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TREC
Translating Research in Elder Care

Examining the Role of Context in Alzheimer Care Centers: A Pilot Study

Technical Report

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EXECUTIVE SUMMARY

Organizational context is increasingly understood to be important for the successful implementation of research by care providers to improve patient/resident, provider, and system-level outcomes. However, there is minimal empirical evidence to support this assumption. The purpose of the *Translating Research in Elder Care* (TREC) program is to examine the role of context in research utilization and the subsequent impact on resident health and care provider outcomes in long-term care facilities in Alberta, Saskatchewan and Manitoba. The TREC program consists of three main inter-related projects and a series of knowledge translation intervention pilot studies.

The primary aim of TREC Project 1 (*Building Context – An Organizational Monitoring System in Long-Term Care*) is to monitor and explore context in nursing homes. This document is the final report for the pilot study for TREC Project 1 and is titled *Examining the Role of Context in Alzheimer Care Centres: A Pilot Study*. The purpose of this pilot study was to adapt and test a survey instrument (the TREC Survey) for use among primarily unregulated care providers in long-term care settings. The survey was previously developed, tested, and validated with professional care providers in adult acute care settings[a] and is undergoing validation in paediatric settings[b]. Early psychometric assessments of the survey (in acute care with professional care providers) indicate it is a reliable and valid means of assessing characteristics of organizational context that are modifiable and amenable to change.

Three main outcomes of the pilot study have been used to inform critical aspects of the main TREC Project 1 study.

1. The TREC Survey instrument has been successfully modified for use in long-term care settings.

2. Data collection using an interview format was found to be highly effective in the long-term care setting with healthcare aides.

3. Individualized unit-level active recruitment strategies contributed to an overall response rate of 81% for the study. Adaptations of this recruitment process are being used in the main TREC Project 1 study.

Key findings from the analysis of the pilot data include:

- Three dimensions (leadership, culture, and evaluation) of the modifiable elements of context explained 74% of the variability reported in context by the frontline staff (healthcare aide and licensed practical nurse) sampled.

- Statistically significant differences by unit type [Residential Alzheimer's Care Centres (RACC) versus Secured Dementia Units (SDU)] were noted for some context variables (organizational slack and information sharing interactions) as well as for care provider outcome measures (burnout–exhaustion, aggression from residents).

[a] Estabrooks, C.A., Squires, J.E., Adachi, A.M., Kong, L., Norton, P.G. (2008). Utilization of Health Research in Acute Care Settings in Alberta Technical Report. (Report No. 08-01-TR). Edmonton, AB, Faculty of Nursing, University of Alberta. (ISBN: 978-1-55195-231-4).
[b] Stevens, B. P., Estabrooks, C. A., Lee, S., McGrath, P., & Johnson, C., et al. (2006-2011). *Translating Research on Pain in Children (TROPIC)*: CIHR. ($4.05 million, $1.4 million).

- In the SDUs:
    - Leadership, culture and evaluation were positively correlated at significant levels with relationship with work variables (job satisfaction and career satisfaction).
    - Leadership and culture were positively correlated at significant levels with the burnout–efficacy sub-scale.

- In the RACCs:
    - Information sharing social processes was positively correlated at significant levels with relationship with work variables (adequate knowledge and adequate orientation).
    - Care providers reported lowers levels of burnout-exhaustion than care providers in the SDUs.

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1.0 INTRODUCTION

Our research team believes that one important approach to improving resident care in residential long-term care settings (i.e., nursing homes) is to increase the use of research at the point of care by unregulated (i.e., healthcare aides) and regulated (i.e., nurses, allied healthcare providers, physicians, practice specialists, and managers) care providers. There is a growing awareness and acceptance among researchers of the importance of: (a) organizational context to successful research implementation by care providers and (b) the use of research evidence to improve resident and provider outcomes. However, there is little empirical evidence to support these assumptions. To this end we have undertaken a large program of research, the *Translating Research in Elder Care* (TREC) program, to investigate this approach to the delivery of healthcare services.

This document reports on the findings from the ***Examining the Role of Context in Alzheimer Care Centers: A Pilot Study*** project, which was the pilot study for one of the main projects in TREC (TREC Project 1, *Building Context – An Organizational Monitoring System in Long-Term Care*).The primary purpose of this pilot study was to adapt and test a survey instrument, previously developed and tested in adult acute care (hospital) settings, among primarily unregulated care providers in long-term care (LTC) settings. A second purpose was to conduct a concurrent process evaluation to assess the acceptability and feasibility of the recruitment and the data collection methods proposed for the main TREC Project 1 study. The specific objectives of the pilot study were to:

1. Modify the survey (hereafter known as the TREC survey) for use in facility-based long-term care settings.

2. To assess the measurement properties of the TREC survey in a long-term care setting (e.g., internal consistency, face and content validity).

3. To create a profile of organizational context in *CapitalCare's* Residential Alzheimer Care Centers and Secured Dementia Units (the setting for the pilot study).

TREC Background
TREC is a CIHR funded five-year program of research which will examine the role of organizational context on knowledge translation (research utilization) and the subsequent impact of knowledge translation on resident health and staff outcomes in long-term care facilities in the Canadian Prairie Provinces. It is a multi-level (provinces, regions, facilities, units within facilities, individuals) and longitudinal program comprised of three main inter-related projects and a series of knowledge translation intervention pilot studies. The three main projects are:

TREC Project 1: *Building Context – An Organizational Monitoring System in Long-Term Care*. This project will monitor and explore context over the five years in 36 nursing homes across Alberta, Saskatchewan, and Manitoba. Structural facility and unit level data will be collected through short structured interviews. In addition, unregulated (i.e., healthcare aide) and regulated (i.e., nurses, physicians, allied health, practice specialists, and care managers) workers in each facility will be asked to complete the TREC survey, a suite of instruments designed to measure organizational context and its impact on knowledge translation, on three separate occasions. Data on resident outcomes will be derived from data routinely collected with the Resident Assessment Instrument/Minimum Data Set – Version 2.0 (RAI-MDS 2.0).

TREC Project 2: *Building Context – A Case Study Program in Long-Term Care*. This project will utilize a case study approach to explore in-depth the role of organizational context in promoting

knowledge translation. Comprehensive case studies will be conducted in three facilities followed by focused case studies in six additional facilities. The data will be obtained through interviews with care providers, provincial health leaders, managers, and external community representatives, as well as, such methods as participant observation, family diaries, and document analysis.

TREC Project 3: *An Enhanced Audit and Feedback Intervention*. In this project, TREC team members will implement an audit and feedback intervention enhanced with educational outreach tailored to provider groups. The intervention will be conducted in 12 facilities, 6 of which will be the focused case study facilities. Audit foci will be derived from the RAI-MDS 2.0 data. Feedback reports will be created and distributed quarterly over an 18-month period during the program. Following each report distribution, interviews will be conducted with care providers to explore their use of, and perceptions of the usefulness of, the reports.

The integration of these three projects will enable the TREC research team to develop an in-depth understanding of the influence of organizational context on knowledge translation and resident and care provider outcomes, and the subsequent influence of knowledge translation directly on resident and provider outcomes. The knowledge translation intervention pilot studies involve developing knowledge translation interventions in the areas of strategic storytelling, supportive supervision, and leadership development to encourage the uptake of best practices.

2.0 OVERVIEW OF THE TREC SURVEY

The TREC survey consists of a suite of survey instruments to assess organizational context, knowledge translation, and provider outcomes. The version piloted in the study described in this report contains instruments to measure the following constructs:

- Organizational context: the Alberta Context Tool (ACT)
- Knowledge translation: single items measuring instrumental, conceptual, persuasive, and overall research utilization
- Care provider outcomes: burnout (Maslach Burnout Inventory–General Scale [MBI-GS] short form], aggression from residents (Workplace Violence Tool), and health status (SF-8™ Health Status Survey)

Organizational Context

The core of the TREC survey is the **Alberta Context Tool (ACT)**, developed by Estabrooks and colleagues in 2006, to assess the influence of organizational factors on research utilization as perceived by various groups of regulated healthcare providers employed in adult acute care (hospital) settings. The *Promoting Action on Research Implementation in Health Services* (PARiHS) framework coupled with an extensive review of the literature provided the theoretical foundation for the tool. Details on the development, refinement and validation of the original ACT instrument can be found in the *Utilization of Research in Acute Care Settings in Alberta* technical report [c].

The ACT consists of eight dimensions, hypothesized to measure organizational context. Each dimension has its own scale or set of items within the tool. The eight dimensions of the ACT are:

1. Leadership
2. Culture
3. Evaluation
4. Information sharing interactions
5. Information sharing activities
6. Information sharing social processes
7. Structural and electronic resources
8. Organizational slack (composed of human resources, space resources, and time resources)

Psychometric properties of the ACT

The original (adult) pilot of the ACT (*The Utilization of Research in Acute Care Settings in Alberta Study*) was carried out with five professional groups (nurses, physicians, managers, clinical specialists and allied healthcare professionals) working in four acute care teaching hospitals in large urban settings in Alberta. A total of 453 healthcare professionals completed the survey for an overall response rate of 43%. Standard psychometric analysis of the ACT in the original adult pilot was conducted. Exploratory factor analysis using a principal components analysis revealed a 14-factor solution representing the eight hypothesized dimensions of ACT and accounted for 69.97% of the variance of *organizational context*. Reliability (internal consistency) was assessed using the Chronbach Alpha coefficient. Reliability coefficients for the eight individual ACT dimensions ranged from a low of .65 (information sharing activities dimension) to a high of .92 (evaluation

[c] Estabrooks, C.A., Squires, J.E., Adachi, A.M., Kong, L., Norton, P.G. (2008). *Utilization of Health Research in Acute Care Settings in Alberta Technical Report*. (Report No. 08-01-TR). Edmonton, AB, Faculty of Nursing, University of Alberta. (ISBN: 978-1-55195-231-4).

dimension)[d]. As part of our field work in the study reported in this report we modified and adapted the survey for use with unregulated care providers in long-term care.

In addition to the eight ACT dimensions, additional context-related items designed to assess *relationship with work* have been appended to the ACT in the TREC survey. The relationship with work subscale consists of four items, each designed to measure one of the following components: adequate orientation for one's job, adequate knowledge to carry out one's job, level of job satisfaction, and level of career satisfaction. These measures were developed based upon a critical review of the literature (suggesting content validity) and have demonstrated variation in a large international study[ef]. They are each scored on a 5-point Likert agreement scale.

Knowledge Translation

Knowledge translation is thought by several key implementation science researchers and others to be important to achieving better patient/resident, provider, and system-level outcomes. In the TREC survey we define knowledge translation as the use of research or new knowledge in practice. We assess four types of research use using a single item for each: instrumental, conceptual, persuasive, and overall research use. For each item, a definition of the type of research use followed by several examples is provided. The individual is then asked to rate their use of that type of research on a 5-point frequency scale. These items have undergone several modifications since their original development (in 1996) and have been used in several research studies examining knowledge translation by healthcare providers. Construct validity of the four items was reported using structural equation modeling[g].

Staff Outcomes

Burnout

Burnout among healthcare providers has been shown in a recent study conducted by our group to be positively correlated with all eight dimensions of organizational context as specified by the ACT and with knowledge translation[h]. The standard measure of burnout is the Maslach Burnout Inventory (MBI). In our work, we use the MBI General Survey (GS) (short form) in which respondents are asked to indicate the frequency over the work year (on a 7-point Likert scale) with which they have experienced nine specific feelings. Factorial validity using structural equation modeling and construct validity based on convergence and divergence have also been reported [ij].

Aggression from residents

In the TREC survey we assess aggression with a subset of five items. To assess the occurrence of the aggression, respondents are asked to indicate whether they have experienced any of the following five types of aggression from a resident over the last five shifts they worked (scored dichotomously as yes/no): (1) verbal threats; (2) hurtful remarks or behaviors; (3) spit on, bitten,

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[d] Ibid.

[e] Duncan, S. M., Hyndman, K., Estabrooks, C. A., Hesketh, K., Humphrey, C. K., Wong, J., S., et al. (2001). Nurses' experience of violence in Alberta and British Columbia hospitals. *Canadian Journal of Nursing Research*, 32(4), 57-78.

[f] Hesketh, K. L., Duncan, S. M., Estabrooks, C. A., Reimer, M. A., Giovannetti, P., Hyndman, K., et al. (2003). Workplace violence in Alberta and British Columbia hospitals. *Health Policy*, 63(3), 311-321.

[g] Estabrooks, C. A. (1999). The conceptual structure of research utilization. *Research in Nursing & Health*, 22(3), 203-216.

[h] Estabrooks, C.A., Squires, J.E., Adachi, A.M., Kong, L., Norton, P.G. (2008). *Utilization of Health Research in Acute Care Settings in Alberta Technical Report*. (Report No. 08-01-TR). Edmonton, AB, Faculty of Nursing, University of Alberta. (ISBN: 978-1-55195-231-4).

[i] Barnett, R. C., Brennan, R. T., & Gareis, K. C. (1999). A closer look at the measurement of burnout. *Journal of Applied Biobehavioral Research*, 4(2), 65-78.

[j] Beckstead, J. W. (2002). Confirmatory factor analysis of the Maslach Burnout Inventory among Florida nurses. *International Journal of Nursing Studies*, 39, 785-792.

hit, pushed or pinched; (4) repeated and unwanted questions or remarks of a sexual nature; and (5) sexual touching. Reliability has been established through variation in a large international study, and content validly through a critical review of the literature and expert panel review[kl].

Health status

The perceived health status of unregulated healthcare providers has received minimal attention in then literature. We believe there are links between organizational context, knowledge translation, and the perceived health status of unregulated healthcare providers. In the TREC survey we assess health status using the SF-8™ Health Survey, which is a multi-purpose, short-form health survey with eight questions each scored on different Likert scales. It yields an 8-scale profile of functional health and well-being scores as well as psychometrically-based physical and mental health summary measures and a preference-based health utility index. It is a generic measure, as opposed to one that targets a specific age, disease, or treatment group. The SF-8™ is based on the larger SF-36™ which has documented reliability and validity. The instrument was developed based on a review of pre-existing questionnaires supporting its content validity. Construct validity with factor analysis has also been documented[m].

[k] Duncan, S. M., Hyndman, K., Estabrooks, C. A., Hesketh, K., Humphrey, C. K., Wong, J., S., et al. (2001). Nurses' experience of violence in Alberta and British Columbia hospitals. *Canadian Journal of Nursing Research*, 32(4), 57-78.

[l] Hesketh, K. L., Duncan, S. M., Estabrooks, C. A., Reimer, M. A., Giovannetti, P., Hyndman, K., et al. (2003). Workplace violence in Alberta and British Columbia hospitals. *Health Policy*, 63(3), 311-321.

[m] Carr, A. (2003). Adult measures of quality of life. *Arthritis & Rheumatism*, 49(5S), S113-S133.

3.0 FIELD TESTING

Field testing in the pilot study described in this report occurred in two separate stages:

1. Feasibility testing (which occurred in two phases)

2. Pilot testing

3.1 Ethical approval

This pilot study received approval from the following Alberta bodies:

- University of Alberta Health Research Ethics Board (HREB)

- Operational and Administrative Approval: The Alzheimer Care Research Steering Committee, CapitalCare, Edmonton

3.2 Feasibility testing

The primary purpose for undertaking the pilot study described in this document was to modify and adapt the survey developed in the adult project (*Utilization of Research in Acute Care Settings in Alberta*) for use in the long-term care setting with unregulated (healthcare aide) workers. As the survey was developed for regulated workers in acute care settings, several modifications were needed to facilitate a more user appropriate instrument for the unregulated worker in long-term care. Survey modifications were undertaken using a two-phase feasibility process.

Phase one involved numerous meetings between the research team, consisting of the Principal Investigator (Dr. Carole Estabrooks), co-investigators (Dr. Anne Sales and Ms. Agnes Mitchell), graduate students (Janet Squires and Alison Connors), and local decision makers (Connie Wark and Doris Milke). Insight gained from these meetings with respect to terminology and participant reading ability was used to prepare an initial draft instrument, which was assessed and further modified in phase two of the feasibility process.

Phase two of the feasibility process consisted of a series of one-on-one survey administration sessions between members of the research team and healthcare aides (employed on a unit not part of the main pilot study). Prior to commencing these sessions, all members of the investigative team met with the facility administrators and unit managers where data collection was to occur. In this meeting the survey draft to be used in phase 2 feasibility was reviewed and recruitment strategies for the feasibility testing discussed. Between July 3, 2007 and July 26, 2007, we conducted five iterations of feasibility testing in which each iteration had one to two participants (total participants: N=9). The process included reviewing a study information letter, obtaining informed consent, survey completion (four participants completed the survey on a computer using Microsoft access, five using pen and paper method), and informal conversation following survey completion. The full research team met and made revisions to the survey following iterations two and five.

Modifications were made to the TREC survey as a result of the feasibility testing as follows.

1. Language – wording was designed to be more reflective of long-term settings and the unregulated worker. Examples of wording changes included changing the words:
   - "patient" to "resident"
   - "multi-disciplinary team of professionals" to "care team"

- "adequate knowledge" to "enough knowledge"
- "innovation" to "new ideas"
- "research" to "new knowledge"

2. Examples – the examples provided in the survey for select survey items (e.g., evaluation and knowledge translation items) were revised so they were more applicable to the long-term care work environment and the role of the unregulated healthcare worker. For instance, examples of instrumental research utilization were changed from "pain management, central line dressing protocol, catheter care" in the adult survey to "performing mouth care daily to help prevent infection" in the long-term care version.

3. ACT questions in the adult acute care study, which resulted in a greater than expected number of missing cases, were omitted from the TREC survey. (See Table 1).

4. The *conditions of work effectiveness* scale (CWEQ, Laschinger), an additional scale appended to the TREC survey for feasibility testing was removed from the survey following feasibility phase two because the healthcare aides experienced a high degree of difficulty when trying to complete it.

5. Scaling changes were made to three of the ACT dimensions within the survey: information sharing interactions, information sharing activities, structural and electronic resources. These modifications are detailed in Table 2.

Table 1: ACT items removed due to missing cases in adult acute-care study

Concept	Item
Leadership	Acts on values even if it is at a personal cost
Information Sharing Interactions	Interact with knowledge broker
Information Sharing Activities	Engage in other activities
Structural and Electronic Resources	Other resources
Information Sharing Social Processes	Individuals who do not participate in group activities will be criticized by others in the group

Table 2: Scaling modifications

Dimension	Previous Scale	Modified Scale
Information Sharing Interactions	1- never 2- rarely 3- sometimes 4- frequently 5- very frequently 6- not accessible	1- never 2- 1-3 times 3- 4 or more times 4- do not know
Information Sharing Activities	1- never 2- rarely 3- sometimes 4- frequently 5- very frequently 6- not accessible	1- never 2- 1-3 times 3- 4 or more times 4- do not know
Structural and Electronic Resources	1- never 2- rarely 3- sometimes 4- frequently 5- very frequently 6- not accessible	1- never 2- 1-3 times 3- 4 or more times 4- not accessible

Lessons learned from feasibility

Several valuable lessons were gained from undertaking this feasibility testing which were subsequently carried forward into the pilot test and the main TREC Project 1 study. For example:

1. In terms of data collection format, a decision was made to abandon the use of the computers. This decision was based on the following facts. First, the healthcare aides who participated in phase two of the feasibility testing were not familiar with using computers and thus struggled with completing the survey in this format despite having a research assistant in the room during the testing. Second, survey completion using the computer-based format was taking a longer period of time then was desired; the mean survey completion time using a computer was 50.44 minutes.

2. In terms of scheduling, we learned the best time for staff to complete the survey was during their scheduled meal breaks, immediately prior to the start of their shift, or at the end of their shift.

3. The process of obtaining informed consent was shown to be highly valued by the healthcare aides. The healthcare aides said that they appreciated the time taken to inform them about the survey and to review the consent process with them prior to having them complete the survey.

Modified TREC survey form

The feasibility portion of the study resulted in a TREC survey form which was then administered in a larger pilot study. Figure 1 outlines the concept structure for the survey form implemented in the pilot study. Table 3 provides additional details of the dimensions measured in the survey.

Figure 1. The TREC Survey (as piloted)

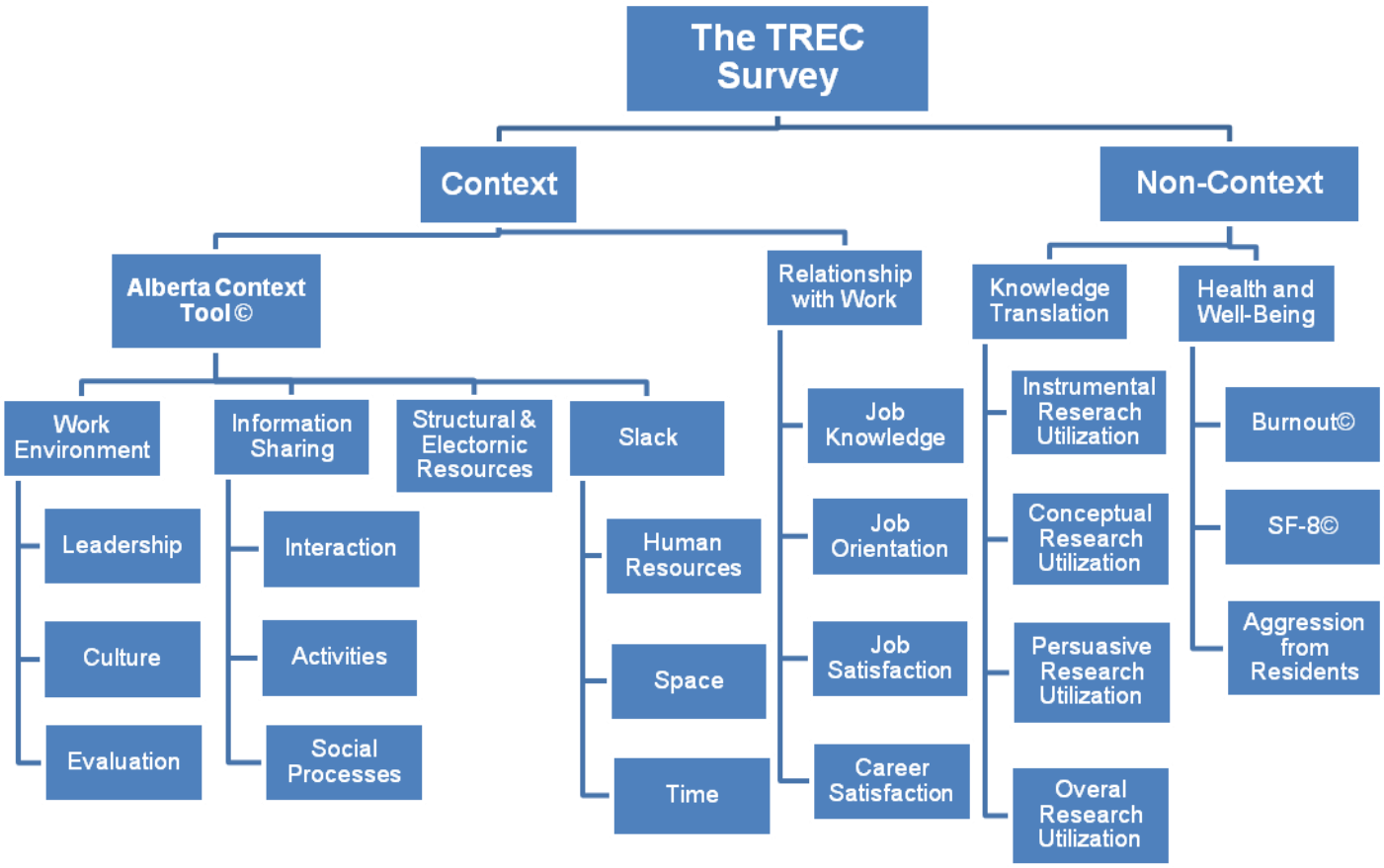


Table 3. Concept structure of the TREC survey (as piloted)

Survey Dimension	Concept	Explanation	# of Items Piloted	Sample Item	Scale Description
Organizational Context (ACT)	Leadership	*Resonant leadership* is defined as the actions of formal leaders in an organization to influence change and excellence in practice through the development of trusting, collaborative and effective relationships with colleagues and staff.	6	Looks for feedback to ideas and initiatives even when it is difficult to hear	5-point likert scale (strongly disagree to strongly agree)
Organizational Context (ACT)	Culture	Culture is defined as the way that "we do things" in our organizations and work units.	5	My organization effectively balances best practice and productivity	5-point likert scale (strongly disagree to strongly agree)
Organizational Context (ACT)	Evaluation	Evaluation is the process of using data to assess group/team performance and to achieve outcomes. Some examples of such data are restraint reduction, resident falls, and pain control.	6	Our team routinely monitors our performance with respect to the action plans	5-point likert scale (strongly disagree to strongly agree)
Organizational Context (ACT)	Information Sharing Interactions	Information sharing interactions are organizational structures (those related to individuals working in the organization and their roles), both formal and informal, operating at various levels (micro, meso, macro) that make research use more probable.	8	In the last typical month how often did you talk with the following people about resident care? – Any clinical educator/ instructor/ specialist	3-point frequency scale (never to 4 or more times)
Organizational Context (ACT)	Information Sharing Activities	Information sharing activities refers to mechanisms within an organization that an individual can participate in which can promote the transfer of knowledge.	6	In the last typical month how often have these activities occurred? -Care team meetings	3-point frequency scale (never to 4 or more times)
Organizational Context (ACT)	Information Sharing Social Processes (Social Capital)	Social capital consists of the stock of active connections among people: the trust, mutual understanding, and shared values and behaviours that bind the members of human networks and communities and make cooperative action possible.	6	People on the team share information with others on the team.	5-point likert scale (strongly disagree to strongly agree)

Survey Dimension	Concept	Explanation	# of Items Piloted	Sample Item	Scale Description
Organizational Context (ACT)	Structural and Electronic Resources	Resources are defined as the material and structural elements that facilitate the ability to access and use research.	11	In the last typical month how often did you use the following while at work? - A Library	3-point frequency scale (never to 4 or more times)
Organizational Context (ACT)	Organizational Slack	The cushion of actual or potential resources which allows an organization to adapt successfully to internal pressures for adjustment or to external pressures for change in policy. Thus, slack acts as a buffering mechanism in the workflow process. Conceptualized as consisting of human resources, time as a resource, and space as a resource.	10	Human: On my unit, we have enough staff to deliver the best possible care. Time: How often do you have "down time"? Space: Does the unit where you work most of the time have a designated space such as a conference room in your workplace to discuss care plans or new knowledge?	Human: 5-point likert scale (strongly disagree to strongly agree) Time: 5-point frequency scale (never to very frequently) Space: 2 items: 1dichotomous; 2nd on a5-point frequency scale (never to very frequently)

Survey Dimension	Concept	Explanation	# of Items Piloted	Sample Item	Scale Description
Relationship with Work	Adequate Knowledge	Adequate knowledge for one's job refers to the self-perception of whether an individual feels they have enough information to carry out their job effectively and safely.	4 A single item per concept.	Job Satisfaction: Overall I am satisfied with my present job.	5-point likert scale (strongly disagree to strongly agree)
	Adequate Orientation	Adequate orientation for one's job refers to the self-perception of whether an individual feels they have had enough orientation to carry out their job effectively and safely.			
	Job Satisfaction	Job satisfaction refers to an individual's perception of whether they are "satisfied" in their current job (e.g. satisfied being a healthcare aide in long term care).			
	Career Satisfaction	Career satisfaction refers to an individual perception of whether they are "satisfied" in their career (e.g. satisfied being a healthcare aide overall).			
Health and Well-Being	Burnout (MBI)	Burnout refers to a debilitating psychological condition brought about by unrelieved work stress (Maslach, 1982)	9	I feel tired when I get up in the morning and have to face another day on the job	7-point frequency scale (never to daily)
Health and Well-Being	Health Status (SF-8TM)	This scale asks participants for their views about the status of their physical and mental health over the past 4 weeks.	8	How much bodily pain have you had during the past 4 weeks?	Scale Varies: 5 and 6 point scales depending on the item
Health and Well-Being	Workplace Aggression	These questions are designed to determine the level of problem behaviours (sometimes described as workplace violence) experienced by providers in long term care.	6	In the last 5 shifts you worked, have you been spit on, bitten, hit, pushed?	Scale varies: dichotomous,

Survey Dimension	Concept	Explanation	# of Items Piloted	Sample Item	Scale Description
Knowledge Translation (Dependent Variable)	Research Utilization: Instrumental Conceptual Persuasive Overall	The application of research findings (in each of the four different ways) to clinical practice.	4 A single item per concept.	Instrumental: Definition + examples + On your LAST typical work day how often did you use research in this way?	5-point scale (10% or less to almost 100%)

3.3 Pilot-testing of the TREC survey

3.3.1 Setting

Participants were recruited from four resident care units: two Residential Alzheimer Care Centers (RACCs) and two Secured Dementia Units (SDUs). The SDUs represent units where higher levels of resident care (compared to RACCs) are provided. There are many similarities between the RACCs and SDUs (e.g., the majority of care is provided by healthcare aides, wages are similar, and there is an employer responsibility to ensure healthcare aide competencies under the Health Professions Act are met). There are also however contextual differences between the RACCs and the SDUs. For example, healthcare aides employed in the RACCs are *multi-skilled*, meaning they are responsible for cooking, cleaning, and laundry, in addition to providing resident care. Education levels of healthcare aides also differ in that, to date, healthcare aides in the RACCs require no formal training as the needs of the residents in these centers are considered less complex than those of residents in SDUs, where healthcare aides are required to have a nursing attendant certificate. These contextual differences, we hypothesize, effect knowledge translation and outcomes (at the resident, care provider, and system level).

3.3.2 Sample

Frontline staff (healthcare aides and licensed practical nurses) were invited to participate in the pilot study. The four units selected provided 113 eligible participants in total. A census/ convenience approach to sampling was used as this was a pilot study and the sample population was small. The inclusion and exclusion criteria for participation are summarized in Table 4 and the number of available staff in each unit is summarized in Table 5.

Table 4. Inclusion and exclusion criteria

Healthcare Aides and Licensed Practical Nurses	**Inclusion Criteria:** 1. Work on the assigned unit for at least 3 months 2. Work 50% or more of their shifts on the assigned unit. **Exclusion Criteria:** 1. Healthcare Aide Student 2. Licensed practical nurse student

Table 5. Eligible study sample by group and unit

Group	Resident Care Units				
	Unit 1	Unit 2	Unit 3	Unit 4	Total
Healthcare Aide	21	26	14	27	88
Licensed Practical Nurse	10	6	4	5	25
Total	41	32	18	32	113

3.3.3 Recruitment

Following selection of the units and one month prior to commencement of data collection for the pilot study, members of the research team (the project coordinator and two graduate students) under the guidance of the study investigators initiated what proved to be a highly effective recruitment procedure. The resident care manager on each of the four units was consulted and asked for their advice on how to best inform potential participants of the study. Based on their recommendations, introduction of the study to participants was conducted through a combination of formal (e.g., scheduled information sessions) and informal (e.g., one-on-one conversations on the resident care units) means. In total, 29 information sessions were held across the four units. These sessions occurred between September 11, 2007 and October 4 2007. In addition to information sessions, an honorarium (of $30) was given to each participant following their completion of the survey.

An information session schedule was developed specific for each unit based on unit rotations and feedback from the unit care manager. Session times were selected to maximize the number of frontline staff available to attend each session. We found it most effective to indicate a time slot (i.e., range, for example, 10:00am -11:00am) when we could be on the unit to provide information on the study, rather than have presentations at specific times (for example, 10:20am, 10:40am, etc). Recruitment posters which detailed the purpose of the study and identified times when the research team would be on site to provide information were sent to each unit care manager. Distribution of the posters depended on the unit; some managers elected to give posters to their staff on an individual basis while others posted them in common areas on their unit.

Each information session (formal and informal) was conducted by at least two members of the research team. We followed a standardized process for conducting the information sessions as follows.

1. Recruit staff to attend information sessions.

2. Welcome staff and encourage them to take refreshments and sign (with initials) an attendance sheet.

3. Distribute the study information brochure and have research staff introduce themselves.

4. Review the information brochure with staff. The brochure explained the study, risks and benefits of participation, confidentiality, and how to participate.

5. Thank staff for attending the information session and encourage them to sign-up for a time to complete the survey.

6. Provide staff that signed-up to complete the survey with a reminder card.

Potential participants who attended an information session were asked to initial a sign-in sheet to say they attended. This allowed the research team to track how many frontline staff members attended the sessions on what day and at what time to know how effective the sessions were at reaching the target population. During the information sessions staff were given the opportunity to sign-up for a pre-determined time to complete the survey. The number of concurrent time slots for survey completion was decided in consultation with each unit manager and thus varied by unit. For example, within the RACCs there are regularly assigned resident recreation times when several staff could complete the survey concurrently. Care demands are higher in the SDUs, therefore we only allowed for two staff to sign-up at the same time. All staff who signed-up in advance for an appointment to fill out the survey were given an appointment card to remind them of the date, time and location for their scheduled survey completion. Small tokens of appreciation in the form of bottled water/juice, packaged trail mix, jelly beans, small bags of chips, mini chocolate bars, granola bars, and fruit were provided to staff when they attended an information session or when they discussed the study, in the clinical area, with one of the study personnel. All snacks were labelled with a sticker noting the study name.

Over the course of two weeks, each unit was visited a minimum of five times for information sessions: at least once in the morning (10:00am-12:00pm), twice in the afternoon (2:00pm-4:00pm) and twice at night (11:00pm -1:00am). The research team members spent a total of 72.5 hours in facilities and 55.5 hours travelling to and from information sessions. The best times for information sessions were 10:00-11:00am and shift change (day shift ending at 3:00pm and afternoon shift starting at 3:00pm). The best time for the night shift was at the beginning of their shift at 11pm or midnight. Overall 76% (86/113) of available frontline staff attended an information session or discussed the study informally with the research staff. Of those, 90% (77/86) signed-up to complete the survey, and an additional 2% made an appointment over the phone during the recruitment phase.

At the conclusion of each information session, the frontline staff members were asked if they had any comments or questions. The most frequent comments/questions included:

- Staff were pleased that the survey could be completed on work time (all units had permission from the manager for this)
- Staff wanted to know what the survey would be like: multiple choice, long answers, etc.

Other observations made by the research team conducting the sessions included:

- A casual atmosphere was important
- Encouraging staff to take refreshments with them was appreciated
- Answering questions in plain language about why we are doing the study, what will happen with the results, why it was important was appreciated.
- Not overbooking sessions was also important. For example, sometimes a staff member would come to ask questions/sign-up after the session. It such cases it was important not to have a session booked at another unit immediately following the prior session.

Face-to-face communication with individual staff members through information sessions and informal discussion (informal discussion was the most frequent mode of dissemination for night-time staff) was used where possible. Because it was not possible for the study personnel to meet individually with every healthcare aide and licensed practical nurse, dissemination of printed

materials (e.g., posters, brochures) was used to complement the face-to-face interactions. These materials were sent electronically or hand delivered to the unit managers for forwarding to staff. Additionally, printed copies were posted on notice-boards in staff common areas (with permission from the unit managers).

3.3.4 Data acquisition

Data collection occurred over a 4-week period starting October 9, 2007 and ending November 2, 2007. For the first two weeks of data collection members of the research team were in each unit full-time Monday through Friday, and for the second two weeks research staff were on site at pre-arranged times. A research team member visited each unit at all pre-scheduled times for survey completion (from the sign-up sheet). The most popular times for survey completion were: 10:00 – 11:00am, over shift change (anywhere from 1:00pm – 4:00pm, 7:00pm, and 10:00pm depending on the unit and provider type), and at start of shift for night staff (11:30pm to 12:30am). While most participants had a pre-assigned time to complete the survey, several (N =17, 18%) staff did not initially sign up to complete the survey but *dropped-in* to complete it when the research team was on-site.

Upon arriving on the unit the research staff set-up in the appropriate room, for example, laying out the survey, information sheet, consent form, and refreshments. Written informed consent was obtained prior to survey completion. Participants self-administered the survey in pen and paper format which was then followed by a short debriefing with a member of the research team. The location of survey completion varied by resident care unit. Daytime staff stated that they preferred to be off the unit in a non-public area when completing the survey as there were less distractions and interruptions. Nighttime staff preferred to complete the survey directly on their unit as there were often only one or two staff working. For one day of data collection, the research team trialed an interview method of survey completion to determine any differences in completion times between interview and pen/paper formats of data collection.

Research staff spent a total of 185.5 hours in the field during data collection. Of that total time, 58.5 hours were spent traveling to and from the facilities. Actual data collection accounted for 86 hours of the total time, while the remaining 42 hours was spent in the field between data collection times.

3.3.5 Response rates

To determine the level of participation in the study, we calculated an overall response rate in addition to response rates for licensed practical nurses and the healthcare aides using the following formula:

$$\text{Response Rate} = \frac{\text{Completed Surveys}}{\text{Number Eligible}}$$

The overall response rate for the study was 81% (N=91). Response rates by care provider group and unit type can be found in Table 6.

Table 6. Response rates by group and unit type

Unit Type	Group	No. Completed Surveys	Response Rate
RACC[1]	Healthcare Aides	**45** (53 eligible participants)	85%
	Licensed Practical Nurses	**6** (11 eligible participants)	55%

SDU[2]	Healthcare Aides	**28** (35 eligible participants)	80%
	Licensed Practical Nurses	**12** (14 eligible participants)	86%

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

3.3.6 Data processing and cleaning

The surveys were coded manually according to a codebook developed by the research team and entered into a SPSS database by two team members. All coding and data entry were double checked for accuracy. Following data entry, additional data processing and cleaning were completed by members of the research team.

Data cleaning involved frequency checks and random error checks. Frequency tables for all variables in the dataset were generated to check for missing, out of range values, and skip patterns. Following these frequency checks, a computer generated random sample of 10% of the surveys was checked for data entry errors by two team members. Systematic errors were noted and rectified. A pre-specified error rate of less than 5% was required. All errors, corrections, and related decisions were recorded in tracking tables. Following the random error check, frequency tables for all variables in the dataset were again run to check for missing and out of range values. The final step in this process involved a detailed exploration of the missing data, do not know responses and outliers. Frequencies for missing and do not know responses were generated, explored, discussed among the team, and subsequently reported in a "Completeness Record" document. (See Section 7.0: Appendix of this report for the completeness record).

3.3.7 Data products

Upon completion of data processing and cleaning the following items were created and saved:

- Master SPSS dataset (before cleaning)
- Cleaned Master SPSS dataset with variable labels, value labels, and missing value specifications (after cleaning)
- Index SPSS dataset with variable labels, value labels, and missing value specifications and also reverse coded variables and derived variables
- Master index survey and accompanying master index survey codebook
- Electronic file with responses to open-ended variables

The master datasets, in a single data file, contain responses for each participant on all survey items. The index dataset, in addition to containing responses for each participant on all survey items, also contains the derived variables (as explained in section 4.4.1 of this report). The index dataset also has matching word documents: an index survey and an index codebook. All analyses were conducted from the index dataset.

3.3.8 Data archiving

Data products (including the master and index datasets) resulting from this study has been saved on the Knowledge Utilization Studies Program (KUSP) server in the Faculty of Nursing at the University of Alberta. The intention is to also digitally archive them using the Networked Social Science Tools and Resources (NESSTAR) software package, enabling a dynamic relationship between the study's metadata and its data. Upon completion of the documentation, and after a period of exclusive investigator access, the digital archive will be stored either on the University of Alberta's data library server or in the newly formed data environment in KUSP and the Faculty of Nursing. Meanwhile, any inquiries regarding data access should be forwarded to Dr. Carole A. Estabrooks at (780) 492-3451 or by email at carole.estabrooks@ualberta.ca.

4.0 PILOT TEST RESULTS

4.1 Missing Data

A missing-values analysis was conducted to examine the pattern of missing values and to determine if item deletion and/or imputation of missing values was warranted. Items with missing values greater than 10% would have been considered for removal and/or imputation; no variables resulted in missing values of greater than 5%. Therefore all variables were retained in our analyses. For our psychometric analyses we used the commonly chosen listwise deletion to deal with missing data as it has several advantages. In particular, under the assumption that data are missing completely at random, it leads to more unbiased parameter estimates then paiwirse deletion. However, due to our small sample size, in our bivariate analyses (correlations) we used pairwise deletion.

4.2 Demographics

4.2.1 Gender

Overall, 97.8% of the staff who participated in the pilot study was female, while just 2.2% were male. Table 7 shows the gender distribution by unit type.

Table 7. Gender distribution by unit type

		RACC[1] (N=51)	**SDU[2]** (N=40)	**Total** (N=91)
N (% of total sample)		51 (56%)	40 (44%)	358 (100)
Gender [N, (%)]	Male	0 (0%)	2 (5%)	2 (2.2%)
	Female	51 (100%)	38 (95%)	89 (97.8%)
	Missing Values	*0*	*0*	*0*

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.2.2 Education

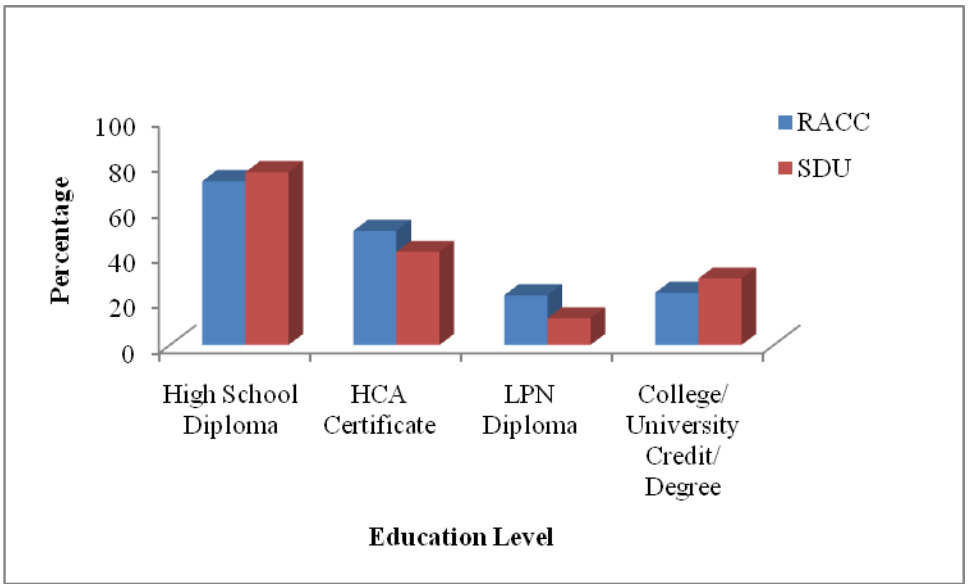
The majority of respondents indicated having a high school diploma (72.5%) and/or a healthcare aide certificate (50.5%). Table 8 and Figure 2 displays education level by unit type. A higher proportion of those with a healthcare aide certificate (62.5%) and a LPN diploma (35.0%) were employed in SDUs than in RACCs.

Table 8. Education level by unit type

		RACC[1] (n=51)	SDU[2] (n=40)	Total (n=91)
Education Level [N, (%)]	High School Diploma	39 (76.5%)	27 (67.5%)	66 (72.5%)
	HCA Certificate	21 (41.2%)	25 (62.5%)	46 (50.5%)
	LPN Diploma	6 (11.8%)	14 (35.0%)	21 (23.1%)
	College / University Credit / Degree	15 (29.4%)	6 (15.0%)	21 (23.1%)
	Missing Values	*0*	*0*	*0*

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

Figure 2. Bar chart of education level by unit type



4.2.3 Experience

The number of years of experience varied by unit type, with staff in the RACCs having lower, on average, years experience (8.8 years) than staff in SDUs (12.5 years). Table 9 shows the experience distribution by unit type.

Table 9. Experience by unit type

	RACC[1] (n=51)	SDU[2] (n=40)	Total (n=91)
Number of Years of Experience [mean, (SD)]	8.8 (7.62)	12.5 (10.5)	10.5 (9.15)

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.3 Psychometric analyses

4.3.1 Factor analysis

The Alberta Context tool (ACT) is the core of the TREC survey. Within the ACT, there are eight hypothesized dimensions of context: (1) leadership, (2) culture, (3) evaluation, (4) information sharing interactions, (5) information sharing activities, (6) information sharing social processes, (7) structural and electronic resources, and (8) organizational slack (composed of human resources, space resources, and time resources). Due to sample size restrictions (a listwise deletion of items in all eight dimensions resulted in a N of 29) and decreased variance resulting from scale modifications (see Section 3.2, Table 2), for this pilot study we present factor analysis results only for the items belonging to the leadership, culture, and evaluation scales, considered to be the 'core' of the ACT [n]. In the technical report for the main TREC project 1 study, we will report the factor analysis of the ACT in its entirety. Additionally, the results reported in the factor analysis below should be viewed with caution given the small sample size.

To explore the underlying dimensional structure of the ACT *core* (i.e., leadership, culture, evaluation) we used factor analysis with principal components analysis (PCA). A PCA analysis creates distinct factors by allowing the first factor to account for the maximum amount of variance within the data, and then each succeeding factor extracting the maximum of the remaining unexplained variance. In our analysis, factors with eigenvalues greater than 1 were extracted. Varimax rotation with Kaiser normalization was used to enhance interpretability of findings. As hypothesized, a three-factor solution was found. The three factors collectively accounted for 73.75% of the variance of *organizational context*. The factor loadings and percentage of variance explained for the three factors is summarized in Table 10. While leadership was the dominant factor, the three factors accounted for fairly equal percentages of variance as follows: leadership (eigenvalue of 8.732, explained variance of 29.45%), evaluation (eigenvalue of 2.404, explained variance of 24.20%), and culture (eigenvalue of 1.401, explained variance of 20.19%).

Table 10. Factor analysis for core ACT scales (n=60)

Dimension	Items	Factor Loadings			% Explained Variance (Cumulative)
		Factor 1	Factor 2	Factor 3	
Leadership	Looks for feedback …	.823			
	Focuses on strengths …	.824			29.45
	Stressful situations…	.880			(29.45)
	Listens, acknowledges, and responds…	.879			
	Mentors and coaches …	.818			
	Resolves conflicts.	.840			
Evaluation	Receive information …..		.875		
	Discusses data …		.855		24.20
	Formal process….		.781		(53.55)
	Formulates action plans….		.717		
	Monitors performance….		.740		
	Compares performance ….		.660		
Culture	Receive recognition ….			.776	20.19
	Supportive work group.			.785	(73.75)
	Best practice and productivity ….			.851	
	Encouraged and supported ….			.653	
	What residents want and need ….			.509	

[n] Estabrooks, C.A., Squires, J.E., Adachi, A.M., Kong, L., Norton, P.G. (2008). *Utilization of Health Research in Acute Care Settings in Alberta Technical Report*. (Report No. 08-01-TR). Edmonton, AB, Faculty of Nursing, University of Alberta. (ISBN: 978-1-55195-231-4).

4.3.2 Internal reliability

Internal consistency (reliability) was examined using Cronbach's alpha (α) for each of the eight ACT dimensions (α range = .50 to .96). Table 11 displays the Cronbach's alpha coefficients for the eight hypothesized context dimensions. Seven of the eight dimensions exceeded the acceptable standard (.70) for new scales. However, one dimension (information sharing activities) fell short of this standard with a Cronbach's alpha score of .50.

Table 11. ACT internal reliability

ACT Dimension	Internal Reliability Coefficient
Leadership	.96
Evaluation	.91
Culture	.85
Information Sharing Interactions	.74
Information Sharing Activities	.50
Information Sharing Social Processes (Social Capital)	.80
Structural and Electronic Resources	.74
Organizational Slack	.80

4.4 Bivariate analysis

4.4.1 Derived scores for ACT context dimensions

Several items measure each of the eight context dimensions contained within the ACT. We derived scores for the eight dimensions as follows.

1. We took the mean of items within a dimension for: leadership, culture, evaluation, information sharing social processes, and organizational slack. The overall organizational slack score was derived by taking the sum of 2 of the 3 sub-scale derived scores (human resources and time as a resource). Space as a resource has undergone further modification since this pilot project and therefore is not included.

2. We used a count method for: structural and electronic resources, information sharing activities, and information sharing interactions. We first recoded the scores of each individual item as follows: if the respondent self-reported using the item frequently or very frequently, they were given a score of 1 (using the item) while if they self-reported never, rarely, or occasionally using the item they were given a score of 0 (not using the item). We then summed the individual items within the dimension.

4.4.2 Reliability and validity of aggregated scores

While the context dimensions within ACT, care provider outcomes, and knowledge translation were measured at the individual level, the unit of analysis in this study was the *unit*. To create unit-level scores, data collected at the individual-level were aggregated to the level of the unit by calculating group means. One-way analysis of variance (ANOVA) was performed for each variable using the unit as the group variable. The source table from the one-way ANOVA was used to calculate the following indices: (1) interclass correlation ICC(1) = (BMS-WMS)/ (BMS+ [K-1] WMS), where BMS is the between-group mean square, WMS is the within-group mean square, and where K is the individual unit group size (or number of respondents per unit). The average K for unequal group size was calculated as $K = (1/[N-1]) (\sum K-[\sum K^2/\sum K])$ where N= 4 (number of units) for the sample; (2) interclass correlation ICC(2) = (BMS-WMS)/BMS; (3) η^2 = SSB/SST, where SSB is the sum of squares between groups and SST is the sum of squares total; and (4) ω^2 =

(SSB – [N-1]WMS) / (SST+ WMS). Sometimes, BMS will be less than WMS (and thus the F-value will be less than 1), resulting in a negative estimate for both ICC(1) and ICC(2). This is a problem, because both theoretical values range from 0 to 1, by definition. The usual recommendation is to convert a negative estimate to zero. When the F-value is less than 1, we will also have negative estimate of the ω^2 value. Conventionally, we also report this value as zero.

ICC(1) is an estimate of individual score variability about the subgroup mean. That is, the ICC(1) index is used to assess perceptual agreement among individual responses within an observational group. Theoretical values of ICC(1) range between 0 and 1, with a value of 1 indicating perfect perceptual agreement among subjects within the same group. The literature suggests ICC(1) values from 0 to .5 justify a degree of perceptual agreement among group subjects**. ICC(2)** is an estimate of stability of aggregated data at the group level. It provides an index of mean subject reliability of the aggregated data and is interpreted as the extent to which similar mean scores would be obtained if subsequent samples of respondents were drawn repeatedly from the same group. ICC(2) values exceeding .6 justify aggregation of data at the group level. **Eta-squared (η^2)** is an indicator of validity and contributes to the proportion of variance in the dependent variable. Theoretical values can range from 0 to 1. **Omega-squared ($\omega^{2)}$)** provides the relative measure of the strength of aggregated data as an independent variable, and is used as an indicator of effect size. $\omega^2<0.06$ refers to a small or no effect; $0.06< \omega^2<.15$ a medium effect; and $\omega^2>.15$ a large effect.

Table 12 contains the reliability and validity values of the data aggregated at the unit level. Most of the ICC(1) values were greater than zero, suggesting that a degree of perceptual agreement existed among participants from the same unit. The relatively low ICC(1) values for some variables indicates the intra-agreement among subjects was relatively weak. The ICC(1) values, however, for leadership, organizational slack, and aggression – spit on/bitten/hit/pushed approached 0.5, indicating stronger agreement among these concepts among staff in the same unit.

The high ICC(2) indices indicate good reliability for 7 of the 8 ACT dimensions as well as most of the care provider outcome measures. The ICC(2) values for our knowledge translation variables were low; *we have undertaken substantial item modification for the four knowledge translation variables and will report on aggregation values obtained with them in the main TREC Project 1 study report.* **The knowledge translation variables should not be treated as valid in this report** and thus are not included in the effect lists that follow.

The relative effect sizes for both η^2 and ω^2 varied with sets of variables showing small, moderate or large effects as follows.

- Small effects:
    - Evaluation (context)
    - Information sharing social processes (context)
    - Adequate knowledge (relationship with work)
    - Adequate orientation (relationship with work)
    - Job satisfaction (relationship with work)
    - Career satisfaction (relationship with work)
    - Cynicism (burnout)
    - Health status
    - Aggression – forced sexual touching

- Moderate effects:
    - Culture (context)
    - Information sharing interactions (context)
    - Information sharing activities (context)
    - Structural and electronic resources (context)
    - Exhaustion (burnout)
    - Efficacy (burnout)
    - Aggression – verbal/written threats
    - Aggression – hurtful remarks
    - Aggression – repeated/unwanted questions - sexual

- Large effects:
    - Leadership (context)
    - Organizational slack (context)
    - Aggression - spit on/bitten/hit/pushed

The large number of variables in the moderate and large effects categories suggests that, for many of our variables, as data were aggregated, there was relatively little loss of information. These values are significantly higher than those we have obtained with the survey in the acute care sector.

Table 12. Reliability and validity of data aggregated at unit level

	F-value	BMS	WMS	ICC(1)	ICC(2)	η^2	ω^2
ACT Context							
Leadership	14.840*	12.8653	0.8669	0.4160	0.9326	0.3756	0.3474
Culture	4.9588*	2.2463	0.4530	0.1575	0.7983	0.1552	0.1226
Evaluation	1.3235	0.9840	0.7435	0.0185	0.2444	0.0576	0.0139
Information Sharing Interactions	4.1102*	9.3477	2.2743	0.1427	0.7567	0.1462	0.1093
Information Sharing Activities	4.5053*	5.8440	1.2971	0.1753	0.7780	0.1790	0.1374
Information Sharing Social Process	2.3998	0.9307	0.3878	0.0657	0.5833	0.0865	0.0499
Structure and Electronic Resources	3.4011*	13.6010	3.9989	0.1403	0.7060	0.1565	0.1088
Organizational Slack	30.605*	36.9730	1.2048	0.5840	0.9673	0.5313	0.5110
Relationship with Work							
Adequate Knowledge	1.1736	1.0440	0.8896	0.0076	0.1479	0.0389	0.0057
Adequate Orientation	0.1321	0.1197	0.9061	0.0808	0.0000	0.0045	0.0000
Job Satisfaction	3.2645*	2.4400	0.7474	0.0922	0.6937	0.1022	0.0702
Career Satisfaction	0.4245	0.4887	1.1510	0.0000	0.0000	0.0144	0.0000
Care Provider Outcomes							
Burnout (Exhaustion)	4.6540*	6.5407	1.4054	0.1450	0.7851	0.1440	0.1119
Burnout (Cynicism)	0.8327	1.3763	1.6528	0.0000	0.0000	0.0327	0.0000
Burnout (Efficacy)	4.5193*	6.5047	1.4393	0.1495	0.7787	0.1497	0.1153
Health Status (Physical)	1.7143	98.7847	57.6240	0.0000	0.4167	0.0558	0.0337
Health Status (Mental)	2.7675*	161.231	58.2593	0.0000	0.6387	0.0871	0.0654
Aggression - Verbal/Written Threats	4.1057*	0.8313	0.2025	0.0000	0.7564	0.1240	0.1028
Aggression - Spit on/Bitten/Hit/Pushed	20.269*	3.1193	0.1539	0.3455	0.9507	0.4114	0.3952
Aggression - Hurtful Remarks/ Behaviours	2.7802*	0.6627	0.2384	0.0000	0.6403	0.0875	0.0658
Aggression-Repeated/Unwanted Questions-Sexual	5.0176*	0.5870	0.1170	0.0000	0.8007	0.1490	0.1279
Aggression -Forced Sexual Touching	1.3259	0.1063	0.0802	0.0000	0.2458	0.0437	0.0215
Knowledge Translation							
Instrumental Research Utilization	0.9177	1.6427	1.7900	0.0000	0.0000	0.0341	0.0000
Conceptual Research Utilization	1.0722	1.2557	1.1712	0.0035	0.0673	0.0391	0.0026
Persuasive Research Utilization	0.3212	0.7143	2.2237	0.0000	0.0000	0.0119	0.0000
Overall Research Utilization	0.2407	0.3683	1.5303	0.0000	0.0000	0.0095	0.0000

*.significant at $p<.05$

4.4.3 Tests of difference by unit type

4.4.3.1 Organizational context (the ACT)

Tables 13 and 14 display the mean/median scores and the test of difference statistic values (by unit type) for the eight ACT context dimensions. Mean scores (ANOVA, F Test Statistic) are used for all variables except for the three context variables for which our derived score was based on a count method: information sharing interactions, information sharing activities, and structural and electronic resources. For these three variables the median is presented along with the test statistic value from a nonparametric test of difference (Kruskal Wallis, χ^2 test statistic).

Statistically significant differences were found for organizational slack and information sharing interactions scores between the two unit types. Organizational slack was higher in the RACCs (mean = 6.3) than in the SDUs (mean = 4.36). Information sharing interaction scores were higher in SDUs (median = 5.00) than in the RACCs (median = 4.00).

Table 13. Organizational context by unit type (mean scores)

Dimension	Mean (SD)			ANOVA	
	Whole Sample	RACC[1]	SDU[2]	F-Statistic	p-value
Leadership (1-5)	3.69 (1.16)	3.66 (1.04)	3.74 (1.29)	.332	.741
Culture (1-5)	4.91 (.72)	4.00 (.62)	4.03 (.83)	.187	.853
Evaluation (1-5)	3.33 (.87)	3.44 (.63)	3.20 (1.09)	-1.164	.248
Information Sharing Social Processes (1-5)	3.95 (.64)	4.00 (.60)	3.89 (.69)	-0.660	.511
Organizational Slack (2-10)	5.44 (1.57)	6.3 (1.41)	4.36 (1.01)	-7.138	.000

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

Table 14. Organizational context by unit type (median scores)

Dimension	Median			Kruskal Wallis	
	Whole Sample	RACC[1]	SDU[2]	Chi Square	p-value
Information Sharing Interactions (0-7)	4.00	4.00	5.00	7.171	.007
Information Sharing Activities (0-4)	3.00	3.00	2.00	2.170	.141
Structural and Electronic Resources (0-10)	5.00	6.50	5.00	.015	.902

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.4.3.2 Relationship with work

Table 15 displays the mean scores and the test of difference statistic values (by unit type) for the four relationship with work variables assessed in the TREC survey. No statistically significant differences were found for relationship with work variables between RACCs and SDUs.

Table 15. Relationship with work by unit type

Dimension	Mean (SD)			ANOVA	
	Whole Sample	RACC[1]	SDU[2]	F-Statistic	p-value
Adequate Knowledge (1-5)	3.69 (1.16)	4.02 (.97)	4.35 (.89)	1.670	.098
Adequate Orientation (1-5)	4.16 (.95)	4.20 (.980)	4.15 (.893)	.054	.818
Job Satisfaction (1-5)	4.07 (.80)	4.02 (.95)	4.13 (.83)	.567	.572
Career Satisfaction (1-5)	4.07 (1.06)	4.04 (1.04)	4.10 (1.10)	.269	.788

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.4.3.3 Staff outcomes

Burnout

Table 16 displays the mean scores and the test of difference statistic values (by unit type) for the three subscales in the Maslach Burnout Inventory: burnout–exhaustion, burnout–cynicism, and burnout– efficacy. Statistically significant differences were found for one of the subscales; burnout–exhaustion scores were lower in the RACCs (mean = 1.29) than in the SDUs (mean = 2.21). Lower scores for this subscale indicate more energy on the part of the care provider. Significant differences for the remaining two burnout subscales were not noted.

Table 16. Burnout by unit type

	Mean (SD)			ANOVA	
	Whole Sample	RACC[1]	SDU[2]	F-Statistic	p-value
Burnout (Exhaustion) (1-7)	1.69 (1.26)	1.29 (1.15)	2.21 (1.22)	3.601	.001
Burnout (Cynicism) (1-7)	1.55 (1.28)	1.39 (1.31)	1.73 (1.24)	1.180	.242
Burnout (Efficacy) (1-7)	4.25 (1.28)	4.12 (1.45)	4.43 (.97)	1.083	.282

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

Perceived health status

Table 17 displays the mean scores and the test of difference statistic values (by unit type) for the two dimensions of the SF-8™ Health Survey: physical health status and mental health status. No statistically significant differences were noted between unit types.

Table 17. Perceived health status by unit type

	Mean (SD)			ANOVA	
	Whole Sample	RACC[1]	SDU[2]	F-Statistic	p-value
Physical Health Status (0-100)	50.53	50.62	50.46	.010	.921
Mental Health Status (0-100)	51.72	50.76	52.47	1.065	.305

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

Aggression from residents

Table 18 displays the proportions of staff who responded "yes" to experiencing aggression from a resident and the test of difference statistic values (by unit type) for the five types of resident aggression surveyed: (1) verbal/written threats; (2) spit on, bitten, hit, pushed or pinched; (3) hurtful remarks or behaviours; (4) repeated and unwanted questions or remarks of a sexual nature; and (5) sexual touching. Statistically significant differences between unit types were found on all types of aggression except for forced sexual touching item (with SDUs reporting higher levels of aggression by residents than RACCs) (See Table 18).

Table 18. Aggression from residents by unit type

	N (%)			Chi-Square	
	Whole Sample N=91	RACC[1] N=51	SDU[2] N=40	Chi-Square	p-value
Verbal/Written Threats	30 (33%)	11 (22%)	19 (48%)	6.821	.009
Spit on/Bitten/Hit/Pushed	45 (49%)	11 (22%)	34 (85%)	36.084	.000
Hurtful Remarks/ Behaviours	44 (48%)	18 (35%)	26 (65%)	7.921	.005
Repeated and Unwanted Questions/Remarks of a Sexual Nature	14 (18%)	3 (6%)	11 (28%)	8.384	.004
Forced Sexual Touching	8 (9%)	3 (6%)	5 (13%)	1.224	.269

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.4.3.4 Knowledge translation

Table 19 displays the mean scores and the test of difference statistic values (by unit type) for the four knowledge translation variables. No statistically significant differences between unit types were found. However, it should be noted that our trial of interview-method data collection alerted us to the fact that these four items were not well understood by the participants. As a result, two of our team members [Estabrooks (PI) and Squires (graduate student)] conducted additional field work with study participants to revise these items for the main TREC Project 1 study.

Therefore, the results in Table 19 should not be considered valid and reliable at this stage.

Table 19. Knowledge translation by unit type

	Mean (SD)			Chi-Square	
	Whole Sample	RACC[1]	SDU[2]	F-Statistic	p-value
Instrumental Research Utilization (1-5)	3.72 (1.34)	3.8 (1.38)	3.62 (1.3)	-.599	.551
Conceptual Research Utilization (1-5)	4.18 (1.08)	4.22 (1.02)	4.13 (1.17)	-.378	.707
Persuasive Research Utilization (1-5)	3.39 (1.47)	3.49 (1.46)	3.28 (1.50)	-.640	.524
Overall Research Utilization (1-5)	3.72 (1.22)	3.73 (1.27)	3.71 (1.18)	-.077	.939

[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.4.4 Descriptive analyses by unit type

While the primary aim of this pilot study was instrument modification, we were also interested in obtaining preliminary data on the effect of organizational context on outcomes. In this section of the document, we report bivariate associations between the eight dimensions of the ACT (measuring organizational context) and:

1. Relationship with work variables (i.e., adequate knowledge, adequate orientation, job satisfaction and career satisfaction)
2. Care provider outcomes (i.e., burnout, perceived health status, and aggression from residents)
3. Knowledge translation (i.e., instrumental research utilization, conceptual research utilization, persuasive research utilization, and overall research utilization)

The findings that following this section should be interpreted with caution due to the small sample size.

4.4.4.1 Relationship with work

Table 20 displays the Pearson Product-Moment correlation coefficients for the context variables within the ACT with the four relationship with work variables for the whole sample, the RACCs, and the SDUs.

Examining the sample as a whole, several context variables were positively correlated at statistically significant levels with relationship with work variables as follows.

- Culture with job satisfaction
- Culture with career satisfaction
- Evaluation with adequate knowledge
- Evaluation with job satisfaction
- Evaluation with career satisfaction

- Information sharing social processes with adequate knowledge

Some correlation patterns between the context variables and relationship with work variables differed by unit type as illustrated in Table 20. For example, leadership, culture, and evaluation were positively correlated (at significant levels) with job satisfaction and career satisfaction in the SDUs but not in the RACCs. Information sharing social processes was positively correlated (as significant levels) with adequate knowledge and adequate orientation in the RACCs but not in the SDUs.

Table 20. Correlations for relationship with work variables and organizational context

		Leadership	Culture	Evaluation	Interactions	Activities	Social Processes	Resource	Slack
Adequate Knowledge	**All**	.062	.189	.124	.193	.145	.275*	.167	-.041
	RACC[1]	.074	.102	.274	.041	.203	.429**	.132	.109
	SDU[2]	.039	.279	.061	.311	.248	.135	.137	.130
Adequate Orientation	**All**	.057	.146	.257*	.078	.170	.188	.137	.083
	RACC[1]	.154	-.020	.277	.014	.097	.302*	.111	.034
	SDU[2]	-.032	.314*	.253	.188	.304	.061	.171	.152
Job Satisfaction	**All**	.341	.334*	.316**	.192	.233	.194	.228	.223
	RACC[1]	.281	.121	.205	.228	.282	.375*	.268	.292*
	SDU[2]	.416**	.564**	.432**	.141	.302	-.004	.179	.413**
Career Satisfaction	**All**	.171	.366**	.248*	.197	.132	.143	.079	.129
	RACC[1]	.131	.131	.074	.304*	.187	.178	.132	.080
	SDU[2]	.209	.563**	.350	.069	.142	.110	.034	.345*

*= p<.05, ** = p<.01
[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.4.4.2 Staff outcomes

Burnout

Table 21 displays the Pearson Product-Moment correlation coefficients for the context variables within the ACT with the three Maslach Burnout Inventory subscales for the whole sample, the RACCs, and the SDUs.

Examining the sample as a whole, several context variables were correlated at statistically significant levels with each of the Maslach Burnout Inventory subscales as follows.

- Information sharing activities with burnout–exhaustion (negative correlation)
- Organizational slack with the burnout–exhaustion subscale. Culture, information sharing interactions (negative correlation)
- Information sharing activities with the burnout–cynicism (negative correlation)
- Culture with the burnout–efficacy (positive correlation)

All of these correlations are in the direction predicted.

With respect to the two types of units, correlation patterns were fairly uniform overall. However, one key difference between unit types was that two dimensions of context (leadership and culture)

were positively correlated (at significant levels) with burnout–efficacy in the SDUs, but not in the RACCs.

Table 21. Correlations for burnout and organizational context

		Leadership	Culture	Evaluation	Interactions	Activities	Social Processes	Resource	Slack
Burnout (Exhaustion)	**All**	-.189	-.153	-.056	-.204	-.408**	-.039	-.143	-.341**
	RACC[1]	-.233	-.084	-.056	-.413*	-.206	.081	-.223	-.148
	SDU[2]	-.205	-.239	.096	-.479**	-.290	-.052	-.071	-.195
Burnout (Cynicism)	**All**	-.213	-.316**	.000	-.378**	-.523**	-.175	-.059	-.122
	RACC[1]	-.326	-.216	-.053	-.378*	-.602*	-.160	-.167	-.103
	SDU[2]	-.114	-.406*	.093	-.467**	-.432*	-.169	-.005	.014
Burnout (Efficacy)	**All**	.175	.296**	.041	.154	.158	.126	.195	.079
	RACC[1]	-.050	.173	-.164	.171	.193	.108	.330	.164
	SDU[2]	.482**	.501**	.324	.068	.176	.211	-.010	.314

* = p<.05, ** = p<.01
[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

Perceived health status

Table 22 displays the Pearson Product-Moment correlation coefficients for each of the eight dimensions of context with health status (physical and mental health components). The only statistically significant correlations were as follows.

- Whole sample: culture, evaluation, information sharing interactions, and structural and electronic resources with physical health status (positive correlation)
- SDUs: leadership, culture, evaluation, and information sharing interactions with physical health status (positive correlation)
- RACCs: structural and electronic resources with physical health status (positive correlation)

Table 22. Correlations for perceived health status and organizational context

		Leadership	Culture	Evaluation	Interactions	Activities	Social Processes	Resource	Slack
Physical Health Status	**All**	.203	.284**	.271*	.232*	.204	.146	.272*	.161
	RACC[1]	.069	.026	.110	.150	.210	.232	.375*	.181
	SDU[2]	.398*	.623*	.413*	.446*	.233	.026	.136	.288
Mental Health Status	**All**	.029	-.002	.084	-.055	-.061	.027	.083	.141
	RACC[1]	-.056	.014	.184	.053	-.145	-.037	.229	.071
	SDU[2]	.101	-.010	-.007	-.118	-.035	.091	-.039	.119

* = p<.05, ** = p<.01
[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

Aggression from residents

Tables 23 and 24 display the mean/median scores for the eight context dimensions of ACT by type of unit when aggression from residents is and is not perceived to have occurred. Mean scores (ANOVA, F Test Statistic, Table 23) are used for all context variables except for the three derived using the count method: information sharing interactions, information sharing activities, and

structural and electronic resources. For these three variables the median is presented along with the test statistic value from a nonparametric test of difference (Kruskal Wallis, χ^2 test statistic, Table 24). With respect to the two unit types, statistically significant differences between context by whether aggression from residents occurred was only found for the RACCs, and were as follows (see Tables 23 and 24):

- Evaluation and verbal/written threats
- Structural/electronic resources and verbal/written threats
- Culture and spit on/bitten/ hit/pushed
- Structural/electronic resources and spit on/bitten/ hit/pushed

Table 23. Aggression from residents and organizational context (mean scores)

		Leadership (1-5)		**Culture** (1-5)		**Evaluation** (1-5)		**Social Processes** (1-5)		**Slack** (2-10)	
		Mean (SD) if yes/no to Aggression from Residents									
		Yes	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**No**
Verbal/ Written Threats	**All**	3.64 (1.11)	3.71 (1.18)	4.04 (.79)	3.98 (.68)	3.53 (.82)	3.20 (.87)	3.97 (1.57)	3.92 (1.56)	5.15 (.50)	5.58 (.70)
	RACC[1]	4.12 (.56)	3.96 (.63)	3.77 (.96)	3.61 (1.08)	3.75* (.56)	3.33* (.63)	4.07 (.53)	3.95 (.62)	6.47 (1.50)	6.25 (1.39)
	SDU[2]	3.56 (1.23)	3.89 (1.35)	4.00 (.90)	4.04 (.76)	3.40 (.94)	2.87 (1.20)	3.91 (.48)	3.87 (.84)	4.35 (.98)	4.37 (1.06)
Spit on/Bitten/ Hit/Pushed	**All**	3.74 (1.19)	3.65 (1.12)	4.07 (.78)	3.94 (.64)	3.33 (.96)	3.33 (.76)	3.88 (.67)	4.00 (.60)	4.85* (1.49)	6.03* (1.43)
	RACC[1]	3.81 (.85)	3.61 (1.09)	4.34* (.46)	3.89* (.62)	3.53 (.64)	3.41 (.64)	3.96 (.53)	3.99 (.63)	6.61 (1.47)	6.22 (1.40)
	SDU[2]	3.71 (1.29)	3.86 (1.38)	3.99 (.84)	4.20 (.80)	3.26 (1.04)	2.55 (1.5)	3.86 (.72)	4.1 (.43)	4.32 (1.03)	4.65 (.81)
Hurtful Remarks/ Behaviours	**All**	3.61 (1.21)	3.77 (1.09)	4.04 (.78)	3.97 (.65)	3.38 (.89)	3.28 (.85)	3.82 (.69)	4.07 (.55)	5.00* (1.63)	5.84* (.55)
	RACC[1]	3.58 (.97)	3.69 (1.09)	4.08 (.59)	3.94 (.62)	3.50 (.64)	3.40 (.64)	3.83 (.64)	4.08 (.56)	6.11 (1.81)	6.41 (1.14)
	SDU[2]	3.63 (1.37)	3.96 (1.12)	4.02 (.88)	4.02 (.73)	3.30 (1.03)	2.98 (1.20)	3.81 (.74)	4.04 (.55)	4.21 (.88)	4.62 (1.18)
Repeated and Unwanted Questions/Remarks of a Sexual Nature	**All**	3.39 (1.35)	3.77 (1.10)	4.01 (1.04)	4.00 (.64)	3.20 (1.00)	3.35 (.84)	3.97 (.61)	3.94 (.64)	4.77 (1.80)	5.55 (1.52)
	RACC[1]	3.55 (.96)	3.66 (1.06)	4.33 (.57)	3.97 (.61)	3.05 (.75)	3.47 (.62)	3.94 (.91)	3.99 (.58)	7.53 (.96)	6.22 (1.40)
	SDU[2]	3.22 (1.47)	3.97 (1.18)	3.92 (1.14)	4.04 (.69)	3.25 (1.11)	3.17 (1.10)	3.98 (.56)	3.85 (.73)	3.95 (.92)	4.46 (.99)
Forced Sexual Touching	**All**	3.16 (.91)	3.75 (1.16)	4.25 (.33)	3.98 (.74)	3.52 (.60)	3.31 (.89)	3.95 (.55)	3.94 (.64)	5.13 (2.02)	5.46 (1.54)
	RACC[1]	2.88 (.19)	3.71 (1.06)	4.06 (.11)	3.99 (.63)	3.22 (.78)	3.46 (.63)	3.61 (.53)	4.01 (.60)	7.06 (.53)	6.25 (1.43)
	SDU[2]	3.33 (1.16)	3.81 (1.31)	4.36 (.38)	3.97 (.86)	3.75 (.39)	3.11 (1.13)	4.20 (.47)	3.85 (.70)	3.68 (1.22)	4.44 (.97)

* = $p<.05$[1]

RACC = Residential Alzheimer's Care Center; [2]SDU = Secured Dementia Unit

Table 24. Aggression from residents and organizational context (median scores)

		Interactions (0-7)		Activities (0-4)		Resources (0-10)	
		Median if yes/no to Aggression from Residents					
		Yes	No	Yes	No	Yes	No
Verbal/ Written Threats	**All**	4.00	4.50	2.00	2.50	6.50	5.50
	RACC[1]	4.00	3.00	3.00	3.00	7.00*	5.00*
	SDU[2]	4.00	5.00	2.00	2.00	5.00	4.50
Spit on/Bitten/ Hit/Pushed	**All**	5.00	4.00	2.00	.00	6.00	6.00
	RACC[1]	4.00	3.00	3.00	3.00	7.00*	5.00*
	SDU[2]	4.50	5.50	2/.00	2.00	5.00	7.00
Hurtful Remarks/ Behaviours	**All**	4.50	4.00	2.00	2.00	6.50	5.50
	RACC[1]	4.00	3.00	3.00	3.00	7.50	5.50
	SDU[2]	5.00	4.00	2.50	2.00	5.50	5.00
Repeated and Unwanted Questions/Remarks of a Sexual Nature	**All**	4.00	4.00	3.00	2.00	7.00	5.00
	RACC[1]	4.00	3.00	1.50	3.00	7.00	6.00
	SDU[2]	4.00	5.00	3.00	2.00	6.50	5.00
Forced Sexual Touching	**All**	5.00	4.00	3.00	2.00	7.00	5.00
	RACC[1]	6.00	3.00	3.00	3.00	7.00	5.50
	SDU[2]	4.00	5.00	3.00	2.00	6.00	5.00

* = p<.05
[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

4.4.4.3 Knowledge Translation

Table 25 displays the Pearson Product-Moment correlation coefficients for the context variables within the ACT with the knowledge translation items. While a few significant correlations were noted, **the knowledge translation concepts were inadequately operationalized in this pilot study and thus must be examined with caution**.

Table 25. Correlations for knowledge translation and organizational context

		Leadership	Culture	Evaluation	Interactions	Activities	Social Processes	Resource	Slack
Instrumental Research Utilization	**All**	.001	.049	-.051	-.150	.051	.054	-.080	.000
	RACC[1]	.067	.145	-.053	-.286	.105	.178	-.164	-.217
	SDU[2]	-.052	-.031	-.113	.069	-.005	-.087	.011	.116
Conceptual Research Utilization	**All**	-.172	-.139	-.236	-.134	.096	.082	-.348*	-.263*
	RACC[1]	-.264	-.05	-.237	-.086	.330	.157	-.311	-.411*
	SDU[2]	-.082	-.218	-.252	-.178	-.112	.012	-.386*	-.173
Persuasive Research Utilization	**All**	-.026	-.036	.303*	-.043	.153	.004	.179	.033
	RACC[1]	-.269	-.031	.292	-.044	.182	-.002	.277	-.143
	SDU[2]	.201	-.042	.295	.003	.067	-.003	.094	.157
Overall Research Utilization	**All**	-.082	.078	-.041	.153	.134	.071	.069	-.172
	RACC[1]	-.068	.128	.163	-.221	.094	.082	-.007	-.316
	SDU[2]	-.107	.040	-.193	.299	.158	.056	.137	-.042

*= p<.05, ** = p<.01
[1]RACC = Residential Alzheimer's Care Center
[2]SDU = Secured Dementia Unit

5.0 SUMMARY OF FINDINGS

In this report we have described the modifications that were made to the TREC survey for use with unregulated care providers in nursing homes, the process of administration and validation of the TREC survey, and we have presented preliminary psychometric, bivariate, and descriptive findings.

The TREC survey is a modified version of a survey which was developed for and tested in the adult acute care setting. In the pilot study described in this report, the survey was modified for and tested with a new population (unregulated nursing care providers, i.e., healthcare aides) and new setting (i.e., nursing homes) in preparation for one of the main projects (TREC Project 1) in a longitudinal, multi-site program of research – the *Translating Research in Elder Care* (TREC) Program.

A detailed process evaluation was undertaken to assess the data collection methods prior to the multi-site study. Our findings indicated that using a computer based format for survey research was not feasible in this population of healthcare providers. We also found that administering the survey in interview format compared to pen and paper format to be best from the participants' perspective. Individual unit-specific recruitment plans were also shown to be effective in securing good response rates within this population.

The core of the TREC survey is the ACT, a measure of context comprised of eight dimensions: (1) leadership, (2) culture, (3) evaluation, (4) information sharing interactions, (5) information sharing activities, (6) information sharing social processes (social capital), (7) structural and electronic resources, and (8) organizational slack. Seven of these eight dimensions were found to be internally reliable, exceeding the acceptable standard (> 0.70) for scales intended to compare groups. The dimension of information sharing activities had a reliability coefficient below the accepted standard (at .50); as a result this scale has undergone revisions which will be tested in the main TREC project 1 study. Sample size restrictions prevented us from undertaking a full factor analysis of all eight dimensions. We did examine the structure of the three core ACT scales: leadership, culture, and evaluation. A three-factor solution accounting for 74% of the variance of *organizational context* resulted. **However, these factor analytic findings should be viewed with caution due to our small sample size**.

Several themes emerged from the bivariate analyses:

Test of Difference Analyses.
Statistically significant differences by unit type (i.e., by RACC and SDU) were found for:

- Context variables (organizational slack and information sharing interactions)
- Care provider outcomes (burnout–exhaustion and aggression from residents)

Descriptive Analyses.
Dimensions of context were found to be correlated at statistically significant levels (in the predicted directions) with several outcome measures. The pattern of correlations, however, varied by unit type indicating that the context within the two models of Alzheimer's care studied (RACC and SDU) differs significantly. For example, leadership, culture, and evaluation (the core dimensions of the ACT) were positively correlated (at significant levels) with relationship with work variables (job satisfaction and career satisfaction) in the SDUs but not in the RACCs. On the other hand, information sharing social processes was positively correlated (at significant levels)

with other relationship with work variables (adequate knowledge and adequate orientation) in the RACCs but not in the SDUs.

With respect to care provider outcomes, context (leadership and culture) was positively correlated (at significant levels) with burnout – efficacy in the SDUs, but not in the RACCs. Differential patterns were also noted with other staff outcomes, for example, physical health status and aggression from residents.

6.0 IMPLICATIONS AND FUTURE DIRECTIONS

The findings from the pilot study described in this report set the stage for the main TREC Project 1 study, predominantly with respect to survey revisions needed and feasibility of proposed data collection methods.

The findings presented in this report also have important implications for understanding of context within long-term care settings and how it may differ by care delivery model. Our findings on context with frontline care providers (predominantly unregulated healthcare aides) from this pilot study also differ from those we obtained previously with professional care providers in acute care and pediatric care settings and thus suggest the need to tailor interventions to the provider group being targeted.

The ACT which is central to the TREC survey offers a pragmatic and reliable means for measuring organizational context. The survey is copyright protected and therefore is not appended to this report. Inquiries regarding obtaining a copy of the tool should be made to Dr. Carole A. Estabrooks at (780) 492-3451 or by email: carole.estabrooks@ualberta.ca.

7.0 APPENDIX: Completeness Record

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR003	I. Demographics	YEARS WORKED IN CURRENT OCCUPATION	6 (6.5%)	-	-
VAR004	I. Demographics	MONTHS WORKED IN CURRENT OCCUPATION	43 (46.7%)	-	-
VAR005	I. Demographics	FACILITY UNIT NAME	0	-	-
VAR006	I. Demographics	YEARS WORKED ON UNIT	11 (12%)	-	-
VAR007	I. Demographics	MONTHS WORKED ON UNIT	42 (45.7%)	-	-
VAR008	I. Demographics	CURRENT POSITION	0	-	-
VAR009	I. Demographics	OTHER CURRENT POSITION AS SPECIFIED IN VAR008	1 (1.1%)	-	89
VAR010	I. Demographics	HOURS WORKED IN TWO WEEK PERIOD	1 (1.1%)	-	-
VAR011	I. Demographics	SHIFT WORKED MOST OFTEN	3 (3.3%)	-	-
VAR012	I. Demographics	OTHER MOST COMMON SHIFT WORKED AS SPECIFIED IN VAR011	0	-	87
VAR013	I. Demographics	GENDER	0	-	-
VAR014	I. Demographics	ENGLISH AS FIRST LANGUAGE	0	-	-
VAR015	I. Demographics	FIRST LANGUAGE (IF NOT ENGLISH)	2 (2.2%)	-	60
VAR016	I. Demographics	HIGH SCHOOL EDUCATION RECEIVED	-	-	-
VAR017	I. Demographics	YEAR OF HIGH SCHOOL GRADUATION	7 (7.6%)	-	25
VAR018	I. Demographics	COUNTRY WHERE HIGH SCHOOL EDUCATION RECEIVED	14 (15.2%)	-	25
VAR019	I. Demographics	HCA/PCA CERTIFICATE RECEIVED	-	-	-
VAR020	I. Demographics	YEAR HCA/PCA CERTIFICATE RECEIVED	5 (5.4%)	-	46

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR021	I. Demographics	COUNTRY WHERE HCA/PCA CERTIFICATE WAS RECEIVED	12 (13%)	-	46
VAR022	I. Demographics	LPN DIPLOMA RECEIVED	-	-	-
VAR023	I. Demographics	YEAR LPN CERTIFICATE RECEIVED	2 (2.2%)	-	72
VAR024	I. Demographics	COUNTRY WHERE LPN DIPLOMA WAS RECEIVED	4 (4.3%)	-	72
VAR025	I. Demographics	OTHER LEVEL OF EDUCATION	-	-	-
VAR025a	I. Demographics	NAME OF OTHER EDUCATION	0	-	70
VAR026	I. Demographics	YEAR OTHER LEVEL OF EDUCATION RECIEVED	1 (1.1%)	-	71
VAR027	I. Demographics	COUNTRY WHERE OTHER EDUCATION WAS RECEIVED	0	-	70
VAR028	I. Demographics	CURRENT ENROLLMENT IN AN EDUCATION PROGRAM	2 (2.2%)	-	-
VAR029	I. Demographics	NAME OF PROGRAM CURRENTLY ENROLLED IN	1 (1.1%)	-	80
VAR030	I. Demographics	OTHER SPECIAL COURSES COMPLETED	4 (4.3%)	-	-
VAR031	I. Demographics	NAME OF SPECIALIZED COURSE COMPLETED	0	-	52
VAR031a	I. Demographics	YEAR SPECIALIZED COURSE COMPLETED	14 (15.2%)	-	53
VAR032	I. Demographics	NAME OF SPECIALIZED COURSE COMPLETED	23 (25%)	-	52
VAR032a	I. Demographics	YEAR SPECIALIZED COURSE COMPLETED	6 (6.5%)	-	74
VAR033	I. Demographics	NAME OF SPECIALIZED COURSE COMPLETED	35 (38%)	-	52
VAR033a	I. Demographics	YEAR SPECIALIZED COURSE COMPLETED	3 (3.3%)	-	86
VAR034	II. Your Health and Wellbeing	OVERALL HEALTH	0	-	-
VAR035	II. Your Health and Wellbeing	PHYSICAL HEALTH PROBLEMS	0	-	-
VAR036	II. Your Health and Wellbeing	DIFFICULY DOING DAILY WORK	0	-	-

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR037	II. Your Health and Wellbeing	BODILY PAIN	0	-	-
VAR038	II. Your Health and Wellbeing	ENERGY LEVEL	0	-	-
VAR039	II. Your Health and Wellbeing	LIMITED SOCIAL ACTIVITIES	0	-	-
VAR040	II. Your Health and Wellbeing	EMOTIONAL PROBLEMS	0	-	-
VAR041	II. Your Health and Wellbeing	PERSONAL AND EMOTIONAL PROBLEMS LIMITING ACTIVITIES	0	-	-
VAR042	III. Using Knowledge	DIRECT (INSTRUMENTAL) RESEARCH USE	3 (3.3%)	6 (6.5%)	-
VAR043	III. Using Knowledge	INDIRECT (CONCEPTUAL) RESEARCH USE	3 (3.3%)	5 (5.4%)	-
VAR044	III. Using Knowledge	PERSUASIVE RESEARCH USE	4 (4.3%)	4 (4.3%)	-
VAR045	III. Using Knowledge	OVERALL RESEARCH USE	5 (5.4%)	7 (7.6%)	-
VAR046	IV: Your Work Setting-Leadership	LEADERSHIP- FEEDBACK	2 (2.2%)	2 (2.2%)	-
VAR047	IV: Your Work Setting-Leadership	LEADERSHIP – FOCUSES ON STRENGTHS	2 (2.2%)	4 (4.3%)	-
VAR048	IV: Your Work Setting-Leadership	LEADERSHIP –STRESSFUL SITUATIONS	2 (2.2%)	2 (2.2%)	-
VAR049	IV: Your Work Setting-Leadership	LEADERSHIP –LISTENS, ACKNOWLEDGES & RESPONDS	2 (2.2%)	2 (2.2%)	-
VAR050	IV: Your Work Setting-Leadership	LEADERSHIP- MENTORS AND COACHES	3 (3.3%)	6 (6.5%)	-
VAR051	IV: Your Work Setting-Leadership	LEADERSHIP- RESOLVES CONFLICTS	2 (2.2%)	5 (5.4%)	-
VAR052	IV: Your Work Setting-Culture	CULTURE-RECEIVE RECOGNITION	2 (2.2%)	2 (2.2%)	-
VAR053	IV: Your Work Setting-Culture	CULTURE- SUPPORTIVE WORK GROUP	2 (2.2%)	2 (2.2%)	-
VAR054	IV: Your Work Setting-Culture	CULTURE- BEST PRACTICE AND PRODUCTIVITY	2 (2.2%)	2 (2.2%)	-

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR055	IV: Your Work Setting-Culture	CULTURE-ENCOURAGED AND SUPPORTED	2 (2.2%)	1 (1.1%)	-
VAR056	IV: Your Work Setting-Culture	CULTURE- WHAT RESIDENTS WANT AND NEED	2 (2.2%)	1 (1.1%)	-
VAR057	IV: Your Work Setting-Evaluation	EVALUATION- RECEIVE INFORMATION	5 (5.4%)	3 (3.3%)	-
VAR058	IV: Your Work Setting-Evaluation	EVALUATION- DISCCUSSES DATA	3 (3.3%)	1 (1.1%)	-
VAR059	IV: Your Work Setting-Evaluation	EVALUATION-FORMAL PROCESS	4 (4.3%)	4 (4.3%)	-
VAR060	IV: Your Work Setting-Evaluation	EVALUATION- FORMULATES ACTION PLANS	5 (5.4%)	1 (1.1%)	-
VAR061	IV: Your Work Setting-Evaluation	EVALUATION- MONITORS PERFORMANCE	4 (4.3%)	2 (2.2%)	-
VAR062	IV: Your Work Setting-Evaluation	EVALUATION- COMPARES PERFORMANCE	5 (5.4%)	9 (9.8%)	-
VAR063	IV: Your Work Setting-Structural Resources	LIBRARY USE	5 (5.4%)	2 (2.2%)	-
VAR064	IV: Your Work Setting-Structural Resources	TEXTBOOK OR JOURNALS	5 (5.4%)	1 (1.1%)	-
VAR065	IV: Your Work Setting-Structural Resources	NOTICE BOARDS	2 (2.2%)	1 (1.1%)	-
VAR066	IV: Your Work Setting-Structural Resources	POLICIES & PROCEDURES	2 (2.2%)	0	-
VAR067	IV: Your Work Setting-Structural Resources	GUIDELINES & PROTOCOLS	3 (3.3%)	1 (1.1%)	-
VAR068	IV: Your Work Setting-Structural Resources	INSERVICES & WORKSHOPS	4 (4.3%)	5 (5.4%)	-
VAR069	IV: Your Work Setting-Structural Resources	NAME OF OTHER STRUCTURAL RESOURCE	86 (93.5%)	0	-
VAR070	IV: Your Work Setting-Structural Resources	OTHER STRUCTURAL RESOURCES	2 (2.2%)	0	85

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR071	IV: Your Work Setting-Structural Resources	CONTINUING EDUCATION	2 (2.2%)	2 (2.2%)	-
VAR072	IV: Your Work Setting-Structural Resources	SUPPORT FROM WORK FOR CONTINUING EDUCATION	2 (2.2%)	0	29
VAR073	IV: Your Work Setting-Structural Resources (electronic)	ACCESS TO COMPUTER	1 (1.1%)	0	-
VAR074	IV: Your Work Setting-Structural Resources (electronic)	WEB SITE USED MOST OFTEN AT WORK	13 (14.1%)	-	71
VAR075	IV: Your Work Setting-Structural Resources (electronic)	REMINDER SYSTEMS	4 (4.3%)	1 (1.1%)	-
VAR076	IV: Your Work Setting-Structural Resources (electronic)	INTERNET	7 (7.6%)	7 (7.6%)	-
VAR077	IV: Your Work Setting-Structural Resources (electronic)	COMPUTERIZED DECISION SUPPORT	6 (6.5%)	8 (8.7%)	-
VAR078	IV: Your Work Setting-Structural Resources (electronic)	NAME OF OTHER ELECTRONIC STRUCTURAL RESOURCE	86 (93.5%)	-	-
VAR079	IV: Your Work Setting-Structural Resources (electronic)	OTHER ELECTRONIC STRUCTURAL RESOURCES	0	0	86
VAR080	IV: Your Work Setting-Human Resources	GET WORK DONE	1 (1.1%)	0	-
VAR081	IV: Your Work Setting-Human Resources	DELIVER BEST POSSIBLE CARE	0	0	-
VAR082	IV: Your Work Setting-Human Resources	RESIDENTS HAVE THE BEST DAY	0	0	-
VAR083	IV: Your Work Setting-Social Resources	SHARE WITH OTHERS	0	0	-

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR084	IV: Your Work Setting-Social Resources	OBSERVATIONS ARE LISTENED TO	2 (2.2%)	1 (1.1%)	-
VAR085	IV: Your Work Setting-Social Resources	INFORMATION IS SHARED	2 (2.2%)	6 (6.5%)	-
VAR086	IV: Your Work Setting-Social Resources	COMFORTABLE TALKING	1 (1.1%)	0	-
VAR087	IV: Your Work Setting-Social Resources	PARTICIPATION VALUED	2 (2.2%)	1 (1.1%)	-
VAR088	IV: Your Work Setting-Social Resources	HELP OTHERS	1 (1.1%)	1 (1.1%)	-
VAR089	IV: Your Work Setting-Time as a Resource	DOWN TIME	1 (1.1%)	1 (1.1%)	-
VAR090	IV: Your Work Setting-Time as a Resource	TIME TO LOOK SOMETHING UP	1 (1.1%)	0	-
VAR091	IV: Your Work Setting-Time as a Resource	TIME TO TALK ABOUT NEW KNOWLEDGE	1 (1.1%)	0	-
VAR092	IV: Your Work Setting-Time as a Resource	TIME TO TALK ABOUT THE RESIDENT CARE PLAN	2 (2.2%)	0	-
VAR093	IV: Your Work Setting-Time as a Resource	TIME TO ENGAGE IN NON-DIRECT CARE ACTIVITIES	2 (2.2%)	3 (3.3%)	-
VAR094	IV: Your Work Setting-Time as a Resource	WOULD MORE TIME BE USEFUL	13 (14.1%)	-	-
VAR095	IV: Your Work Setting-Time as a Resource	WHAT ACTIVITIES	5 (5.4%)	-	19
VAR096	IV: Your Work Setting-Space as a Resource	DESIGNATED SPACE	1 (1.1%)	-	-
VAR097	IV: Your Work Setting-Space as a Resource	USE OF DESIGNATED SPACE	1 (1.1%)	2 (2.2%)	10 (10.9%)
VAR098	IV: Your Work Setting-Information Transfer Mechanisms	CARE TEAM MEETINGS	4 (4.3%)	6 (6.5%)	-

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR099	IV: Your Work Setting- Information Transfer Mechanisms	HALLWAY TALK	0	6 (6.5%)	-
VAR100	IV: Your Work Setting- Information Transfer Mechanisms	FAMILY CONFERENCES	3 (3.3%)	11 (12%)	-
VAR101	IV: Your Work Setting- Information Transfer Mechanisms	BEDSIDE TEACHING	2 (2.2%)	12 (13%)	-
VAR102	IV: Your Work Setting- Information Transfer Mechanisms	OTHER ACTIVITIES	83 (90.2%)	0	-
VAR103	IV: Your Work Setting- Information Transfer Mechanisms	ENGAGE IN OTHER ACTIVITIES	0	-	83 (90.2%)
VAR104	IV: Your Work Setting- Information Transfer Mechanisms	OVERALL QUALITY OF ACTIVITIES IN VAR098-VAR103	2 (2.2%)	4 (4.3%)	3
VAR105	V: Facilitating Knowledge Use	INTERACTIONS WITH HCAs/RCs	1 (1.1%)	1 (1.1%)	-
VAR106	V: Facilitating Knowledge Use	INTERACTIONS WITH LPNs	2 (2.2%)	0	-
VAR107	V: Facilitating Knowledge Use	INTERACTIONS WITH RNs/GRADUATE NURSES	3 (3.3%)	1 (1.1%)	-
VAR108	V: Facilitating Knowledge Use	INTERACTIONS WITH PHYSICIANS	4 (4.3%)	3 (3.3%)	-
VAR109	V: Facilitating Knowledge Use	INTERACTIONS WITH OTHER HEALTH CARE PROVIDERS	4 (4.3%)	3 (3.3%)	-
VAR110	V: Facilitating Knowledge Use	INTERACTIONS WITH CLINICAL EDUCATOR	6 (6.5%)	2 (2.2%)	-
VAR111	V: Facilitating Knowledge Use	INTERACTIONS WITH SOMEONE WHO BRINGS NEW IDEAS	5 (5.4%)	4 (4.3%)	-
VAR112	V: Facilitating Knowledge Use	OVERALL QUALITY OF INTERACTIONS IN VAR105-VAR111	3 (3.3%)	3 (3.3%)	-

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR113	VI: Worklife-Violence	VERBAL OR WRITTEN THREATS	0	-	-
VAR114	VI: Worklife-Violence	SOURCE OF VERBAL OR WRITTEN THREATS	0	-	61
VAR115	VI: Worklife-Violence	WERE VERBAL OR WRITTEN THREATS REPORTED	1 (1.1%)	-	61
VAR116	VI: Worklife-Violence	WHO WERE VERBAL OR WRITTEN THREATS REPORTED TO	1 (1.1%)	-	68
VAR117	VI: Worklife-Violence	SPIT ON, BITTEN, HIT, PUSHED	0	-	-
VAR118	VI: Worklife-Violence	SOURCE OF SPITTING, BITTING, HITTING, PUSHING	0	-	47
VAR119	VI: Worklife-Violence	WAS SPITTING, BITTING, HITTING, PUSHING REPORTED	1 (1.1%)	-	47
VAR120	VI: Worklife-Violence	WHO WAS SPITTING, BITTING, HITTING, PUSHING REPORTED TO	1 (1.1%)	-	52
VAR121	VI: Worklife-Violence	HURTFUL REMARKS OR BEHAVIORS	0	-	-
VAR122	VI: Worklife-Violence	SOURCE OF HURTFUL REMARKS OR BEHAVIORS	0	-	48
VAR123	VI: Worklife-Violence	WERE HURTFUL REMARKS OR BEHAVIORS REPORTED	2 (2.2%)	-	48
VAR124	VI: Worklife-Violence	WHO WERE HURTFUL REMARKS OR BEHAVIORS REPORTED TO	1 (1.1%)	-	-
VAR125	VI: Worklife-Violence	REPEATED AND UNWANTED QUESTIONS OR REMARKS OF A SEXUAL NATURE	1 (1.1%)	-	-
VAR126	VI: Worklife-Violence	SOURCE OF REPEATED AND UNWANTED QUESTIONS OR REMARKS OF A SEXUAL NATURE	0	-	78
VAR127	VI: Worklife-Violence	WERE REPEATED AND UNWANTED QUESTIONS OR REMARKS OF A SEXUAL NATURE REPORTED	1 (1.1%)	-	78
VAR128	VI: Worklife-Violence	WHO WERE REPEATED AND UNWANTED QUESTIONS OR REMARKS OF A SEXUAL NATURE REPORTED TO	0	-	81
VAR129	VI: Worklife-Violence	FORCED SEXUAL TOUCHING AND FONDLING	0	-	-

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR130	VI: Worklife-Violence	SOURCE OF FORCED SEXUAL TOUCHING AND FONDLING	0	-	-
VAR131	VI: Worklife-Violence	WAS FORCED SEXUAL TOUCHING AND FONDLING REPORTED	0	-	84
VAR132	VI: Worklife-Violence	WHO WAS FORCED SEXUAL TOUCHING AND FONDLING REPORTED TO	0	-	86
VAR133	VI: Worklife-Violence	FORCED SEXUAL ACTS	0	-	-
VAR134	VI: Worklife-Violence	SOURCE OF FORCED SEXUAL ACTS	0	-	-
VAR135	VI: Worklife-Violence	WERE FORCED SEXUAL ACTS REPORTED	0	-	92
VAR136	VI: Worklife-Violence	WHO WERE FORCED SEXUAL ACTS REPORTED TO	0	-	92
VAR137	VI: Worklife-Violence	OTHER COMMENTS ABOUT VIOLENCE IN WORKPLACE	62 (67.4%)	-	-
VAR138	VI: Worklife	ADEQUATE KNOWLEDGE	0	0	-
VAR139	VI: Worklife	ADEQUATE ORIENTATION	0	0	-
VAR140	VI: Worklife	JOB SATISFACTION	0	0	-
VAR141	VI: Worklife	CAREER SATISFACTION	0	0	-
VAR142	VI: Worklife (Burnout)	BURNOUT-FEEL TIRED	1 (1.1%)	-	-
VAR143	VI: Worklife (Burnout)	BURNOUT-GOOD AT JOB	1 (1.1%)	-	-
VAR144	VI: Worklife (Burnout)	BURNOUT-DO JOB AND NOT BE BOTHERED	5 (5.4%)	-	-
VAR145	VI: Worklife (Burnout)	BURNOUT-WORKING ALL DAY IS A STRAIN	4 (4.3%)	-	-
VAR146	VI: Worklife (Burnout)	BURNOUT-BECOME MORE CYNICAL	10 (10.9%)	-	-
VAR147	VI: Worklife (Burnout)	BURNOUT-EXHILARATED WHEN ACCOMPLISH SOMETHING	9 (9.8%)	-	-
VAR148	VI: Worklife (Burnout)	BURNOUT-LESS ENTHUSIASTIC	4 (4.3%)	-	-

VARIABLE NAME	SURVEY SECTION	VARIABLE LABEL	Completeness Assessment		
			Missing	Do Not Know	NA
VAR149	VI: Worklife (Burnout)	BURNOUT-FEEL BURNED OUT	2 (2.2%)	-	-
VAR150	VI: Worklife (Burnout)	BURNOUT-ACCOMPLISHED WORTHWHILE THINGS	6 (6.5%)	-	-
VAR151	Web-survey feasibility	WILLINGNESS TO COMPLETE WEB-BASED SURVEY	5 (5.4%)	-	-
VAR152	Web-survey feasibility	LOCATION WHERE WEB-SURVEY WOULD BE COMPLETED	1 (1.1%)	-	31
VAR153	Web-survey feasibility	OTHER LOCATION WHERE WEB-BASED SURVEY WOULD BE COMPLETED	0	-	92