Looking at the positive parts of the situation, rather than just the negatives, can help to make the situation easier to deal with.

PROGRESSIVE RELAXATION

- an increase in muscle tension is often one of the first signs of stress
- with progressive relaxation, each main muscle group is first tense, held tensed, and then relaxed, until the whole body is relaxed
- the idea is that you must learn how your muscles feel when they are tight and tense; letting go after tensing your muscles will give a pleasant feeling
- this technique may not be recommended for people with hypertension; please check with your doctor

HOW TO DO PROGRESSIVE RELAXATION

- to practice relaxation, you should take at least 15 minutes a day and try to follow the same sequence
- remove your shoes and loosen any tight clothing; get in a comfortable position - lying down (without a pillow) may be best
- close your eyes and take a deep breath, hold it, and exhale slowly
- tense and relax each part of your body starting with your hands and arms, then head and down through the trunk to the legs, or starting with the feet and legs and working up the body
- if you begin with the hands and arms, first clench the fists and forearms and hold for 5 - 10 seconds, feel the tension, then let go and feel the difference
- then hold the hands (fists clenched) against the shoulders so as to tense the upper arms, feel the tension, and let go
- next the neck can be held taut with the chin pressed in, then relaxed, followed by tightening the different facial muscles - the forehead (frown and relax), eyebrows (raise up then release), eyes (squint and release), mouth (purse up and release), jaw (thrust forward and release), then the shoulders (hunch up then let go), stomach, buttocks, thighs, legs and feet
- for each body part, make sure you feel the tension before you let go
- if there is any part of your body that is still tense, try to relax it
- after tensing and relaxing each muscle group, enjoy the relaxed state for 5 - 10 minutes; breath quietly, with slow and gentle breaths
- you may want to enjoy a peaceful scene - think of the sights, smells, and feelings
- when you are ready to get up, have a good stretch and get up slowly
- progressive relaxation is often easiest to do while lying down, but can also be done while sitting - for example, in an arm chair, a parked car, or on a bus
- once you have learned the technique of relaxation, it should be possible to relax without tensing all of the muscles; you should also be able to detect any areas of tenseness and be able to release the tension in these areas

RELAXATION AIDS

1. Diaphragmatic (or Deep) Breathing

People who are under stress take shallow breaths from their upper chest and this results in the activation of the system in our body that makes us feel stressed. Breathing this way also may result in hyperventilating because the body is not getting enough oxygen, therefore, the tendency is to breath even quicker in an attempt to get more oxygen. The problem is that faster breathing actually results in reducing oxygen intake even more.

Diaphragmatic breathing, or breathing slowly and deeply so that the air reaches your abdomen, activates the system in our body which calms us. This type of breathing increases our oxygen intake by 25% and this helps us to feel infinitely better, reducing feelings of anxiety or panic. This type of breathing is very easy to learn, and you can do it at any time and in any place.

Begin practising this type of breathing while lying down. Put your hand on top of your abdomen and take a deep breath. Diaphragmatic breathing is happening if you can feel your hand raising and lowering with each breath that you take. It helps to picture a balloon in your stomach and you inflating this balloon with air each time you breath inwards. With practice, this type of breathing is very easy to master.

2. *Imagery*

When we develop a clear picture in our mind of ourselves in a peaceful, relaxing situation, our body responds as if it were actually in that situation. We all have special places that we associate with calmness and serenity. For many people, being on a beach or walking in a garden or woods is very relaxing. Think back over the times in your life when you were in a peaceful setting and bring to mind the characteristics of that setting in as much detail as possible.

Begin your imagery session by closing your eyes and taking deep abdominal breaths. Hold each breath for a couple of seconds before letting the air out. This type of breathing will greatly increase the amount of oxygen you take in, and will also activate the system in our body which calms us. Next, picture yourself entering your relaxing scene (for example, walking into the woods or onto the beach). Really focus your attention on the scenery around you. Notice the colours, textures, sounds, smells, the feel of the breeze, the heat from the sun rays or the coolness of the shade, and so on. The more detail you focus on the more real the experience will seem to you. This is beneficial in that not only do you relax in relaxing settings, but you also take your mind off whatever has been bothering you.

Take 10 or 15 minutes to walk around your special place in your mind, allowing your tension to ease away with each minute you spend there. Take care to ensure that your breathing is slow and relaxed, rather than shallow and anxious. When you finish your walk, take a couple of deep, abdominal breaths, telling yourself that you can take this vacation in your mind whenever you feel the need to unwind. Open your eyes and go about your day feeling less tense than you did before.

Imagery is a skill that improves with practice, just like any other skill we have learned in our lives. At first, you may find your mind wandering occasionally. If this happens just refocus your attention on the relaxing image of your mind and continue with the exercise. Do not chastise yourself for these attention problems; they will greatly decrease over time.

APPENDIX B:

RESEARCH AGREEMENT WITH FACILITY B

RESEARCH AGREEMENT

This agreement is made between:
Name of institution (hereinafter referred to as the institution): *Facility B*
Name of researcher (hereinafter referred to as the researcher): *Carrie McAiney*
University of Waterloo

The researcher has requested access to the following records containing personal information in the custody or control of the institution:

(a) The names and addresses of the family contacts for each of the residents who reside on the XX unit of Facility B, or who will reside there during the next 9 months.

(b) Family members will be asked for permission to access the institution's records on their relatives. The specific information wanted is: demographic information (e.g. age, gender, marital status, etc.), diagnoses (primary and secondary), medications (type and frequency), and behavioral incidents (type and frequency).

The researcher understands and promises to abide by the following terms and conditions:

1. The researcher will not use the information in the records for any purpose other than the following research purpose unless the researcher has the institution's written authorization to do so: (*Describe research purpose below*)

The information obtained will be used in the researcher's Ph.D. thesis, for presentations at scientific meetings, and in scientific publications. Individuals to whom the information relates will not be identified in any way.

2. The researcher will give access to personal information in a form in which the individual to whom it relates can be identified only to the following persons: (*Name persons below*)

Dr. Michael Stones, Department of Health Studies and Gerontology, University of Waterloo

Note: While this individual may have access to the information obtained, all personal identifiers will be deleted.

3. Before disclosing personal information to persons mentioned above, the researcher will enter into an agreement with those persons to ensure that they will not disclose it to any other person.

4. The researcher will keep the information in a physically secure location to which access is given only to the researcher and the persons mentioned above.

5. The researcher will destroy all individual identifiers by: September 1996.

6. The researcher will not contact any individual to whom personal information relates, directly or indirectly, without the prior written authority of the institution.

7. The researcher will ensure that no personal information will be used or disclosed in a form in which the individual to whom it relates can be identified without the written authority of the institution.

8. The researcher will notify the institution in writing immediately upon becoming aware that any of the conditions set out in this agreement have been breached.

Signed at the University of Waterloo this day of 19

Signature of Researcher	Signature of Official
Name of Researcher	Name and Position of Official
Address	Name of Institution
	Address
Telephone Number	Telephone Number

APPENDIX C:

INFORMATION AND CONSENT LETTERS

QUESTIONNAIRE COMPONENT

August 1995

Dear Staff Member:

I am a Ph.D. student in the Department of Health Studies and Gerontology at the University of Waterloo. I am conducting a study under the supervision of Dr. Michael Stones on stress and job satisfaction among staff in long-term care facilities who work with individuals with Alzheimer's disease or other dementias. As you know, working with people who have Alzheimer's disease and other dementias can be very stressful. With your help, I hope to obtain a better understanding of the levels of stress you experience in your job as well as how satisfied you are with your work. I hope that this information can help to improve the quality of life of individuals with Alzheimer's disease and other dementias. As well, I hope it can help to enhance your work environment.

I plan to obtain this information through a set of questionnaires that I would like you to fill out. The questions will take about 20-30 minutes to complete. Over the next 9 months, I plan to come back to this facility on 3 occasions and ask you to fill out similar sets of questionnaires.

Your help in this study is voluntary. As well, you do not have to answer any questions you do not wish to. All of the information you give will be confidential and will only be seen by myself and my supervisor. Since I am interested in the opinions of the group rather than of individuals, you will not be identified by name in the report. In addition, any information you give will have no effect on your job status. If you do not wish to participate in this study, simply hand in the blank questionnaires.

This project has been reviewed and approved for ethics through the Office of Human Research and Animal Care at the University of Waterloo. If you have any questions or concerns resulting from your participation in this study, please contact this Office at (519) 885-1211, Ext. 6005.

Thank you for your help in this project. If at any time you have questions about this study, please feel free to contact either myself at (519) 885-1211, Ext. 6018 or Professor Michael Stones at (519) 885-1211, Ext. 5685.

Sincerely,

Carrie McAiney

I agree to participate in the study being conducted by Carrie McAiney of the Department of Health Studies and Gerontology under the supervision of Professor Michael Stones. I have made this decision based on the information I have read in the information letter and have had the opportunity to receive any additional details I want about the study.

As a participant in this study, I realize that I will be asked to complete a set of questionnaires that should take approximately 20-30 minutes to complete. I am aware that I do not have to answer any questions I do not wish to.

All information which I provide will be held in confidence and I will not be identified by name in the final report. I understand that I may withdraw this consent at any time.

I also understand that this project has been reviewed and has received ethics approval through the Office of Human Research and Animal Care at the University of Waterloo. I may contact this Office if I have any concerns or questions about my involvement in this study.

Participant's Name: _____

Participant's Signature: _____

Name of Witness: _____

Signature of Witness: _____

Date: _____

PHYSIOLOGICAL STRESS RESPONSE COMPONENT

April 1995

Dear Staff Member:

I am a Ph.D. student in the Department of Health Studies and Gerontology at the University of Waterloo. As you know, I am conducting a study under the supervision of Dr. Michael Stones on stress and job satisfaction among staff in long-term care facilities who work with individuals with Alzheimer's disease or other dementias.

To help me in this study, I would like to obtain some saliva samples from you. The saliva samples will be analyzed and used as another measure of stress. Two saliva samples are required. First, I will ask you to provide a saliva sample in a sterile tube. After 15 minutes, I will ask you to rinse your mouth with a lemon-water solution and then provide a saliva sample in another sterile tube. Finally, I will ask you to answer a few questions about events in the recent past (for example, what you have had to eat and drink in the past 12 hours, and whether you have been ill during the past week). I will be asking you these questions because factors such as food and illness may effect the results obtained from the saliva samples. In 3 months, I plan to come back to this facility and ask you to provide another 2 saliva samples.

Your participation in this part of the study is voluntary. The information you provide will be confidential and will only be seen by myself and my supervisor. You will not be identified by name in any report. Since no one at your facility will have access to the information you provide, your results will have no impact on your job status. If you do not wish to participate in this study, simply tell me.

This project has been reviewed and approved for ethics through the Office of Human Research and Animal Care at the University of Waterloo. If you have any questions or concerns resulting from your participation in this study, please contact this Office at (519) 885-1211, Ext. 6005.

Thank you for your help in this project. If at any time you have any questions about this study, please feel free to contact either myself at (519) 885-1211, Ext. 6018 or Professor Michael Stones at (519) 885-1211, Ext. 5685.

Sincerely,

Carrie McAiney

I agree to participate in the study being conducted by Carrie McAiney of the Department of Health Studies and Gerontology under the supervision of Professor Michael Stones. I have made this decision based on the information I have read in the information letter and have had the opportunity to receive any additional details I want about the study.

As a participant in this study, I realize that I will be asked to provide a total of 4 samples of saliva and to answer a few questions about events that occurred before providing the saliva samples (for example, what I have had to eat and drink in the past 12 hours, and whether I have been sick during the past week). I am aware that I do not have to participate if I do not wish to.

All of the results will be held in confidence and I will not be identified in any way in the final report. Any information I provide will have no impact on my job status.

I understand that I may withdraw this consent at any time by informing Carrie McAiney.

I also understand that this project has been reviewed and has received ethics approval through the Office of Human Research and Animal Care at the University of Waterloo. I may contact this Office if I have any concerns or questions about my involvement in this study.

Participant's Name: _____

Participant's Signature: _____

Name of Witness: _____

Signature of Witness: _____

Date: _____

QUALITATIVE INTERVIEW COMPONENT

May 1995

Dear Staff Member:

I am a Ph.D. student in the Department of Health Studies and Gerontology at the University of Waterloo. I am conducting a study under the supervision of Dr. Michael Stones on stress and job satisfaction among staff in long-term care facilities who work with individuals with Alzheimer's disease or other dementias. As you know, working with people who have Alzheimer's disease and other dementias can be very stressful. With your help, I hope to obtain a better understanding of the levels of stress you experience in your job as well as how satisfied you are with your work. I hope that this information can help to improve the quality of life of individuals with Alzheimer's disease and other dementias. As well, I hope it can help to enhance your work environment.

One way I plan to obtain this information is through interviews that I would like to conduct with staff members. The interview should take about 15-20 minutes. I will ask you such things as what you like and dislike about your job, what aspects of resident care you find most challenging, and what information might help you with your job. Over the next 9 months, I plan to come back to this facility on 3 occasions and talk with you about similar things.

Your help in this study is voluntary. As well, you do not have to answer any questions you do not wish to. All of the information you give will be confidential and will only be seen by myself and my supervisor. Since I am interested in the opinions of the group rather than of individuals, you will not be identified by name in the report. In addition, any information you give will have no effect on your job status. If you do not wish to participate in this part of the study, just tell me.

This project has been reviewed and approved for ethics through the Office of Human Research and Animal Care at the University of Waterloo. If you have any questions or concerns resulting from your participation in this study, please contact this Office at (519) 885-1211, Ext. 6005.

Thank you for your help in this project. If at any time you have questions about this study, please feel free to contact either myself at (519) 885-1211, Ext. 6018 or Professor Michael Stones at (519) 885-1211, Ext. 5685.

Sincerely,

Carrie McAiney

I agree to participate in the study being conducted by Carrie McAiney of the Department of Health Studies and Gerontology under the supervision of Professor Michael Stones. I have made this decision based on the information I have read in the information letter and have had the opportunity to receive any additional details I want about the study.

As a participant in this study, I realize that I will be asked to take part in an interview that will be approximately 15-20 minutes in length. I am aware that I do not have to answer any questions I do not wish to.

All information which I provide will be held in confidence and I will not be identified by name in the final report. I understand that I may withdraw this consent at any time.

I also understand that this project has been reviewed and has received ethics approval through the Office of Human Research and Animal Care at the University of Waterloo. I may contact this Office if I have any concerns or questions about my involvement in this study.

Participant's Name: _____

Participant's Signature: _____

Name of Witness: _____

Signature of Witness: _____

Date: _____

APPENDIX D:

SHORT HAPPINESS AND AFFECT RESEARCH PROTOCOL (SHARP)

THE SHARP

These questions are about how things have been going for you lately. Please answer "Yes" or "No" to the following by marking a check (✓) in the appropriate box.

During the past months have you felt ...

1) In high spirits?

- ❑ Yes
- ❑ No

2) Particularly content with your life?

- ❑ Yes
- ❑ No

3) Depressed or very unhappy?

- ❑ Yes
- ❑ No

4) Flustered because you did not know what was expected of you?

- ❑ Yes
- ❑ No

5) Bitter about the way your life has turned out?

- ❑ Yes
- ❑ No

6) Generally satisfied with how your life has turned out?

- ❑ Yes
- ❑ No

The next questions have to do more with general life experiences:

7) I am just as happy as when I was younger.

- ❑ Yes
- ❑ No

8) As I look back on my life, I am fairly well satisfied.

- ❑ Yes
- ❑ No

9) Things are getting worse as I get older.

- ❑ Yes
- ❑ No

10) Little things bother me more this year.

- ❑ Yes
- ❑ No

11) Life is hard for me most of the time.

- ❑ Yes
- ❑ No

12) I am satisfied with my life today.

- ❑ Yes
- ❑ No

APPENDIX E:

SHORT HARDINESS SCALE (SHS)

THE SHS

For each of the following, please indicate whether the statement is "Not at all true", "Possibly true", "Probably true", or "Definitely true", by placing a check (✓) in the appropriate box.

1. Most of life is wasted in meaningless activity.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

2. I find it difficult to imagine enthusiasm concerning work.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

3. It doesn't matter if people work hard at their jobs; only a few bosses profit.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

4. Ordinary work is too boring to be worth doing.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

5. The belief in individuality is only justifiable to impress others.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

6. Unfortunately, people don't seem to know that they are only creatures after all.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

7. The young owe the old complete economic security.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

8. A retired person should be free of all taxes.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

9. New laws should not be passed if they damage one's income.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

10. There are no conditions which justify endangering the health, food, and shelter of one's family or one's self.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

11. Pensions large enough to provide for dignified living are the right of all when age or illness prevents one from working.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

12. Those who work for a living are manipulated by the bosses.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

13. Thinking of yourself as a free person leads to great frustration and difficulty.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

14. Often I do not really know my own mind.
   - ❑ Not at all true
   - ❑ Possibly true
   - ❑ Probably true
   - ❑ Definitely true

For each of the following questions, please circle either A or B to indicate which response "better represents" your attitude.

Question 15:

A. Becoming a success is a matter of hard work; luck has little or nothing to do with it.
B. Getting a good job depends mainly on being in the right place at the right time.

Question 16:

A. As far as work affairs are concerned, most of us are the victims of forces we can neither understand nor control.
B. By taking an active part in political and social affairs the people can control world events.

Question 17:

A. Most people don't realize the extent to which their lives are controlled by accidental happenings.
B. There is really no such thing as "luck".

Question 18:

A. Sometimes I can understand how supervisors arrive at work evaluations.
B. There is a direct connection between how hard I work and the evaluations I get.

Question 19:

A. Many times I feel that I have little influence over the things that happen to me.
B. It is impossible for me to believe that chance or luck plays an important role in my life.

Question 20:

A. What happens to me is my own doing.
B. Sometimes I feel that I don't have enough control over the direction my life is taking.

APPENDIX F:

BACKGROUND INFORMATION QUESTIONNAIRE

BACKGROUND INFORMATION

The following are questions about yourself and your background. The information you provide will be kept confidential and will have no impact on your job. The information from these questions will only be shown in **grouped** form, that is, your name will **not** be connected with any of the information you provide. Your responses are voluntary. Please do not answer any questions you are not comfortable with. Thank you for your help.

1) I am: ❑ male
❑ female

2) Please check the age bracket in which you belong.
- ❑ less than 20 years of age
- ❑ 20 to 29 years
- ❑ 30 to 39 years
- ❑ 40 to 49 years
- ❑ 50 to 59 years
- ❑ more than 59 years of age

3) Please indicate your current marital status.
- ❑ never married
- ❑ married
- ❑ separated/divorced
- ❑ widowed
- ❑ living together (never married)

4) Do you have any children?
- ❑ yes
- ❑ no

If yes, how old are they?

first child _____ fourth child _____
second child _____ fifth child _____
third child _____ other(s) _____

5) What language do you speak most often at home?
- ❑ English
- ❑ French
- ❑ Other, please indicate _____

6) What is your ethnic or cultural identity?

- ❑ English
- ❑ French
- ❑ German
- ❑ Portuguese
- ❑ Chinese
- ❑ Canadian
- ❑ Irish
- ❑ Scottish
- ❑ Italian
- ❑ Ukrainian
- ❑ East Indian
- ❑ African Canadian
- ❑ Other, please specify _____

7) Please indicate the highest level of education you have achieved.

- ❑ some High School
- ❑ completed High School
- ❑ some College
- ❑ completed College
- ❑ some University
- ❑ completed University

8) How long have you worked in a nursing home or home for the aged? _____

9) Do you have a Health Care Aide certificate?

- ❑ yes
- ❑ no

If yes, how long have you had your certificate? _____

10) Have you received training in how to care for people with dementia?

- ❑ yes
- ❑ no

If yes, where did you receive this training? (Check all answers that apply.)

- ❑ from my Health Care Aide training at community college
- ❑ from in-services at this (or another) facility
- ❑ from other staff at this (or another) facility
- ❑ from information sessions provided by the local Alzheimer Society
- ❑ other, please indicate _____

11) Please indicate whether you work:

- ❑ full time
- ❑ part time
- ❑ casual

12) What shift do you usually work?

- ❑ days (7 am to 3 pm)
- ❑ evenings (3 pm to 11 pm)
- ❑ nights (11 pm to 7 am)
- ❑ I usually rotate between all 3 shifts
- ❑ I usually rotate between 2 shifts (please indicate the 2 shifts)

_____

- ❑ other, please specify_____

The following questions ask about your health and your health habits. Remember, all of your answers are confidential and voluntary.

13) Do you presently have any of the following conditions?

	Yes	No
Skin allergies or other skin diseases	❑	❑
Hay fever or other allergies	❑	❑
Serious trouble with back pain	❑	❑
Arthritis or rheumatism	❑	❑
Other serious problems with the joints or bones	❑	❑
Asthma	❑	❑
Emphysema or cough bronchitis or persistent cough	❑	❑
Epilepsy	❑	❑
High blood pressure or hypertension	❑	❑
Circulatory problems	❑	❑
Heart disease	❑	❑
Diabetes, non-insulin-dependent	❑	❑
Diabetes, insulin-dependent	❑	❑
Urinary problems or kidney disease	❑	❑
Stomach or intestine ulcer	❑	❑
Other digestive problems	❑	❑
Goitre or thyroid problems	❑	❑
Eye problems (for example, glaucoma, cataract)	❑	❑
Cancer	❑	❑
If yes, what kind? _____		

14) In the past 4 weeks have you taken any of the following?

			Did you take this at least once a week in the past 4 weeks?	
	Yes	No	Yes	No
Pain relievers (for example, Aspirin, Advil, Tylenol)	❑	❑	❑	❑
Medicine for the heart or blood pressure	❑	❑	❑	❑
Stomach remedies or laxatives	❑	❑	❑	❑
Tranquilizers or sleeping pills	❑	❑	❑	❑
Penicillin or other antibiotics	❑	❑	❑	❑
Cough or cold remedies	❑	❑	❑	❑
Allergy medicine or antihistamines	❑	❑	❑	❑
Codeine, Demerol, or Morphine	❑	❑	❑	❑
Anti-depressants	❑	❑	❑	❑
Diet pills or stimulants	❑	❑	❑	❑
Vitamins	❑	❑	❑	❑

15) In the past month, have you been absent from work?

❑ yes
❑ no

If yes, please indicate why you were absent.

❑ illness
❑ family reason (for example, illness in the family)
❑ needed a break from work
❑ worker's compensation
❑ other, please indicate _____

If you were absent from work because of illness, what was the nature of the illness?

_____

16) At the present time, do you smoke?

❑ yes
❑ no

If yes, how many cigarettes do you usually smoke in one day? _____ cigarettes

If you do not smoke at the present time, have you ever smoked?

❑ yes
❑ no

If you have smoked before, how long ago did you quit? _____

17) Do you participate in physical activities outside of work?

- ❑ yes
- ❑ no

If no, please go to question 18.

If yes, please list the activities.

_____

_____

How many times do you usually exercise in one week? _____ times

How long do you usually exercise? _____ minutes

18) Do you regularly drink coffee, tea, or cola?

- ❑ yes
- ❑ no

If yes, how much do you normally drink in one day? _____

19) In the past 12 months, how often did you drink alcoholic beverages?

- ❑ everyday
- ❑ 4 to 6 times a week
- ❑ 2 to 3 times a week
- ❑ once a week
- ❑ once or twice a month
- ❑ less than once a month
- ❑ I do not drink alcoholic beverages

The following question asks about whether particular events have occurred in your life during the past 3 months. For each event, please indicate whether or not it has occurred.

EVENT	YES	NO
Death of a close family member	☐	☐
Change in the health or behaviour of a family member	☐	☐
Gain of a new family member (for example, through birth or adoption)	☐	☐
Changed financial state	☐	☐
Death of a close friend	☐	☐
Change in living conditions	☐	☐
Marriage	☐	☐
Foreclosure on a loan or mortgage	☐	☐
Pregnancy	☐	☐
In-law troubles	☐	☐
Son or daughter left home	☐	☐

APPENDIX G:

RECENT EVENTS QUESTIONNAIRE

RECENT EVENTS QUESTIONNAIRE

The following questions ask about recent events, such as what you have had to eat and drink, and whether you have been ill. This information is important because these factors may affect our analysis of your saliva sample. The information you give is confidential and you do not have to answer any questions that you are not comfortable with. Thank you for your help.

1) Please list what you have had to eat during the past 12 hours.

_____
_____
_____
_____

2) Please list what you have had to drink during the past 12 hours.

_____
_____
_____
_____

3) Have you had any coffee, tea or cola to drink in the past 12 hours?

- ☐ yes
- ☐ no

If yes, how many cups/glasses have you had?

_____

4) Have you smoked any cigarettes (cigars or pipes) in the past 12 hours?

- ☐ yes
- ☐ no

If yes, how many? _____

5) During the past week have you been ill?

- ❑ yes
- ❑ no

If yes, what was the nature of the illness (for example, cold, flu)?

_____

6) During the past hour, please check whether you have been indoors or outdoors.

- ❑ indoors
- ❑ outdoors
- ❑ both indoors and outdoors

7) During the past hour, have you experienced an event, not related to your work, that was stressful (for example, argument with spouse/child/parent, traffic jam)?

- ❑ yes
- ❑ no

8) How many consecutive shifts did you work <u>before</u> today?

_____

Did you/Are you working today?

- ❑ yes
- ❑ no

APPENDIX H:

QUALITATIVE INTERVIEW GUIDES

QUESTIONS AT BASELINE

1) Tell me about your job. Describe a typical day at work.
(Prompts: What aspects do you find satisfying? What aspects do you find difficult?)

2) Are you pleased with the way your job duties are organized and assigned?
How could the organization and assignment of your duties be improved?

3) What is it like to work in this facility?
How do you feel about this?
What would you change? Why?

4) What aspects of resident care do you find most challenging?
What would help you to better deal with these challenges?

5) Would having more information about Alzheimer's disease and other dementias be helpful to you in your job?
What information would be particularly helpful?

6) How would you describe your relationship with your supervisors?
How might these relationships be improved?

7) How would you describe your relationship with your co-workers?
How might these relationships be improved?

QUESTIONS AT FOLLOW-UP TIMES

1) Has the organization and assignment of your duties changed since we last talked? If yes, how?
Are you pleased with the way your duties are now organized and assigned?
How could this be improved?

2) In the past few months, what has it been like to work in this facility?
Are you happy with how things are going?
What things would you change? Why?

3) In the past few months, have you gained more knowledge about caring for people with Alzheimer's disease and other dementias? If yes, what have you learned?

Has this been useful to you?
What other information may be helpful in doing your job?

4) Have your relationships with your supervisors changed? If yes, how?
Are you happy with the change in the relationships?
How might these relationships be improved?

5) Have the relationships with your co-workers changed? If yes, how?
Are you happy with the change in these relationships?
How might these relationships be improved?

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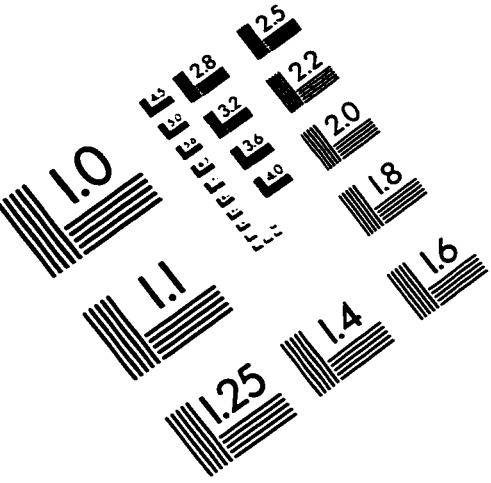
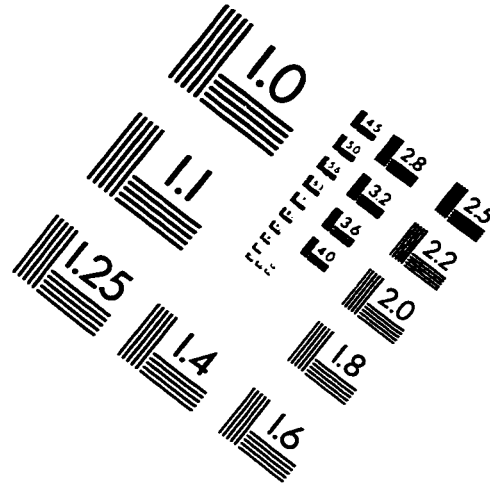
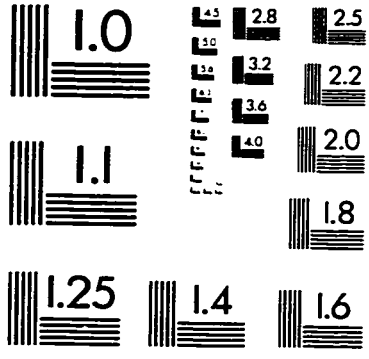
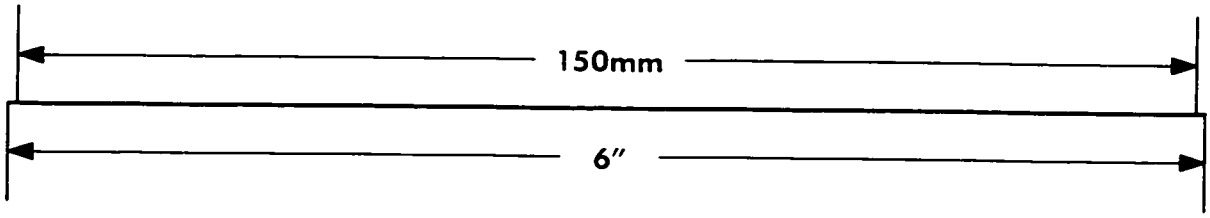
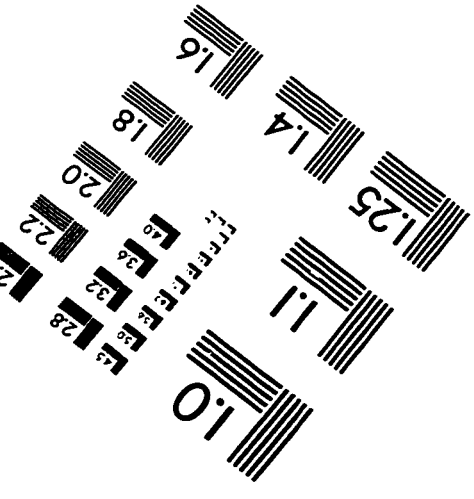
IMAGE EVALUATION TEST TARGET (QA-3)

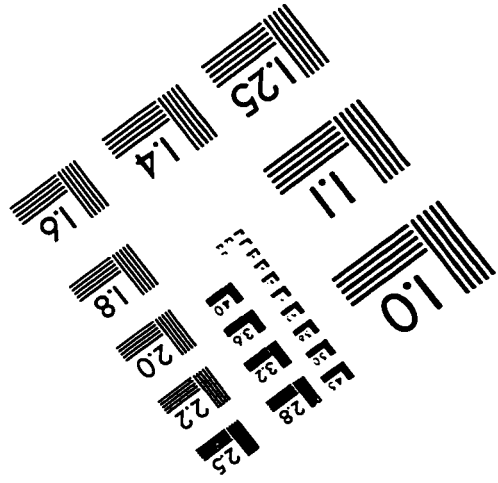












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