RESIDENT AND CAREGIVER BEHAVIORS ASSOCIATED WITH FALLS IN A LONG-TERM PSYCHIATRIC RESIDENTIAL TREATMENT FACILITY

By

JACQUELYN K. WARREN

A DISSERTATION PRESENTED TO THE GRADUATE SCHOOL OF THE UNIVERSITY OF FLORIDA IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

2003
ACKNOWLEDGEMENTS

Special appreciation is extended to Dr. Faye Gary, chairperson of my supervisory committee, for her tirelessness and compassion. She knew how to motivate me when no one else could. I would also like to thank the other members of my supervisory committee for their special contributions: Dr. Martha J. Hardman for her enthusiasm and energy; Dr. Hossein Yarandi for his assistance with the data analysis portion of the project; Dr. Lois Malasanos, who always knows how to keep things in perspective; and Dr. Terry Mills for his willingness to see this through.

I would also like to extend my deep and humble appreciation and love to my family. Jennifer, Emily, and Danny have been supportive and encouraging. They make sure that I find humor in all that surrounds me, and remind me that I do not always need to take myself so seriously.

I would also like to take this opportunity to thank Honors student, Tricia Hawkins for her patience, perseverance, and sense of humor. She will undoubtedly do great things.

Finally, I want to thank the residents and direct caregivers of Wellspring for their contributions. Without their support and assistance, this project would have never come to fruition.
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Acknowledgements</th>
<th>ii</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>v</td>
</tr>
<tr>
<td>1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Falls: Myth vs. Reality</td>
<td>2</td>
</tr>
<tr>
<td>The Department of Children and Families Mental Health Treatment Authority</td>
<td>3</td>
</tr>
<tr>
<td>Statement of the Problem</td>
<td>4</td>
</tr>
<tr>
<td>Conceptual Framework</td>
<td>4</td>
</tr>
<tr>
<td>Research Hypothesis</td>
<td>8</td>
</tr>
<tr>
<td>Significance of the Study</td>
<td>9</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>12</td>
</tr>
<tr>
<td>Assumptions</td>
<td>15</td>
</tr>
<tr>
<td>Limitations</td>
<td>16</td>
</tr>
<tr>
<td>2 REVIEW OF THE LITERATURE</td>
<td>18</td>
</tr>
<tr>
<td>Conceptualization of Falls</td>
<td>18</td>
</tr>
<tr>
<td>Types of Falls</td>
<td>19</td>
</tr>
<tr>
<td>Risk Factors Associated with Falls</td>
<td>20</td>
</tr>
<tr>
<td>Consequences of Falls</td>
<td>22</td>
</tr>
<tr>
<td>The Political Economy Perspective</td>
<td>26</td>
</tr>
<tr>
<td>Caregiver Stress</td>
<td>28</td>
</tr>
<tr>
<td>3 METHODOLOGY</td>
<td>30</td>
</tr>
<tr>
<td>Research Design</td>
<td>30</td>
</tr>
<tr>
<td>The Research Setting</td>
<td>31</td>
</tr>
<tr>
<td>Individuals Who Have Fallen and Individuals Who Have No Reported History of Falling and are Residing in a Long-Term State Mental Health Treatment Facility</td>
<td>33</td>
</tr>
<tr>
<td>Population</td>
<td>37</td>
</tr>
<tr>
<td>Data Collection Procedures</td>
<td>41</td>
</tr>
<tr>
<td>Instruments Section</td>
<td>46</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>59</td>
</tr>
<tr>
<td>Protection of Human Subjects</td>
<td>60</td>
</tr>
</tbody>
</table>
4 RESULTS AND DISCUSSION .......................................................... 61
Overview of the Residential Facility Sample ........................................ 61
Resident Sample Characteristics .......................................................... 64
Differences Between Two Resident Sample Groups ............................... 72
Research Hypotheses ........................................................................... 75
Direct Caregivers .................................................................................. 80
Summary ................................................................................................ 84

5 DISCUSSION, CONCLUSIONS, PRACTICE IMPLICATIONS, AND RECOMMENDATIONS ........................................ 87
Discussion of Findings .......................................................................... 87
Conclusions .......................................................................................... 98
Implications for Practice ...................................................................... 100
Implications for Mental Health Policy .................................................... 102
Recommendations ................................................................................ 103

APPENDIX
A INSTRUMENTS ............................................................................... 107
B METHODOLOGY DIAGRAM .......................................................... 151
C INSTITUTIONAL REVIEW BOARD STUDY ACCEPTANCE AND PROTECTION OF HUMAN SUBJECTS ................................ 154

REFERENCES ...................................................................................... 159

BIOGRAPHICAL SKETCH ..................................................................... 175
RESIDENT AND CAREGIVER BEHAVIORS ASSOCIATED WITH FALLS IN A LONG-TERM PSYCHIATRIC RESIDENTIAL TREATMENT FACILITY

By

Jacquelyn K. Warren

May 2003

Chair: Faye A. Gary
Major Department: Nursing

A review of the literature reveals that persons residing in long-term psychiatric residential treatment facilities are at risk for falls. Therefore, the purpose of this research was to describe two groups of residents, those with a recorded history of falls during the previous 12 months and those with no recorded history of falls during the previous 12 months. The specific objectives of the study were to (1) describe characteristics of two resident groups; (2) identify relationships among characteristics of residents, Cardinal Risk Factor scores (CRS) and the incidence of falls; and (3) analyze relationships among these characteristics. An adaptation of Andersen’s Behavior Model for Vulnerable Populations provided the theoretical framework for this research.

A series of standardized instruments were used for data collection. In addition, residents were asked several open-ended questions about recent fall experiences, how falling made them feel, and how they thought the fall occurred. Similarly, direct caregivers (N=20) were asked to participate in interviews with the aim of gleaning salient
information about the functional status of residents as part of the Cardinal Needs Schedule. They were also asked several open-ended questions regarding resident falls, such as whether they knew how to avoid falls, what types of training they received, and whether they found the training to be helpful.

Of the 58 residents that were interviewed, a typical portrait of a resident in a long-term psychiatric residential treatment facility included in this study can be described as a 49-year old, never married, Caucasian woman who has graduated from high school and has been a resident of Wellspring for approximately 53 months. She has a diagnosis of schizophrenia and has had at least one prior long-term psychiatric residential treatment facility admission.

A stepwise multiple regression analysis was used resulting in two variables that significantly explained the incidence of falls in the study: the resident’s perceived health deficits as measured by the SF-36v2® Health Survey and CRS as measured by the Cardinal Needs Schedule. Most residents deny having fallen, even when there is documented evidence to suggest otherwise. More research would be beneficial to explore this phenomenon and to understand its implications.
CHAPTER 1
INTRODUCTION

Falls have been identified as the second leading cause of accidental deaths in the United States, and 75% of those falls occur in the elderly population (Morse, 1997a, 1997b). Among older adults, falls are also the most common cause of serious injury, including broken hips. Annually, in the United States, as many as 200,000 hip fractures are the result of fall incidents, with less than half of the hip fracture victims returning to their previous level of functioning. Hospital falls represent a leading cause of adverse events, accounting for 25 to 89% of all reported inpatient incidents (Jones & Smith, 1989; Maciorowski et al., 1988; Tideiksaar, 1996; Tideiksaar & Kay, 1986). Falls account for 22% of all hospitalizations for persons of Medicare age, which is 65, and over (Centers for Disease Control, 2001).

Historically, the responsibility for falling has, for the most part, been borne by the person who falls, typically referred to as the individual who has fallen (Tideiksaar, 1998). Popular misconceptions about falls abound and include the belief that falls are attributable to either individual carelessness or the natural process of aging. The public belief that only “old” persons fall is undergirded in the notion that falls are a manifestation of a general physical and cognitive decline that is a naturally occurring phenomenon. This belief system extends to include those with multiple disorders in which one disorder after another culminates to a negative outcome: the fall (Tideiksaar, 1998). Many caregivers have dealt with falls and their adverse consequences for so long
that they have become hardened: they no longer identify falls as problems with solutions, other than to restrict the individual's mobility. Moreover, health care providers may be reluctant to explore the possibility of alternate solutions because of their philosophy that could parallel public belief and myths (Tideiksaar, 1996).

**Falls: Myth vs. Reality**

Contrary to popular myth, falls, to a large degree, rarely "just happen"—they are neither accidental nor random events—but are predictable and are the outcome of a multitude of intrinsic and extrinsic factors that occur either alone or in combination with one another (Morse, 1997a, 1997b; Tideiksaar, 1996, 1998). Indeed, they are the outcome of a multitude of risk factors, either host-related or environmental. It is important to note that a majority of these factors are oftentimes amenable to interventions (Morse, 1997a, 1997b; Tideiksaar, 1996, 1998). Hence, the minimization or elimination of these risk factors can perhaps reduce or eliminate falls.

Falls occur among 50 to 67% of nursing home residents (Downton, 1992). The high prevalence rate of falls in long-term care settings is attributed to the greater degree of frailty and dependency among the residents and to more accurate reporting of falls by staff (Tinetti, Williams, & Mayewski, 1986; Tinetti, 1987).

In the past two decades, there has been an effort to reduce the number of fall incidents in long-term care facilities and to better prepare residents for community living. These practices have a potential to help to reduce morbidity and mortality rates related to falls among the elderly (Morse, 1997a, 1997b). Although recent fall-related quality improvement programs highlighting risk assessment, intervention and outcome measurements abound (Hill-Westmoreland, Soeken, & Spellbring, 2002; Mosley,
Galindo-Ciocon, Peak, & West, 1998; Ryan & Spellbring, 1996), fall prevention remains an elusive goal for most health care providers.

The Department of Children and Families Mental Health Treatment Authority

All State of Florida Mental Health Treatment Facilities operate under the purview of the Department of Children and Families which oversees activities in 15 geographically defined operating districts. One particular facility in the Department of Children and Families, Wellspring,¹ is the focus of this research. It is located in the northeast portion of the state with an aim to serve five Department of Children and Families Districts in its structure. These five Districts, 3, 4, 7, 12, and 13, comprise 27 counties (40% of the state’s land area) with a mean population of 4,514,624 (30% of Florida’s total population) (University of Florida, 1998). This facility provides psychiatric services for adult populations from ages 18 upward.

Florida’s Mental Health Program Office (PDADM), under the auspices of the Department of Children and Families, establishes statewide outcome measures and criteria to assess treatment performance within all of the State’s mental health programs. These Mental Health Program Office measures link directly to Wellspring’s strategic objectives. Specifically, the objectives are (1) management excellence (implementation of a comprehensive outcome-oriented management system; (2) customer satisfaction (improved function and delivery of services); (3) treatment excellence and efficiency (increasing the number of people served); and (4) cost efficiency (reduction of cost of controllable expenses). In an effort to achieve these strategic objectives, Wellspring has focused on outcome measures related to the safety and security of the environment, as

¹ Wellspring is the fictitious name used to reference the long-term care psychiatric facility in Florida.
well as the improvement of the residents' overall functioning. Within this context at Wellspring, residents' falls, their associated injuries, and overall health outcomes have been identified as critical outcome measures (Department of Children & Families [DC&F], 1999).

**Statement of the Problem**

There is a plethora of information regarding fall risk and fall prevention programs that focus on prescriptive policy and procedures. That is to say, programs exist that are broad and general, but they do not provide situation-specific interventions to prevent falls. Moreover, little is known about individuals who have fallen while residing in long-term care psychiatric facilities, their perceived risk factors, the direct caregivers' perceptions of residents' risk factors, and stress experienced by the direct caregivers. Even less is known about how the manifestations of psychiatric symptomatology, the types of psychotropic medications prescribed, and the availability of other treatment modalities impact the residents' quality of care and how these key factors link to the incidence and prevalence of falls. Perhaps, if these data were available and well formulated, nurses and other health care providers might develop context-specific interventions as part of a fall prevention program.

**Conceptual Framework**

This study is guided by a conceptual model that demonstrates the effects of numerous independent variables on the outcome variable, falls, in a population of severely and chronically mentally ill individuals who are hospitalized in a state psychiatric facility. The independent variables under investigation are age, body mass index (BMI), perceived and documented deficits in residents' physical health, severity of
mental illness, length of stay, number and types of psychotropic medications, gender, number of years of formal education, caregiver’s perceived self-efficacy, and cardinal risk factors, which are comprised of residents’ perceived risk factors, REHAB indicators, and primary caregiver stress.

The conceptual model identified in this study is an adaptation of the Behavioral Model for Vulnerable Populations (Gelberg, Andersen, & Leake, 2000). The original behavioral model, developed in the late 1960’s, used a systems approach to integrate a range of individual, environmental, and provider-related factors that can affect a person’s decision to seek health care (Andersen, 1995). Gelberg and colleagues (2000) expanded this model to include vulnerable populations. Vulnerable populations, as conceptualized by Gelberg et al. (2000), are those groups of people who have limited resources, and who are at higher risk for disease and injury (Aday & Awe, 1997). Factors that make groups of people vulnerable may also affect their use of health services and health status (Aday & Awe, 1997; Aday, 1994; Gelberg, Andersen, & Leake, 1996). Three domains of the Behavioral Model for Vulnerable Populations predict personal health practices, such as safe sexual behaviors or the use of health services: These domains are (1) predisposing, (2) enabling, and (3) need. The predisposing domain is comprised of one’s age, gender, ethnicity, literacy, living conditions, and cognitive ability. The enabling domain encompasses environmental factors that potentiate one’s vulnerability, such as availability of social services or lack of financial resources. The need domain focuses on an individual’s perceived need, as well as clinical evaluations of need, regarding conditions that are particularly relevant to vulnerable populations, such as tuberculosis,
acquired immunodeficiency syndrome (AIDS), and severe and persistent mental illness (Gelberg et al., 2000).

The Behavior Model for Vulnerable Populations (Andersen, 1995) is well-suited for adaptation to this research: three domains are clearly identified and are consistent with Andersen’s (1995) model. For example, the factors in the predisposing domain include gender, education level, and age. The enabling domain consists of REHAB indicators, perceived and documented deficits in physical health, body mass index (BMI), primary caregiver stress, self-efficacy, length of stay, and number and types of psychotropic medications. Finally, factors in the need domain are severity of psychiatric illness and mental status and the resident’s perceived risk factors. A schematic diagram of the relationships between and among the three domains (predisposing, enabling, and need) and outcome (falls) is depicted in Figure 1.

Gelberg and colleagues (2000) assert that the Behavior Model for Vulnerable Populations focuses on health service utilization and its effect on health outcomes, such as consumer satisfaction, compliance, and perceived and evaluated health status. Conversely, health outcomes are postulated to influence subsequent predisposition, enabling resources, need for care, and health related behaviors (Andersen, 1995).

Although it is not within the scope of this study to examine health service use patterns among vulnerable populations, the application of Andersen’s (1995) model is particularly relevant when examining predisposing, enabling, and need factors that may be associated with the incidence of falls in the severe and persistent mentally ill. For the purposes of this particular study, the researcher also explored the hypothesized effects of the identified variables on the outcome indicator, falls (see figure 2).
Figure 1. Application of the Andersen’s (1995) Behavior Model for Vulnerable Populations to the Current Research.

The relationships between and among variables in this conceptual model will be explored in the context of Derivational Thinking, a theoretical framework proposed by (Hardman, 1996). A tenet of this framework proposes that the way in which language is constructed explicates a particular societal world view. For example, the manner in which English is constructed and used in everyday life could be posited to support the notion that power, competition and even domination are a part of the “normal” American environment (Hardman, 1996). Indeed, the linguistic postulates, or features of English
language that are used repeatedly to organize the universe, demonstrate that human beings are ranked in terms of gender, ethnicity, education, and income. Language patterns that evoke images of power, dominance, and subordination are especially prevalent in the healthcare arena: Images of power or violence are evoked when we "battle" an illness or disease until we have "fought the good fight" and "conquered" it (Hardman, 1996). Researchers have explored the use of language and language patterns in a variety of healthcare settings and have delved into how language patterns influence caregiver attitudes and behaviors, particularly among chronically ill persons (Breeze & Repper, 1998; Gignac & Cott, 1998; Hardman, 1996).

**Research Hypotheses**

Seven research hypotheses are addressed in this study. First, persons who are advanced in age will have higher Cardinal Risk Factor scores and more frequent incidences of falls. Second, persons who have higher BMIs will have higher Cardinal Risk Factor scores and a greater incidence of falls. Third, perceived and recorded deficits in residents' physical health will have a positive effect on Cardinal Risk Factor scores and the incidence of falls. Fourth, severity of mental illness and length of stay have a positive effect on Cardinal Risk Factor scores and those persons are more likely to experience greater incidences of falls. Fifth, the number and types of psychotropic medications have a positive effect on Cardinal Risk Factor scores and the incidence of falls. Sixth, gender, a dichotomous variable, will affect Cardinal Risk Factor scores and the incidence of falls. Finally, the fewer number of years of formal education, the higher the Cardinal Risk Factor scores and the greater the number of falls (see figure 2).
Figure 2. Effects of Independent Variables and Their Cardinal Risk Factors on the Incidence of Falls in a Population of Residents in a State Psychiatric Hospital

Significance of the Study

According to (Dayhoff, 1997a, 1997b), between 1993 and 1997, 213 articles were generated on the subject of “prevention and control of falls.” The majority of these studies were identified as descriptive and retrospective and used chart records as the primary source of data, which were described and “analyzed” in anecdotal form.

Furthermore, most subjects were from one type of facility, a rehabilitation hospital. This type of facility, as a rule, does not include individuals with severe and persistent mental illness. Hence, among populations with severe and persistent mental illness, little data
exist regarding perceptions of individuals who have fallen and their willingness to be helped, or perceptions of staff regarding the risk factors of these residents who fall.

Gaps in existing knowledge are particularly provocative when we consider the current trend to reduce numbers of hospital beds through reintegrating individuals into the community. Researchers have suggested that the current trend to deinstitutionalize persons with severe and persistent mental illness is leading to the neglect of their needs (Lelliott, Audini, & Darroch, 1995; Powell & Hollander, 1994). One possible explanation for the neglect of deinstitutionalized persons with severe and persistent mental illness is the competition for scarce resources. The political economy of aging is a theoretical explanation that can be used to explain this phenomenon. Indeed, if the theoretical constructs gleaned from the political economy of aging paradigm are applied to those persons afflicted with severe and persistent mental illness, a number of parallels become evident: Socially constructed notions of severe and persistent mental illness define how the chronically mentally ill are perceived regardless of whether or not these perceptions have been empirically tested (Estes, Linkins, & Binney, 1996). One of these notions purports that persons with severe and persistent mental illness “repeatedly fail to respond to treatment” and use disproportionate amounts of scarce clinical resources (Gerson, 1994). Hence, these societally constructed perceptions and notions guide decisions about how the scarce resources will be allocated to the public (Estes et al., 1996).

Consequently, many persons with severe and persistent mental illness live out their lives in correctional facilities or on the streets (Murray, Walker, Mitchell, & Pelosi, 1996). In the United States, where economic growth and high profit margins are
perceived as favorable outcomes and "welfare" (financial assistance for the mentally ill) is identified as encouraging dependency, the severe and persistent mentally ill become increasingly disenfranchised. In 1996, Congress terminated Supplemental Security Income (SSI) benefits to individuals disabled by substance abuse. Although many who reported poor physical health were expected to continue benefits under another disability category, 64% who reported severe and persistent mental illness were not reclassified and did not receive public income assistance (Watkins, Podus, & Lombardi, 2001). Their fate, too often, is homelessness and early deaths (Murray et al., 1996; Watkins et al., 2001).

Economists and researchers suggest that since mental health care is expensive to provide, resources should be targeted to those with the greatest need (Slade, Powell, & Strathdee, 1997). Individuals with the greatest need consist of those in psychiatric hospitals. Falls, a common occurrence in long-term psychiatric inpatient facilities, are the most frequently cited cause of broken hips and other severe injuries, in that they account for resident disability and morbidity that require an inordinate amount of medical and nursing care, amounting to an estimated $10 billion annually (Poster, Pelletier, & Kay, 1991; Sattin, 1992). Hence, it is imperative that an accurate assessment of risk factors is developed which could provide the basis for knowledge to design context-specific interventions to prevent falls among residents with severe and persistent mental illness who reside in long-term psychiatric facilities.
Definition of Terms

The definitions of terms used in this study are as follows:

Cognitive function refers to the performance of intellectual tasks, such as thinking, remembering, perceiving, communicating, orienting, calculating, and problem solving (Gurland & Cross, 1982; Trzepacz & Baker, 1993).

Fall is an unanticipated change in body position in a downward motion that may or may not result in physical injury (Hendrich, 1996).

An individual who has fallen refers to any Wellspring resident with a history of at least one fall (Morse, 1997a). For the purpose of this research, any individual who has fallen within the past 12 months is referred to as an individual who has fallen.

An individual who has no recorded history of falling is any resident who has never fallen (Morse, 1997b). For the purpose of this research, any individual who has not had a reported fall within the past 12 months is an individual who has no recorded history of falling.

An individual who has fallen repeatedly, is any resident who has had more than one fall. More specifically, in this study, this individual would have had two or more falls per year or at least three falls during a consecutive two-month period within the past year (Cutchins, 1991; Morse, Tylko, & Dixon, 1985; Tinetti, 1987).

An individual who falls and is prone to injury is a resident who is at risk for sustaining serious injuries during or because of falls (Ginter & Mion, 1992).

Direct caregiver, also known as the primary caregiver, is a hospital employee who provides direct care to the resident, such as assistance with the resident’s personal maintenance and other activities of daily living. Caregivers include Health
Service Workers (HSW I and II) and Unit Treatment and Rehabilitation Specialist Supervisor I (UTRSS I). According to the State of Florida job requirements, specific categories of caregivers are determined by level of education and/or experience and supervisory responsibilities (State of Florida Classification and Pay Plan, October 14, 1998).

Fall rate is defined as the number of falls divided by the number of total patient days within a specified time frame (i.e., month) times 1000 (Morse, 1997a, 1997b; Tideiksaar & Kay, 1986; Tinetti, 1987), or

$$\text{The Number of Falls} \times 1000 = \text{Fall Rate}$$

An example of how the Fall Rate is calculated at Wellspring follows:

$$\frac{39 \text{ Falls During the Month of June}}{15,000 \text{ Patient Days in Facility}} \times 1000 = 2.6 \text{ Fall Rate for the Month of June}$$

Long-term care psychiatric facility is a facility where the majority of residents have an average length of stay that is greater than 180 days (Dhillon & Dollieslager, 2000). Long-term care psychiatric facilities offer more specialized services, such as individual and group therapy sessions, art therapy programs, and other beneficial psychosocial and rehabilitative activities to prepare the resident for reintegration into the community (Dhillon & Dollieslager, 2000).

According to several researchers, severe and persistent mental illness can be conceptualized in terms of a three-dimensional definition (Ruggeri, Leese, Thornicroft, Bisoffi, & Tansella, 2000). The first component of this three-dimensional definition is diagnosis of any non-organic psychosis, commonly referred to as a functional disorder. The second component is a duration of psychiatric treatment lasting
two years or more. Finally, the third component is identified as severe psychiatric dysfunction, as measured by the Global Assessment of Functioning (GAF) scale (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000). Severe psychiatric dysfunction is indicated by a GAF score of 50 or less, indicating severe symptoms or severe difficulty in social, occupational, or school functioning (Ruggeri et al., 2000). Although many authors differ as to their definition of severe and persistent mental illness, particularly with regard to the first component, non-organic psychosis, most agree on the latter two, duration and severe dysfunction (Ruggeri et al., 2000; Schinnar, Rothbard, Kanter, & Jung, 1990). In this research, individuals with severe and persistent mental illness have, according to their records, been involved with the mental health system for at least an accumulated two year period of time and have a current GAF score of 50 or less (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000).

A guardian is a person who has been appointed by the court to act on behalf of a person (Adult Protective Services Act, 2002).

A voluntary admission to a long-term care psychiatric facility consists of any person, age 18 years and older, who makes an application for admission by express and informed verbal or written consent, is found to show evidence of mental illness, is competent to provide express and informed consent, and is determined to be suitable for treatment (Florida Mental Health Act, 2002).

An involuntary admission to a long-term care psychiatric facility usually occurs if the person meets criteria for involuntary examination (Florida Mental Health Act, 2002). Criteria for involuntary examination can be summarized as follows: a person who is
mentally ill and who does not receive treatment is likely to pose a real and present danger to her/himself and/or others (Florida Mental Health Act, 2002).

**Risk manager** is a professional who is responsible for the process of making and carrying out decisions that will promote quality care, maintain a safe environment, and preserve human and financial resources in healthcare organizations (American Society of Healthcare Risk Management [ASHRM], 1997-2000).

**Assumptions**

This research is based on several assumptions. First, it is assumed that there is variability in the types of illness, the severity levels, and the duration of illness and level of functioning among residents living in a long-term state psychiatric treatment facility. Second, it is assumed that persons who reside at any given time in a long-term state psychiatric treatment facility may experience various types of illness and levels of severity of mental disorders, physical illnesses, affective states, and cognitive functioning. It is also assumed that the impact of recent life events, as well as variations in the type and amount of psychotropic medications that are prescribed influence their overall level of functioning (Atkinson, Zibin, & Chuang, 1997). Third, based on an extensive review of fall-related literature, it has been determined that there are both internal (delusions, personal stimuli such as auditory or visual hallucinations, poor eyesight, seizures, urinary tract infections) and external (slippery floors, dimly lit hallways, improper footwear) factors that may affect the level of functioning and, at any given time, the potential for psychiatric residents to fall (Morse, 1997a, 1997b; Tideiksaar, 1996, 1998).
Limitations

Identification of residents who have fallen is dependent upon accurate reporting by all staff witnessing the event. At Wellspring, when a resident falls, an incident report is promptly completed and forwarded within 24 hours to the risk manager’s office as they occur. The report also includes information regarding antecedent events and related outcomes. In turn, the risk manager completes a Risk Incident Review Data Form. Due to subjective interpretation of what constitutes a fall, actual fall incidents may be underreported or described without the benefit of predetermined parameters or guidelines (Morse, 1997a, 1997b; Tideiksaar, 1996, 1998).

Exclusion criteria of this study prohibit the involvement of subjects who are non-English speakers as well as those who are unable to participate because of evidence of a developmental disability, a cognitive disability such as dementia, or manifestation of florid psychotic symptoms. Although these individuals are excluded from participating in this study, they are perhaps the most vulnerable of the psychiatric residential treatment facility’s population. For this reason, the researcher will keep track of all persons meeting exclusion criteria so that they are referred to Wellspring’s professional and direct care staff for clinical risk assessment and treatment planning.

This research occurred in one facility located in the Southeast United States, limiting the generalizability of our findings because of regional variations in population served, approaches to treatment, and specific outcome measures that are emphasized in the numerous settings. Therefore, this study serves to provide the springboard for more research in an area that is hampered by a lack of intellectual inquiry. Findings from this research could stimulate the design of longitudinal studies for fall rate analysis or
research that determines whether the level of caregiver burden and stress results in an increased number of falls. Perhaps the first step would be to develop context-specific interventions as part of a fall prevention program that would be appropriate to meet the specialized needs of individuals who reside in a long-term inpatient psychiatric setting.
CHAPTER 2
REVIEW OF THE LITERATURE

The purpose of this chapter is to present pertinent research and theoretical knowledge about persons who have fallen in long-term psychiatric residential facilities. Four areas that will be the focus of this discussion are presented to galvanize the eclectic conceptual framework. Included are a conceptualization of falls, including the nature and severity of falls, risk factors associated with falls, the consequences of falls, and the caregivers' perceived level of stress when caring for individuals who have fallen in a long-term psychiatric residential facility. Caregivers' perceptions regarding residents' met and unmet needs and risk factors are integrated throughout this review. These domains will be reviewed and related to the conceptual framework.

Conceptualization of Falls

Definitions for fall events, persons who are at risk for falling, and persons who fall (or do not fall) abound. For example, a fall can be conceptualized as the sudden unintentional change in position causing one to land on a lower level. This definition does not include near falls or incidents due to an overwhelming external force (Baker, 1997a, 1997b). Maki and Fernie (1996) define a fall as any occasion on which the body drops unintentionally to the floor or ground or to some other lower level. Morse (1997b) defines a fall to be a sudden, uncontrolled, unintentional, nonpurposeful downward displacement of the body to the floor or ground and/or hitting another object like a chair or stair. This definition of a fall excludes those incidents resulting from (1) major
intrinsic events, such as stroke, heart attack, seizures, or psychotropic medication-induced postural hypotension and/or gait disturbances; (2) major extrinsic events, such as being pushed or knocked down by someone or something; or (3) a controlled or intentional movement to bed or floor resulting in an interruption of the fall, known as a “near fall.” An example of a “near fall” is when a person is caught by a staff person before hitting the floor/ground (Gryfe, Amies, & Ashley, 1977; Mayo, Korner-Bitensky, Becker, & P., 1989; Mion et al., 1989; Nevitt, Cummings, Kidd, & Black, 1989; Tinetti & Speechley, 1989; Tinetti et al., 1986).

Types of Falls

Falls are classified according to circumstances surrounding their occurrences. For example, cluster falls are a series of falls occurring within days or weeks preceding death that are usually nonpreventable. According to Gryfe, Amies, and Ashley (1977), 64.7% of patients who had six or more falls died within a year; of these, nearly half had a clustering of falls immediately preceding death (Gryfe et al., 1977; Lamb, Miller, & Hernandez, 1987). Premonitory falls or pathological falls are due to acute illness such as myocardial infarction, cerebral vascular accident, gastrointestinal bleeding, or infection. Typically, they cannot be halted by standard fall prevention interventions, but rather by medical management of underlying causes (Barclay, 1988; Rubenstein, Robbins, Josephson, Schulman, & Osterwell, 1990; Tideiksaar & Kay, 1986). Although current research does not provide accurate data about the number of falls that are thought to be attributable to acute disease processes (Barclay, 1988; Rubenstein et al., 1990; Tideiksaar & Kay, 1986), Vassallo and Sharma (1998) assert that approximately 10% of falls unrelated to syncope are related to acute illness, such as pneumonia, stroke, anemia, and dehydration.
Accidental falls are falls caused by extrinsic risk factors within the environment and arise from circumstances which could cause a fit person to fall (Campbell, Reinken, Allan, & Martinez, 1981; Mitchell, 1984; Morse, 1997a). These falls represent 24.5% of falls in hospitals (Morse, Black, Oberle, & Donahue, 1989). Most at risk for injury are the young elderly, ages 55 to 65, who are able to ambulate on their own, and whose falls are caused by environmental hazards and who are susceptible to osteoporosis.

Pattern falls, also known as weak spells or drop attacks, are disorders of balance or postural instability. More of a functional disability, these falls, which are generally due to health-related causes, affect the older elderly with temporary loss of control with or without loss of consciousness (Campbell et al., 1981; Morse et al., 1989; Whedon & Shedd, 1989). This classification of falls represents approximately 13.6% of all falls in hospitals (Morse et al., 1989).

Anticipated physiological falls are related to age and functional ability. Deficiencies in current mental status, problems with ambulation, and sensory deficits increase the risk for falls in this grouping. These falls represent approximately 61.9% of falls in hospitals. Anticipated falls often can be prevented. Prevention strategies include administration of reliable fall risk assessment instruments that provide information about physiological and cognitive deficits associated with the resident at risk for falls and implementing interventions that alleviate or reduce these deficits (Morse, 1997a, 1997b).

Risk Factors Associated With Falls

Common risk factors leading to falls include environmental conditions, alterations in sensory perceptions, changes in body control (balance and gait), and medication use. Medications implicated in increased falls include most psychotropic and cardiovascular medications. Among some of the psychotropic medications that might be implicated in
falls include (1) diazepam (Valium®), (2) alprazolam (Xanax®), (3) haldoperidol (Haldol®), (4) lorazepam (Ativan®), (5) doxepin (Sinequan®), (6) amitriptyline (Elavil®), (7) imipramine (Tofranil®), and (8) desipramine (Norpramin®) (Cameron, 1997a, 1997b; Ray, Griffin, & Downey, 1989; Ray, Griffin, & Malcolm, 1991; Tack, Ulrich, & Kehr, 1987; Tinetti, 1994a, 1994b). The cardiovascular medications that might be implicated in falls include (1) diltiazem (Lasix®), (2) methyldopa (Aldomet®), (3) prazosin (Minipress®), (4) propanolol (Inderal®), (5) atenolol (Tenormin®), and (6) glyceryl trinitrate (Nitroglycerin) (Cameron, 1997a, 1997b; Ray et al., 1989; Ray et al., 1991; Tack et al., 1987; Tinetti, 1994a, 1994b).

Individuals with severe and persistent mental illness who are commonly prescribed a variety of psychotropic medications to control florid psychotic symptoms may experience rapid changes in blood pressure, sensory perceptions, and body control. Similarly, these same individuals may also receive a number of medications to control cardiovascular disorders such as hypertension, cardiac insufficiency, coronary artery disease, and a myriad of other cardiovascular conditions. Among these residents are documented incidences of endocrine disorders such as diabetes and hypothyroidism (Campbell, 1991; Cumming, 1998; Leipzig, Cumming, & Tinetti, 1999a, 1999b). These medications and the conditions they treat require close monitoring to prevent serious alterations in the resident’s physiologic and, sometimes, mental status. Therefore, it has been surmised that individuals with severe and persistent mental illness are at increased risk for falls in long-term care settings because of their complex mental and physical status (Campbell, 1991; Cumming, 1998; Leipzig et al., 1999a, 1999b).
Consequences of Falls

Falls can have physical, psychosocial, economic, and legal consequences. These four domains will be briefly discussed in this next section.

Physical Consequences

Falls can result in physical injuries, disability, and death. Consequences from falls range from (1) no injury, (2) minor injury (requiring first aid or minor treatment), or (3) serious injury (fall resulting in fracture, emergency room monitoring for more than 24 hours, admission to an acute-care hospital, bedrest for more than 48 hours, or restricted activity for more than 72 hours) (Tinetti, 1987). Approximately 30 to 55% of people who fall suffer minor injuries, 4 to 6% sustain fractures, 2 to 20% have injuries severe enough to require hospitalization, and 2.2% die as a result of a fall-related injury (Nevitt, Cummings, & Hudes, 1991; O'Loughlin, Robitaille, Boivin, & Suissa, 1993; Sattin, 1992; Tinetti & Williams, 1997). The risk of major injury is greatest with falls associated with loss of consciousness, as compared with nonsyncopal falls, where the individual does not experience a loss of consciousness or dizziness (Nevitt et al., 1991).

Hip fractures constitute one of the most serious injuries resulting from falls. Annually, more than 233,000 hip fractures occur in older people, and more than 13,000 deaths occur as a result of these fractures (Sattin, 1992). The incidence of hip fracture increases exponentially by age, doubling every five years after the age of 50 years (Grisso & Kaplan, 1994).

Often, falls are markers for an underlying acute disease or diseases (Tideiksaar, 1998). In addition, a clustering of falls often heralds a general physical decline that is attributable to chronic disease, such as dementia, neuropathy, musculoskeletal, and visual
disorders (Tideiksaar, 1998). Indeed, the risk of long-term institutionalization and death
is high for older adults who experience multiple falls or are hospitalized for injurious falls
(Alexander, Revara, & Wolf, 1992; Dunn, Rudberg, Furner, & Cassel, 1992; Kiel,
O'Sullivan, Teno, & Mor, 1991; Wolinsky, Johnson, & Fitzgerald, 1992). The rate of
death due to falls rises rapidly with increasing age (National Safety Council, 1995).
Residents' perceptions about falls in this domain are not yet clearly understood (Roberts
& Wykle, 1993). Not unlike the resident's perceptions, caregivers' perceptions about
physiologically based falls are also undocumented (Mafullul & Morriss, 2000).

**Psychosocial Consequences**

Psychosocial reactions to falls may be even more debilitating than some physical
injuries. Falls occurring in the general population can result in fear of falling, depression,
anxiety, loss of confidence, social withdrawal, dependency, and institutionalization
(Arfken, Lach, Birge, & Miller, 1994; Brummel-Smith, 1989; Downton, 1992; Nevitt et
al., 1991). Fear of falling occurs in people who fall as well as those who have never
fallen. Studies indicate that 40 to 73% of people who have fallen and 20 to 60% of those
who have never fallen, fear falling (Maki, Holliday, & Topper, 1991; Nevitt et al., 1989;
Tinetti, 1988). Fear of falling also increases with age and is greater in people with gait
and balance disorders (Arfken et al., 1994). The term, fallophobia, is defined as
psychological damage due to the loss of self esteem and fear of falling again.
Fallophobia can be severely debilitating and can create risks of falling and self-protective
immobility (Tideiksaar & Kay, 1986). This fear commonly coincides with a decrease of
physical activity and muscle weakness that can also lead to falling (Cameron, 1997a,
1997b). Although inconclusive, fallophobia may be related to the post-fall syndrome.
The post-fall syndrome is a transient deterioration in balance and gait after a fall that is not explained by either neurological or musculoskeletal deficits (Tinetti, 1987). Its origin has not yet been determined (Cameron, 1997a, 1997b; Tinetti, 1987). The psychosocial consequences of falls among individuals residing in long-term care facilities could be anticipated to be greater than in the general population, however no conclusive evidence or relevant studies currently exist (Tay et al., 2000).

**Economic Consequences**

High health service use occurs with falls (Kiel et al., 1991; Wolinsky et al., 1992). Estimated costs of acute care for fall related fractures is $10 billion annually (Sattin, 1992). It has also been estimated that the cost of a fall requiring medical care is $11,800 per hospitalization for individuals between the ages of 65 and 74 (Covington, Maxwell, & Clancy, 1993). It is important to note that costs depicted by a majority of studies are conservative figures (Tideiksaar, 1996). Accurate reporting of costs of falls requires quantitative and qualitative measures to include direct medical and nursing intervention hours, time spent in reporting and completing forms, resident education, extra health care expenditures resulting from the fall, and social and psychological impacts on both the residents and caregivers (Bakarich, McMillan, & Prosser, 1997; Sutton, Standen, & Wallace, 1994; Tideiksaar, 1996). It is known, however, that caregivers in long-term psychiatric facilities experience stress and frustration in their efforts to care for individuals who have fallen in psychiatric institutions (Bakarich et al., 1997; Sutton et al., 1994). The cost factor is one major reason for caregiver stress (Astrom, Nilsson, Norberg, & Winblad, 1990; Dunn, Rout, Carson, & Ritter, 1994; Mobily, Maas, Buckwalter, &
Kelley, 1992; Resnick & Baumann, 1988; Romeis, 1989; Weisensee & Kjervik, 1989). Moreover, litigation is a potential outcome (Hendrich, 1996).

**Legal Consequences**

Resident falls are responsible for more claims of negligence against hospitals, long-term care facilities, and nurses than any other type of injury. In general, health care facilities, long-term psychiatric care facilities, and nurses are not automatically liable for injuries resulting from resident falls. Rather, liability involves the appropriate standard of care that nurses should provide to residents in these facilities. That is, falls and fall injuries are directly associated with a variety of care-related behaviors, frequently referred to as “failures”: failure to monitor residents; failure to use proper treatment/procedure/performance; failure to ensure resident safety; failure to effectively respond to the resident; failure to appropriately supervise treatment; and failure to properly administer medication (Bakarich et al., 1997; Hendrich, 1996; Sutton et al., 1994).

In an effort to prevent falls, health care professionals have tried to protect residents by limiting their mobility, often resorting to the use of mechanical or chemical restraints. However, mobility restrictions and restraint use have proven to be ineffective (Tideiksaar, 1998). Furthermore, federal regulations governing long-term care in psychiatric and nursing home facilities actively discourage the use of restraints, particularly when used for “behavior control” (Berland, Wachtel, Kiel, O'Sullivan, & Phillips, 1990; Strumpf et al., 1989; United States Senate, 1990; USDHHS, 1989). A component of the Omnibus Budget Reconciliation Act (OBRA) of 1987, which took effect in October 1990, declared that nursing home residents have the right to be free...
from physical or chemical restraint that is not required to treat specific medical symptoms (Oswald, Redmond, & Catanzaro, 2001; USDHHS, 1989).

Researchers hypothesize that once fall risk factors have been identified, efforts can be directed to modify these factors (Morse, 1997a, 1997b; Tideiksaar, 1998; Tideiksaar & Kay, 1986). One important step in altering risk factors incorporates “consciousness-raising” of staff and residents, which is achieved through institutionally-based educational programs for staff and residents. Other suggested strategies to alter the risk factors of falls are the development of standardized multidisciplinary care plans that address specific interventions, such as utilization of bed alarms, nonskid slippers, non-glare lighting, etc. (Gillespie, Gillespie, Cumming, Lamb, & Rowe, 2000; Tinetti, 1994b; Tinetti et al., 1994; W.K.Kellogg, 1987). However, specific intervention programs that are not context-based may not be effective for a given population. Factors such as the perceptions of individuals who have fallen and their willingness to be helped, or the perceptions of staff regarding the fall risk of residents should be addressed to aide in the design of context-specific interventions to prevent falls.

**The Political Economy Perspective**

Many leading theories that attempt to explain problems associated with severe and persistent mental illness are reductionistic; that is, the onus of the responsibility for the disability or disease is shifted to the afflicted individual. Similar reductionist approaches have been used to explain the plights of other disenfranchised individuals, such as the homeless, persons diagnosed with AIDS, and the elderly. Even individuals who have fallen are required to assume the responsibility for falling (Tideiksaar, 1998). Hence, reductionistic thinking focuses blame on individuals for their problems rather than
explaining problems in terms of inequities in resource distribution and access (Estes et al., 1996), or societal and health professionals' attitudes about these individuals with specialized needs.

In contrast to the micro theory approach, macro theory, such as Political Economy Theory, considers relationships among social structure, social processes, and social psychological states for enhancing the understanding of a particular phenomenon (Estes et al., 1996; Tickner, 1992). Estes and colleagues' (1996) theoretical framework, the "Political Economy of Aging," postulates that aging is embedded in the culture and society in which it occurs, and it cannot be defined and analyzed as a separate, isolated entity. Therefore, socially constructed perceptions of aging and the aged influence the development of social policy. Several theorists contend that the political economy of aging is interwoven in an intricate relationship with the government structure, fiscal resources and the labor market (Myles, 1984; Myles & Quadagno, 1991). This notion has significant consequences when considering the social policies that create a division of labor and inequitable compensation based on gender, ethnicity, disability, and other forms of social stratification (Tickner, 1992). Therefore, gender, ethnicity, social status, and other forms of social stratification have a direct effect on the allocation of resources. This rationing and allocating scarce resources is applied to other marginalized and disenfranchised populations such as the severe and persistent mentally ill. Hence, the political economy of aging has practical application when examining problems associated with the severe and persistent mentally ill.
Caregiver Stress

The concept stress, most frequently identified with Selye (1976), generally refers to the physiologic response of an organism that results from a particular stressor. Human responses to stress are usually mediated by the individual’s personality, coping skills, support systems, and level of insight (Astrom et al., 1990; Dunn et al., 1994; Heine, 1986; Mobily et al., 1992; Resnick & Baumann, 1988; Romeis, 1989; Weisensee & Kjervik, 1989).

Caregiver stress, often used synonymously with the term burnout, has been identified as the chronic emotional strain of dealing extensively with humans who are troubled or are having problems (Maslach & Leiter, 1997). Indeed, persons with severe and persistent mental illness or organic brain disorder are often characterized as being uncooperative and aggressive, as exhibiting frequent mood swings and insomnia, and as being unable to adequately communicate their needs (Astrom et al., 1990; Dunn et al., 1994; Heine, 1986; Mobily et al., 1992; Resnick & Baumann, 1988; Romeis, 1989; Weisensee & Kjervik, 1989). In addition, persons with severe and persistent mental illness are often perceived as being incapable of independent living, thereby, necessitating frequent hospitalizations or the procurement of supervised living facilities (Astrom et al., 1990; Dunn et al., 1994; Heine, 1986; Mobily et al., 1992; Resnick & Baumann, 1988; Romeis, 1989; Weisensee & Kjervik, 1989).

The manner in which caregivers respond to the stressors of the occupation depends on their own personality traits, what they want out of the job, their past experiences, and the quality of their lives outside of the workplace (Astrom et al., 1990; Dunn et al., 1994; Heine, 1986; Mobily et al., 1992; Moore & Cooper, 1996; Romeis,
1989; Weisensee & Kjervik, 1989). When they are experiencing job-related stress, or burnout, patient care may be jeopardized. Indeed, theorists suggest that caregivers’ behaviors always have an impact on the individuals who are receiving care (Peplau, 1952, 1989). Others found that caregiver stress and burnout contribute to higher rates of maladaptive incidents on inpatient units, such as acts of aggression, elopements, and exacerbation of psychiatric symptoms, which, in turn, create even more stress in the caregiver (Goodykoontz & Herrick, 1990).

In an effort to explain determinants of behavior under certain conditions, social learning theorists have developed the concepts locus of control and self-efficacy (Bandura, 1977; Rotter, 1954; Sherer & Adams, 1983; Sherer et al., 1982). Whereas locus of control focuses on the extent to which one believes one’s behavior controls outcomes, self-efficacy is concerned with the confidence one has in her/his ability to perform certain behaviors (Bandura, 1986). Although many researchers have demonstrated a positive correlation between internal locus of control and healthy lifestyle behaviors, little evidence supports the notion that locus of control is associated with caregiver stress/burnout (Gueritault-Chalvin, Kalichman, Demi, & Peterson, 2000).

Bandura (1977) hypothesized that self-efficacy affects choice of activities, effort and persistence. This hypothesis has been widely supported in the literature (Hackett & Betz, 1995; Schunk, 1995). In addition, (O'Leary & Brown, 1995) found that self-efficacy does mediate the stress response, at least on a physiological level. Unfortunately, most research focusing on self-efficacy and its relationship to stress in caregivers deals primarily with family members rather than caregivers who are employed in long term care settings (Schmall, 1995).
CHAPTER 3
METHODOLOGY

The purpose of this chapter is to describe the research methods that are used to address the research hypotheses. Specifically, the design, data collection procedures, the instruments, the statistical analyses, and human subjects concerns are discussed.

Research Design

A descriptive correlational design was used in this study to describe two groups of individuals residing in a state-owned long-term mental health treatment facility: those who had experienced at least one fall within the past 12 months, and those who had no documented falls during the past 12 months. The individuals in this study had documented diagnoses of mental illness as determined by criteria in the Diagnostic and Statistical Manual IV-TR (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000). Variables such as demographic data, psychiatric level of functioning, as well as the number and types of psychotropic medications prescribed were delineated. In addition, they were asked to provide information regarding their perceived risk factors. Institutional caregivers were also approached to provide information regarding their assessment of the residents' risk factors and their experienced caregiving-related stress. Finally, relationships between and among the variables were examined.

All data were collected from individuals who had fallen and those who had no documented history of having fallen while residing in the state-owned long term care
mental health treatment facility, Wellspring. In addition, data were collected from direct
caregivers who were responsible for the care of the residents. Hence, three populations,
residents who had fallen, residents who had no documented history of having fallen, and
their caregivers, were requested to participate in this study.

The Research Setting

Farmer County

Farmer² County, with a population of approximately 20,000, has an area of about
585 square miles with only about ten percent of the county being developed.
Approximately 33% of Farmer County is either national forest or has been designated as
wetlands. The remaining 67% is used primarily for growing timber or agricultural
products (Chamber of Commerce, 1995).

The county seat, Tippecanoe,³ is located in close proximity to the licensed state
psychiatric treatment facility, the site of this research. Tippecanoe, with a population of
about 5,000, contributes significantly to the labor force of the state psychiatric treatment
facility. Indeed, opening of the facility in August of 1959 provided employment
opportunities for many of Tippecanoe’s residents (Chamber of Commerce, 1995) and
was, according to local townspeople, a significant factor in the growth and prosperity of
Tippecanoe and surrounding communities (Chamber of Commerce, 1995).

The 593-bed, state mental health treatment facility, the largest public mental
health hospital in Florida, employs 1,250 full-time staff. Wellspring’s continued
emphasis on treating, supporting, and rehabilitating persistent mentally ill individuals in

---

² Farmer County is a fictitious name, however, all other facts associated with it are accurate.

³ Tippecanoe is a fictitious name, however, all other facts associated with it are accurate.
as efficient a manner as possible has facilitated its staff's efforts to serve an estimated 800 people annually. One of Wellspring’s major goals is to ensure a speedy return to the community. Of the majority of residents served, approximately 97% are involuntarily committed under Florida Statutes Chapter 394, the Florida Mental Health Act (2002), or Chapter 916, Mentally Deficient and Mentally Ill Defendants (2002). The Florida Mental Health Act (2002) provides the means by which individuals who are determined to be mentally ill and pose a danger to themselves or others are committed. Chapter 916, Mentally Deficient and Mentally Ill Defendants (2002), provides the means by which individuals who are found incompetent to proceed or are not guilty by reason of insanity through the judicial process are committed. Within the hospital, a wide variety of professional and paraprofessional staff provide core services among six residential units, eight clinical departments and 16 support service departments. Core services include psychiatric treatment and rehabilitation, health care, vocational programming, behavior analysis, and community reintegration. Services are delivered on the basis of recommendations made by the service team, which is comprised of the resident, family representative, psychiatrist, psychologist, qualified mental health professional (QMHP) or treatment team coordinator (TTC), nurse, primary care physician, social worker, dietician, rehabilitation therapist, and resident advocate. Additional discipline representatives may be consulted for services based upon the recommendations made by the service team members. For example, the primary care physician may refer the resident to the physical therapist, occupational therapist, and/or speech pathologist, based upon the assessment results obtained by team members.
As a component of their treatment, residents who are able to do so are encouraged to participate in the decision making process as related to their treatment activities and goals. The resident’s strengths and needs are reflected in the treatment goals. At Wellspring, the residents do actively participate in planning, implementing, and evaluating their overall care.

Hospital administrators and health care providers of Florida’s state mental health facilities have begun to assimilate information from a variety of sources, both local and national, that are used to provide “like-comparisons” or benchmarking for a number of quality indicators. One particular quality indicator that is being addressed is the occurrence of falls in health-care settings. Research data from numerous sources provided a backdrop for national comparisons for incidents of falls with a like population (Aisen, Iverson, Schwalbe, Weaver, & Aisen, 1994; Kilpack, Boehm, Smith, & Mudge, 1991; Nyberg & Gustafson, 1995; Poster et al., 1991; Schmid, 1990).

**Individuals Who Have Fallen and Individuals Who Have No Reported History of Falling and are Residing in a Long-Term State Mental Health Treatment Facility**

This research involved individuals who have fallen and individuals who have no reported history of falling and were, at the time of the research, residing in a long-term state psychiatric treatment facility located in Northeast Florida, referred to as Wellspring. This facility is licensed to receive individuals who are 18 years of age and older. At no time does it admit children and adolescents. The approximate average daily census of this facility is 558 residents. This calculation is based on an average of all daily censuses accumulated during a 12-month period.

In 12 months, that is, from January 31, 1998 through December 31, 1998, there were a total of 543 reported fall incidents. During the month of January, 1999, the Risk
Manager within the facility recorded a total of 31 fall incidents on the Risk Incident Review Data Form. Hence, for a 13-month period, from January 1, 1998 through February 1, 1999, there were 574 recorded fall incidents. Within the 13-month period, there were 94 individuals who had a single incident, whereas 107 residents were identified as individuals who had fallen repeatedly. That is to say, a total of 201 residents had fallen during the 13-month period, representing approximately 36% of the total population at Wellspring. Fall rates for the 13-month period were also computed. According to Morse (1997a, 1997b) and others (Tideiksaar, 1996), fall rates provide clinicians with more precise data regarding the success of a particular fall prevention program, by controlling for fluctuations in the census over a particular period of time. Therefore, for the purpose of this study, fall rates were computed for three-month intervals and are expressed in quarterly increments. Quarterly fall rates for the period January 1, 1998 to March 31, 1999 are presented in Table 1.

Table 1
Quarterly Fall Rates Among Residents at Wellspring from January 1998 to March 1999

<table>
<thead>
<tr>
<th>QUARTER</th>
<th>FALL RATES (per 1,000 bed days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter 1998</td>
<td>2.4</td>
</tr>
<tr>
<td>2nd Quarter 1998</td>
<td>2.9</td>
</tr>
<tr>
<td>3rd Quarter 1998</td>
<td>3.2</td>
</tr>
<tr>
<td>4th Quarter 1998</td>
<td>2.4</td>
</tr>
<tr>
<td>1st Quarter 1999</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Data presented in this table demonstrates that fall rates at Wellspring have been consistent over the fifteen-month period of time. In addition, Wellspring’s fall rate data provide evidence that falls are a persistent source of concern that should be addressed by health professionals.

Published fall rates from a variety of health care settings are presented to provide comparative data and are delineated in Table 2. These data have been used in this study for benchmarking – a method for comparing Wellspring’s fall rates with nationally published parameters.

**Table 2**

Research Reported Fall Rates Among Residents in Selected Healthcare Specialty Units That Were Used as Benchmarking Data at Wellspring

<table>
<thead>
<tr>
<th>TYPE OF SPECIALTY UNIT</th>
<th>FALL RATES (per 1,000 Bed Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurological Rehabilitation Unit</td>
<td>4.1</td>
</tr>
<tr>
<td>Medical-Surgical Unit</td>
<td>4.4 - 4.7</td>
</tr>
<tr>
<td>Psychiatric Unit</td>
<td>2.3 - 11.3</td>
</tr>
<tr>
<td>Stroke Rehabilitation Unit</td>
<td>15.9</td>
</tr>
<tr>
<td>Acute Care Unit</td>
<td>3.8 - 4.2</td>
</tr>
</tbody>
</table>


Data presented in Table 2 demonstrate that stroke rehabilitation units are the settings where individuals are most likely to fall. These falls are related to movements disorders associated with ambulation, balance, etc. that are the essential elements in any stroke rehabilitation program (Aisen et al., 1994; Nyberg & Gustafson, 1995; Poster et al.,
In addition to the stroke rehabilitation unit, psychiatric units potentially have a higher rate of falls. The wide range of fall rates that are presented in Table 2 can be explained by the variability in residents' disease states and symptomatology at any given time. In addition, persons with psychiatric illnesses are seen throughout their lifespan; that is, there is a wide range of ages during which time an individual may be hospitalized for a psychiatric illness (Poster et al., 1991).

Rohde, Myers, and Vlahov (1990) concur with these findings. They found that age specific rates for falls were consistently higher for psychiatry and neuroscience services (Rohde, Myers, & Vlahov, 1990). One would surmise that individuals diagnosed with psychiatric or neurological disorders frequently have perceptual and gait impairments, placing them at greater risk for falls than those persons manifesting other type of physical impairments (Tay et al., 2000). Similarly, Poster and colleagues (1991) reported that fall rates increase as age advances in a psychiatric setting. See Table 3.

Table 3
Fall Rates in Psychiatric Settings As Reported By Age

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Fall Rate (per 1,000 Patient Bed Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Ages</td>
<td>4.1</td>
</tr>
<tr>
<td>Under 20</td>
<td>2.3</td>
</tr>
<tr>
<td>21-59</td>
<td>3.1</td>
</tr>
<tr>
<td>60-69</td>
<td>7.7</td>
</tr>
<tr>
<td>70 and over</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Population

Participant Selection

The average daily census of Wellspring is 558 persons. These individuals represent the potential resident population for this study. Individual residents within this facility who met the inclusion criteria and were at least 18 years of age were invited to participate. The inclusion criteria for participating individuals were residents

1. who were willing to participate in the study and sign the informed consent form;

2. whose Guardian was willing to sign the informed consent form; and

3. who spoke and understood the English language.

The exclusion criteria included individuals who were

1. unable to participate because of evidence of a developmental disability, a cognitive disability such as dementia, or manifestation of florid psychotic symptoms that prohibited their involvement in this research;

2. unwilling to sign an informed consent form;

3. were under court order in accordance with Chapter 916, Mentally Deficient and Mentally Ill Defendants (2002) and whose participation would require legal approval; and

4. not speakers of the English language, and who might not comprehend what was being asked of them as participants in this research.

Caregivers who were responsible for the day-to-day health and well-being of the residents were also asked to participate. The inclusion criteria for participating caregivers were
1. those who were willing to participate in the study; and
2. those who signed the informed consent form.

Sample Size

According to Rosner (1995, 2000), a sample size of 30 individuals who have fallen and 30 individuals who have no recorded history of falls, for a total of 60 residents, is sufficient to address the hypotheses. This is based on a formulation of 80% power, a critical average effect size of 0.30, at least 10 variables, and a significance level of 0.05 for a two-tailed test. Using a stratified random sample, the total number of residents who participated in the study was 58. Of these, 28 residents had a recorded history of falls within the past 12 months and 30 had no recorded history of falls. The total number of direct care staff who agreed to participate in the study was 20.

Residents' Consent to Participate in Study

After permission to conduct the study was obtained from the facility’s administrator, the researcher requested from the administrator a list of residents whose names appeared on the Fall Risk Incident Review Form over the past 12 months. The Risk Incident Review Data Form, an institution-wide mechanism of tracking that provides an accounting of all incidents occurring in a specific period of time, is compiled and published at the end of every month. Information contained in this document includes the name and living area of the resident, the date and time of the incident, the nature of the incident, and the outcome and/or treatment, as recorded by direct care staff. Therefore, the Fall Risk Incident Review Form was a vital component necessary for identifying potential subjects for the study.
Fall incidents that result in particular types of outcomes due to the severity of injury and/or behavior, or the types of interventions required, are identified by the Risk Manager. These "Significant Reportable Events" are compiled in a report that is sent to the Secretary of the Department of Children and Families, State of Florida. Copies are also maintained in the Administrator's office.

Similarly, the researcher requested from the administrator a list of residents who have resided in the facility during the past year. Individuals who had no recorded falls within the past year were selected from this roster, known as the "Daily Census Roster", an institution-wide mechanism of listing each resident who is currently residing in the facility. The "Daily Census Roster" lists information about each resident, such as date of birth, date of admission, county of residence, living area, etc. The "Daily Census Roster" enabled the researcher to develop a list of individuals who have no recorded history of falling. These individuals were selected to closely approximate the individuals who have a recorded history of falls for age and living area. Therefore, the "Daily Census Roster" was a vital component necessary for identifying potential subjects for the study.

The researcher clearly explained all aspects of the study to the potential participants. Careful explanation, in simple terms, included the purpose of the study, the time that it would take for the resident to participate in the interviews, the location of the interviews, and how the data collected would be used in this study. After the residents had indicated that they understood what they were being asked to do, they were asked to sign the informed consent. The Phase I interview took approximately 15 to 20 minutes, and the Phase II interview averaged about 30 minutes in duration. Both Phase I and
Phase II interviews took place in a private, comfortable, pre-designated space of the residents' living area at Wellspring.

A similar procedure was used for those residents who had been appointed a Guardian by the courts. Under Florida Statutes 394 and 415, residents who have been appointed a Guardian by the Courts are considered to lack capacity to consent. That is, a vulnerable adult does not have sufficient understanding to make and communicate responsible decisions regarding their person or property (Adult Protective Services Act, 2002; Mental Health Act, 2002). However, these residents also receive quality care through the use of a Guardian who speaks on their behalf and makes clinical decisions in the best interest of these residents. One Guardian was contacted and asked for their permission on behalf of the residents’ participation in this study. The researcher mailed a package of information, to include a self-addressed stamped envelope, to the Guardian. After the Guardian had been given sufficient opportunity to review these materials, the researcher telephoned the Guardian to set up an appointment for the purpose of discussing this research. The researcher carefully explained, in simple terms, the purpose of the study, the time that it would take for the resident to participate in the interviews, the location of the interviews, and how the data collected would be used in this study. The Guardian was also advised that the resident would be involved in the research only if the Guardian agreed with all aspects of the research and demonstrated this agreement by signing the Informed Consent, which was included in the packet of information. Since the Guardian did not return the signed informed consent to the researcher, the resident was not involved in the study.
Data Collection Procedures

Phase I Records Review and Data Retrieval

This phase of the research was comprised of two components, (1) retrieval of data from the residents' clinical records; and (2) a face-to-face ten-minute interview.

From the residents' records, the researcher retrieved information that was used to complete the (1) Demographic Data Form, the (2) Medication Profile Data Form, and the (3) Structured Clinical Interview for Positive and Negative Symptoms Scale (SCI-PANSS) (Kay, Fiszbein, Lindenmayer, & Opler, 1986; Kay, Fiszbein, & Opler, 1986, 1987; Kay, Opler, & Fiszbein, 1986; Kay et al., 1991). The Demographic Data Form lists specific information about each resident, such as age, ethnicity, education, and diagnoses. Diagnoses are determined by means of a multiaxial assessment. The multiaxial assessment, a comprehensive and systematic format for organizing and communicating relevant clinical information, is used to plan treatment and predict outcomes (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000). In addition to the identification of specific mental disorders, psychosocial and environmental stressors, and level of functioning, general medical conditions are enumerated for the purpose of ensuring a thorough evaluation of physical health concerns and holistic treatment planning. The Medication Profile Data Form listed all medications that the resident was taking, their dosages, reported side effects, and whether the resident was willing to take the medication. There was a second component of the Medication Profile Data Form that required the researcher to have a face-to-face interview with the resident (see Phase I – Face-to-Face Interview, “Personal Experiences With Medications”). The SCI-PANSS, which is also located on the residents' records, is
routinely administered by members of Wellspring's Psychology Department at six month intervals to all residents who are 64 years of age and younger. The researcher, who has received extensive training in the administration of the SCI-PANSS instrument and interpretation of the raw data generated from the SCI-PANSS, retrieved these scores from the study participants' records. This tool was used to identify those potential participants who, due to florid, or severe, psychotic symptoms were excluded from this study. Scores of 25 for any of the factors, F-1 Negative Factor, F-2 Agitation Factor, F-3 Cognitive Factor, F-4 Positive Factor, or F-5 Depressive/Anxiety Factor, might indicate severe psychopathology and/or psychotic symptomatology that could deleteriously affect an individual's ability to participate in the research (H. Reiff, personal communication, October 25, 2000).

**Phase I Face-to-Face Interviews 1 and 2**

**Interview 1.** After recorded demographic and clinical data were extracted from the residents' treatment records, Phase I face-to-face interviews with these residents began. The first part of the face-to-face interview was comprised of two instruments, "SF-36v2® Health Survey" (Stewart, Hays, & Ware, 1988; Stewart, Ware, & Brook, 1977; Stewart, Chen, & Stach, 1998) and "Personal Experiences with Medications." "SF-36v2® Health Survey" (Stewart et al., 1988; Stewart et al., 1977; Stewart et al., 1998) is an eleven-item questionnaire the researcher utilized to acquire information about residents' perceived physical health concerns. In addition to the 11 items on the SF-36v2® Health Survey, the researcher asked subjects to recall specific events surrounding their recent fall, such as why they thought the fall occurred and how they felt about experiencing a fall. Those subjects who had no recorded history of having fallen were
asked whether they remembered an instance when they might have tripped, lost their balance, etc. If the resident described an incident in which there was a possibility that a fall may have occurred, the resident was then queried as to their perception about how the incident occurred. They were also asked to describe how they felt when the incident occurred. The 11-item SF-36v2® Health Survey and the additional open-ended questions about the subjects’ experiences with falling were administered during the face-to-face interview and took approximately 10 to 15 minutes to complete. “Personal Experiences With Medications,” involved the researcher asking the residents four basic questions regarding their medications: the names of the medications the residents were taking, the dosages, reported side effects, and whether the residents stated that they were willing to take the medications. This face-to-face interview lasted approximately ten minutes, and was necessary to determine the individual’s basic knowledge about her/his medications.

**Interview 2.** A second face-to-face interview occurred for individuals in the sample who were 65 years of age and older. The researcher invited her/him to participate in the second face-to-face interview. The researcher developed a profile of all residents who were 65 years of age and older and administered the Clock Drawing Test (Heinik, Lahav, Drummer, Vainer-Benaiah, & Lin, 2000; Tuokko, Hadjistavropoulos, Miller, & Beattie, 1992; Tuokko, Kristjansson, & Miller, 1995) and the Folstein Mini-Mental State Exam (MMSE) (Folstein, Folstein, & McHugh, 1975). These two assessment tools are standardized clinical and research instruments that are used to determine the degree and magnitude of cognitive and/or psychiatric impairment (Folstein et al., 1975; Heinik et al., 2000; Tuokko et al., 1992; Tuokko et al., 1995). Specifically, in this research study, the assessment scores were used to make clinical decisions about individuals’ mental
capacity to participate in this study. Those individuals who had a Clock Drawing Test score of 6 or less were debriefed, and thanked and were not accepted into the study. Similarly, those individuals who had MMSE scores of 23 or less were debriefed and thanked. The remaining subjects were asked to participate in Phase II.

**Phase II – Face-to-Face Data Collection**

**Face-to-Face Interview – Resident.** Those residents whose clinical assessment data indicated an overall mental capacity to participate in the research were invited to join Phase II at which time the 30-minute face-to-face interview occurred. The researcher, who received the signed consent form from the voluntary subjects, made an appointment with the residents to meet with each of them in a place that was a quiet, comfortable, predesignated space in their respective living areas. The face-to-face interview consisted of administering two subscales that comprised the Cardinal Needs Schedule (Marshall, Hogg, Gath, & Lockwood, 1995) (see Instruments Section for a detailed description). The face-to-face interviews, Phase I and Phase II, lasted approximately 45 minutes to one hour. When needed, the resident was given rest periods and the face-to-face interviews resumed only after the resident had indicated that she/he was willing to continue. Confidentiality of the subjects was carefully protected.

**Face-to-Face Interview – Caregiver.** After data had been collected from the residents, the direct caregivers were asked to participate in the study. Direct caregivers who had resident study participants assigned to their care were approached by the researcher to provide pertinent information about those particular residents, such as an assessment of risk factors. In addition, caregivers were asked to provide information about their experienced caregiving-related stress as well as perceived self-efficacy. It is
important to note that direct caregivers who are assigned the care of specific residents are knowledgeable about those particular residents in terms of relevant treatment and rehabilitative issues that can deleteriously affect resident outcomes. It is also important to note that the same direct caregiver was called upon to provide information on more than one resident study participant who was assigned to their care at the time of this study.

Much like the face-to-face interviews with residents, the researcher, who discussed the research with the caregiver also received a signed consent form from each of the voluntary direct caregiver subjects. The researcher then made an appointment with each of the direct caregivers to meet with them on an individual basis in a place that was quiet, comfortable and private. The face-to-face interview consisted of administering three data collection instruments, the REHAB scale, The Direct Caregiver Stress Interview and the Self-Efficacy Scale. The REHAB scale and the Direct Caregiver Stress Interview are subscales of the Cardinal Needs Schedule. Recall that the same direct caregiver was asked to complete more than one REHAB and Direct Caregiver Stress Interview, depending upon the number of resident study participants who were assigned to their care. Each caregiver was asked to complete one Self-Efficacy Scale.

From previously published data, it has been suggested that these two particular subscales can be administered in less than 40 minutes. The third instrument, the Self-Efficacy Scale, is comprised of 30 Likert-type items; two additional open-ended questions had been added to inquire about how direct care staff prevent falls, and what type of training they had received regarding the prevention of falls. It was anticipated that the Self-Efficacy Scale with additional questions would take approximately 10
minutes to complete. In actuality, the two subscales and the Self-Efficacy scale took direct caregivers approximately a total of 30 minutes to complete. This is especially important since the researcher did not intend to introduce time constraints that would impinge on the ability of direct care staff to carry out their required duties and responsibilities within the unit. Confidentiality of the subjects was carefully protected.

**Phase III – Records Review Using One Subscale of the Cardinal Needs Schedule**

After all resident and direct caregiver interviews had been completed, the researcher performed a final records review using one subscale of the Cardinal Needs Schedule, the Additional Information Questionnaire. The Additional Information Questionnaire was completed following the Resident Opinion and Caregiver Stress Interviews. Debriefing of residents and direct caregivers occurred following completion of Phase III. Residents and direct caregivers who participated in this study were given thank you cards by the researcher as a token of gratitude for their participation.

**Instruments Section**

**Instruments Associated With Phase I: Retrieval of Recorded Demographic and Clinical Data Extracted From Clinical Records**

From the residents’ clinical records, the researcher retrieved information that was used to complete the (1) Demographic Data Form, the (2) Medication Profile Data Form, and the (3) Positive and Negative Symptoms Scale (SCI-PANSS) (See Appendix A for Instruments).

**The Demographic Data Form.** The eleven-item Demographic Data Form identifies specific data about the residents, such as age, education, and diagnoses. The researcher acquired this information from the resident’s clinical record. (Identified as #1 on the Methodology Diagram, Residents of Wellspring, Appendix B.)
The Medication Profile Data Form. The Medication Profile Data Form contains six items, and is based on clinical data that are contained within the resident's treatment record. This form lists the various medications that the resident is currently taking. It also includes dosages, documented side effects, and whether the resident is willing to take the medication. (Identified as #2 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

The Positive and Negative Symptoms Scale (SCI-PANSS). The purpose of the Structured Clinical Interview for Positive and Negative Symptoms Scale (SCI-PANSS) was to ascertain the frequency, intensity, and severity of florid psychotic symptoms that might be evidenced among a population of residents at a facility such as Wellspring. According to Opler and colleagues (Opler, Caton, Shrout, Dominguez, & Kass, 1994) and others (Stuart & Sundeen, 1998), a complete assessment of symptom presentation is crucial when evaluating the level of function and quality of care of individuals with severe and persistent mental illness. The Structured Clinical Interview for the Positive and Negative Symptoms Scale (SCI-PANSS), a 30-item interview format, addresses symptom presentation, such as thought content and form, mood and affect, the presence of internal stimuli, and somatic concerns. Numerous research studies have helped to establish the scale's reliability, stability, and validity (Kay, Fiszbein, Lindemayer et al., 1986; Kay, Fiszbein, & Opler, 1986; Kay et al., 1987; Kay, Opler et al., 1986; Kay et al., 1991). The inter-rater reliability is 0.95. At Wellspring, members of the psychology department routinely administer the SCI-PANSS to residents who are under the age of 65. Although the SCI-PANSS has repeatedly demonstrated strength as a psychometric instrument when primarily measuring distinct syndromes in schizophrenia
other researchers have shown it to be effective when evaluating positive, negative, and cognitive symptoms/factors for mood disorders as well (Daneluzzo et al., 2002; Purnine, Carey, Maisto, & Carey, 2000). Therefore, the members of the Psychology Department interview residents to obtain PANSS factor scores, which are documented on the PANSS Psychological Summary. An analysis of these five factors, F-1 Negative Factor, F-2 Agitation Factor, F-3 Cognitive Factor, F-4 Positive Factor, and F-5 Depressive/Anxiety Factor, can be used to identify the severity of residents' psychiatric symptoms at a particular point in time. The researcher retrieved the most current of these scores from the resident's record. In addition to ascertaining the severity of psychiatric illnesses in resident participants, these data, the scores, were used to identify those potential participants who, due to florid psychosis, were excluded from this study. (Identified as #3 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

**Instruments Associated With Phase I: Face-to-Face Interview**

**SF-36v2® Health Survey.** The SF-36v2® Health Survey, a widely used instrument that measures self-reported physical health, has been administered successfully in general population surveys in the United States as well as other countries. This measure has been demonstrated to be reliable across diverse patient groups (Stewart et al., 1977; Ware, 2001). Reliability coefficients ranged from 0.65 to 0.94 (McHorney, Ware, Lu, & Sherbourne, 1994). The content validity of the SF-36v2® has been compared to that of other widely used generic health surveys such as the Nottingham Health Profile, the Duke Health Profile, and the Functional Status Questionnaire (McHorney & Tarlov, 1995). Validity has also been demonstrated when used to compare
the health of 73 subjects with asymptomatic HIV infection and 44 with early AIDS-related complex (ARC) (Wu et al., 1991). (Identified as #4 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

**Personal Experiences With Medication.** Personal Experiences With Medication incorporated a face-to-face interview with residents who had the opportunity to discuss with the researcher the names of the medications they are currently taking, dosages, as well as the experienced side effects, and how they feel about taking their medications. It is important to note that clinical information obtained from the Medication Profile Data Form is consistent with routine activities that occur in a clinical environment and, in this instance, could enhance the care that the residents receive. (Identified as #5 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

Instruments used to help determine the eligibility of the residents who were 65 years of age or older to participate in the study are the Clock Drawing Test and the Folstein Mini-Mental State Exam (MMSE). A brief description of the instruments used in the face-to-face interviews is presented. These instruments were selected because of several factors. First, they describe and measure the variables of interest in this study. Second, these instruments have reliability and validity data published in scientific literature.

**The Clock Drawing Test.** In contrast to most dementia screening tools that focus on verbal content, clock drawing relies on visuospatial, constructional, as well as higher-order cognitive abilities (Heinik et al., 2000; Tuokko et al., 1992). The test requires merely a sheet of paper and a pencil and can be administered in approximately five minutes. Test-retest reliability for clock drawing after 12 weeks was 0.78 for
Alzheimer’s disease patients (Mendez, Ala, & Underwood, 1992). Tuokko and colleagues (1995) found similar types of values when Alzheimer’s disease patients were retested after four days. Inter-rater reliability for drawings by elderly normal subjects and Alzheimer’s disease patients was 0.97 and did not differ between clinicians and nonclinicians (Kozora & Cullum, 1994; Mendez et al., 1992; Rouleau, Salmon, Butters, Kennedy, & McGuire, 1992; Sunderland et al., 1989; Tuokko et al., 1995). Construct validity has been demonstrated by correlations with the Mini-Mental State Exam, ranging from 0.41 to 0.58 and the Global Impression of Neuropsychological Impairment scale from 0.49 to 0.60 (Kozora & Cullum, 1994; Mendez et al., 1992).

Discriminant validity was demonstrated by Wolf-Klein and associates (1989) when they differentiated groups of normal elderly subjects, and patient groups with Alzheimer’s disease, multi-infarct dementia, and depression (Wolf-Klein, Silverstone, Levy, & Brod, 1989). Correct classification in normal subjects was 97%, for patients with Alzheimers Disease 87%, for multi-infarct dementia 62%, and for individuals with depression 97% (Wolf-Klein et al., 1989).

Current normative data suggest that scores between seven (7) and ten (10) should be considered normal, a score of six (6) is borderline, and scores of five (5) or less are indicative of cognitive impairment (Sunderland et al., 1989; Wolf-Klein et al., 1989). Hence, residents who achieved a score of six (6) or greater were invited to participate in the study. Residents with scores of five (5) or less did not meet inclusion criteria; however, recall that they were referred to nursing and medical supervisory personnel and identified as individuals with impending “special care” risk factors/needs. (Identified as #6 on the Methodology Diagram, Residents of Wellspring, Appendix B.)
Folstein Mini-Mental State Exam (MMSE). The MMSE is a major component of the Cardinal Needs Schedule (CNS). A more detailed discussion of the Mini-Mental State Examination is included in the Additional Information Questionnaire, a subscale of the Cardinal Needs Schedule (CNS). (Identified as #7 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

Instruments Associated with Phase II: Face-To-Face Interviews

The Cardinal Needs Schedule (CNS). The Cardinal Needs Schedule (CNS) is a comprehensive set of instruments and psychiatric interventions designed to measure psychiatric and social levels of function (Marshall et al., 1995). It incorporates five integrated inventories/subscales that generate scores used to identify problems, cardinal problems, and needs. Once a problem is identified, explicit criteria are provided to decide whether a need is present: if a need is determined to be present, specific interventions can be selected. Sixteen identified domains of functioning are integrated within the five subscales of the Cardinal Needs Schedule: (1) psychosis, (2) side effects from psychotropic medications, (3) anxiety or depression, (4) self harm or violence, (5) organic disorder, (6) health, (7) socially embarrassing behavior, (8) drugs and alcohol, (9) domestic skills, (10) finance and welfare, (11) transport and amenities, (12) literacy, (13) work, (14) social life, (15) hygiene and dressing, and (16) accommodation. All of these domains of functioning are of importance; transportation, however, is of less concern among these study subjects.

Three Levels of Need in the Cardinal Needs Schedule (CNS). In addition to delineating the 16 domains of functioning, the Cardinal Needs Schedule also assesses individual need at three stages: (1) identification of problems, (2) identification of
cardinal problems and, (3) identification of needs. These three levels of need have been associated with the theoretical underpinnings of the five subscales (Marshall et al., 1995).

A brief description of the three stages of need follows.

**Stage 1. Identifying problems.** Standardized instruments are utilized to assess the resident participant’s performance in the 16 domains of functioning. The assessment of performance in each domain of functioning is then compared with pre-established thresholds already incorporated into the CNS. If a resident’s performance in a domain falls below the pre-established threshold, a problem is then identified (Marshall et al., 1995).

**Stage 2. Identifying cardinal problems.** The CNS determines whether the problems identified in Stage 1 should be considered cardinal. Three criteria are used to identify a cardinal problem, and they are (1) cooperation criteria, (2) caregiver stress criteria, and (3) severity criteria. The cooperation criteria are based on the resident’s view of the problem and the desire to be helped. The caregiver stress criteria emphasizes the caregiver’s view of the problem. The severity criteria rests on the nature and enormity of the problem as perceived by the resident (Marshall et al., 1995).

**Stage 3. Identifying needs.** For each identified cardinal problem a list of suitable interventions are formulated by the Cardinal Needs Schedule. These three criteria, when superimposed upon the 16 domains of functioning of the CNS, can be used to assess quality of care. For example, the cooperation criteria could be applied to domains where the resident might be offered an opportunity to participate in a specialized training program, such as vocational rehabilitation. The caregiver stress criteria are applied in domains where the presenting problems causing stress to the direct caregivers
are identified along with suggested interventions for relieving the stress. The resident’s cooperation need not be present. As a rule, the severity criteria are applied in those domains where the identified problem can present an imminent or potential risk to the safety of the resident, caregivers and others (Marshall et al., 1995).

Validity. Researchers who developed the original Cardinal Needs Schedule have provided evidence of the validity of this approach of measuring patient needs (Marshall et al., 1995). The hypothesis, “Patients would more likely receive new interventions in domains of functioning where a need was initially rated, than in domains of functioning where the patient had no need or no identified cardinal problems” was tested. Marshall and colleagues (1995) concluded that a subject rated initially as having a need in a domain of functioning was 3.60 times more likely to receive an intervention in that domain than a subject not rated as having a need in the same domain. The researchers reported a 95% confidence interval.

Reliability. There are four studies of the interrater reliability of the CNS approach to needs assessment. These findings support the initial reports of the investigators of the CNS. Researchers report an inter-rater reliability of 0.96 or better (Brewin, Wing, Mangen, Brugha, & MacCarthy, 1987; Marshall et al., 1995).

Subscales of the Cardinal Needs Schedule

The CNS embodies five subscales that are used to provide data about the 16 domains of functioning. They are the Demographic Characteristics Inventory, The Resident Opinion Interview (ROI), The REHAB Scale, the Direct Caregiver Stress Interview, and the Additional Information Questionnaire. The Demographic Characteristics Inventory and the Resident Opinion Interview (ROI) will be addressed in
the next section entitled, "Instruments Administered to Residents." The Direct Caregiver Stress Interview and the REHAB Scale will be addressed in the next section, "Instruments Administered to Direct Caregivers." Finally, the Additional Information Questionnaire will be discussed in the section entitled, "Phase III Records Review Using the Additional Information Questionnaire." See Appendix A for the CNS subscales.

**Instruments Administered to Residents**

**Demographic Characteristics Inventory.** This questionnaire consists of 15 items concerned with medical, psychiatric and social history as reported by the resident during the interview. (Identified as #8 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

**The Resident Opinion Interview (ROI).** This is a semi-structured, 20-item interview designed to evoke the perceptions of the residents regarding quality of care, whether they wish to change the living environment and if they are concerned about any current physical problems. (Identified as #9 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

**Instruments Administered to Direct Caregivers**

**The REHAB Scale.** After all face-to-face interviews with Wellspring residents were completed, the researcher began interviewing the direct caregivers. The REHAB Scale, developed by Baker and Hall (1988), was incorporated into the CNS because of its specificity related to the assessment of resident needs based on the severity of symptomatology. This 23-item instrument is specifically designed to assess people with disabling chronic psychiatric or medical illnesses (Baker & Hall, 1988). Seven of the 23 items address deviant behaviors. The remaining 16 items address deficits in social and
community functioning/activities, speech, and self-care. Inter-rater reliability ranges from 0.61 to 0.92 (Baker & Hall, 1988). (Identified as #10 on the Methodology Diagram, Caregivers of Wellspring, Appendix B.).

**The Direct Caregiver Stress Interview.** The Direct Caregiver Stress Interview is a semi-structured interview that determines whether the direct caregiver perceives the resident’s level of functioning, presence of psychiatric symptoms, or the amount of time required to provide care as causing considerable stress. (Identified as #11 on the Methodology Diagram, Caregivers of Wellspring, Appendix B.)

**Phase III Records Review Using the Additional Information Questionnaire**

**The Additional Information Questionnaire.** This 18-item questionnaire addresses eight domains of functioning, including psychotic symptoms, self-harm or violence, organicity, health, social functioning, finances, employment, and leisure activities. A particular domain that is explored in the Additional Information Questionnaire is the presence of an organic disorder. The Folstein Mini-Mental State Examination is utilized to validate the existence of an organic disorder. It serves two basic purposes in this study: (1) To determine if the resident’s current mental status and her/his overall mental performance will indicate participation in this study; and (2) To provide essential clinical data that serves as a backdrop for understanding the 16 domains of functioning (Marshall et al., 1995). The Additional Information Questionnaire is administered during Phase III of the data collection process, and after completion of the other four subscales of the CNS.

The Folstein Mini-Mental State Examination (MMSE) is a comprehensive instrument that deserves special attention. It measures recall, orientation, attention,
calculation, registration, language, and ability to copy a drawn figure (Anthony, LeResche, Niaz, von Korff, & Folstein, 1982; Ashford, Kolm, Colliver, Bekian, & Hsu, 1989; Brandt, Folstein, & Folstein, 1988; Folstein et al., 1975). It can be administered in less than 10 minutes; additional time is required if the person is being tested for pronounced impairments (Ashford et al., 1989; Brandt et al., 1988). Internal consistency for a mixed group of medical patients was 0.96 (Foreman, 1987; Jorm, Scott, Henderson, & Kay, 1988). Inter-rater reliability was 0.65 (Folstein et al., 1975; Giordani et al., 1990; O'Connor et al., 1989a). Test-retest reliability for intervals of less than two months generally fell between 0.80 and 0.95 (Folstein et al., 1975; Giordani et al., 1990; O'Connor et al., 1989a). The advantage of this test is that it clearly tests short-term memory by asking the resident to recall three previously identified words. It also tests reading and writing ability and the aptitude to copy a design and follow a three-step command. A score of 23 points or less (out of 30) for a person with more than 8 years of formal education is indicative of cognitive impairment. Scores increase with educational level and thus lower scores must take into account the extent of formal schooling (Crum, Anthony, Bassett, & Folstein, 1993; O'Connor et al., 1989a; O'Connor, Pollitt, Treasure, Brook, & Reiss, 1989b). (Identified as #12 on the Methodology Diagram, Residents of Wellspring, Appendix B.)

The Cardinal Needs Schedule incorporates an integrated, multitrait assessment approach: the CNS assesses the level of functioning and quality of care of individuals with psychiatric diagnoses by integrating data acquired from five subscales. The five subscales are:
• Demographic Characteristics Inventory
• Resident Opinion Interview (ROI)
• REHAB Scale
• Direct Caregiver Stress Interview
• Additional Information Questionnaire

Britain’s Medical Research Council, in an effort to improve the level of functioning and the quality of care of individuals with psychiatric disorders, developed a Needs for Care Assessment in Oxford, England (Marshall et al., 1995). The Council’s research efforts directed the inception of the Cardinal Needs Schedule, which has been evaluated as one of the most comprehensive and multi-faceted needs assessment tools currently available to practitioners and researchers (Brewin et al., 1987; Marshall et al., 1995).

Health and mental health care planning for persons residing in long-term psychiatric treatment facilities is dependent upon some appraisal of their need for care and the quality of care delivered. The Cardinal Needs Schedule (CNS) has been used primarily in England, France, and Italy in community settings. Information gleaned from using a research tool in a different country, such as the United States, as well as within the context of a long-term state mental health hospital, will provide researchers with substantive information regarding the use of the instrument for the determination of needs in a variety of (1) cultural settings; (2) circumstances where individuals are at different stages of illness severity and duration; and (3) inpatient and outpatient settings. Hence, it will provide numerous opportunities for comparison data to be generated and used in planning and evaluating care in local and global communities. Significantly, data
generated from this study could substantially inform researchers and clinicians because it has the potential for strengthening the linkage or connectedness to hospital and community-based care. More data might help to reduce the recidivism rates among the severely and persistently mentally ill (Brewin et al., 1987; Marshall et al., 1995). The researcher has received extensive training in the administration, scoring and analysis of the CNS by developers of the CNS.

**The Self-Efficacy Scale (SES).** The Self-Efficacy (SE) Scale was used to measure direct caregiver perceived self-efficacy (Sherer et al., 1982). The 30-item SE instrument is composed of two subscales, the General Self-Efficacy (GSE) subscale and the Social Self-Efficacy (SSE) subscale. The 17-item GSE subscale measures caregivers' perceptions of general competence; scores range from 17 to 85 (Sherer et al., 1982). The six-item SSE subscale measures caregivers' perceptions of their ability to deal effectively with others; scores range from 6 to 30 (Sherer et al., 1982). The higher the scores on both subscales, the higher the perceived self-efficacy.

Cronbach alpha reliability coefficients of 0.86 and 0.71 have been obtained for the GSE and SSE subscales, respectively (Sherer et al., 1982). In terms of criterion validity, the GSE subscale predicted past success in vocational, educational, and military areas (Sherer & Adams, 1983). The SSE subscale was also predictive of past vocational success (Sherer & Adams, 1983). Construct validity was demonstrated by confirming predicted relationships with personality measures on the Internal-External Control Scale, the Marlowe-Crowne Social Desirability Scale, the Ego Strength Scale, the Interpersonal Competency Scale, and a Self-Esteem Scale (Sherer et al., 1982). (Identified as #13 on the Methodology Diagram, Caregivers of Wellspring, Appendix B.)
Data Analyses

All data from the five CNS subscales were entered into the Cardinal Needs Schedule computer program, Autoneed Version 7. Autoneed is a 32-bit, stand-alone program, written using Microsoft Visual Basic 4 and running under Microsoft Windows 98. Data were stored in Microsoft Access, an industry standard format and were therefore accessible to SPSS and SAS for statistical analysis.

Autoneed Version 7 was comprised of two components: the program itself and a database file containing individual resident data obtained from the interview schedules and the results of the needs analyses. The database file stored information on four key elements: (1) the composition of the standardized instruments; (2) an inventory of domains of function to be assessed; (3) the thresholds used to determine the ratings of each domain of functioning, and (4) the interventions appropriate for each domain of functioning.

Descriptive statistics were employed to describe the demographic characteristics of the sample. T-test statistical analysis was performed to identify differences between the two groups of resident study participants, those who had a recorded history of falls within the past year and those who had no recorded history of falls within the past year. Finally, correlation and regression analyses were utilized to address the research hypotheses.

Regression analyses were also used to estimate the magnitudes of the total (direct and indirect) effects of age, BMI, gender, perceived and recorded deficits in physical health, severity of psychiatric symptoms, length of stay, numbers and types of
psychotropic medications, number of years of formal education, and Cardinal Risk Factor scores on the outcome variable, falls.

**Protection of Human Subjects**

This research involved face-to-face interviews with residents and direct caregivers of a long-term state mental health treatment facility. Permission to conduct this research was granted from the Institutional Review Board of the University of Florida Health Science Center. See Appendix C.
CHAPTER 4
RESULTS AND DISCUSSION

This chapter includes the results of the data analysis and a discussion of the research findings. The first section provides an overview of the long-term psychiatric residential treatment facility.

The second section discusses characteristics of both groups of residents, those who had a recorded history of falls for the previous 12 months and those who did not have a recorded history of falls. Characteristics such as demographic variables, psychiatric treatment history, current severity of psychiatric symptoms, psychotropic medication treatment, and medical status are addressed.

The third section considers the differences between the two groups of resident research participants, those who had a history of falls for the previous 12 months and those who did not have a recorded history of falls. The research hypotheses are addressed in the fourth section and applicability to the proposed theoretical model, an application of Andersen’s Behavior Model for Vulnerable Populations (Andersen, 1995) is presented. Finally, the fifth section discusses additional findings relevant to the study.

Overview of the Residential Psychiatric Facility Sample

Once approval from the University of Florida Institutional Review Board was obtained, the researcher submitted the proposal to Wellspring’s research committee. This standing committee, composed of facility staff appointed by the Administrator to oversee
all research projects conducted at Wellspring, met with the researcher to discuss the proposal. The researcher addressed issues such as purpose, data collection procedures, and benefit to the facility.

After the residential psychiatric facility’s research committee had an opportunity to review and approve the research proposal, the proposal was then submitted to the facility administrator for his approval. After the administrator had read the proposal and signed the final approval form, the researcher arranged a meeting with the six Unit Treatment and Rehabilitation Directors (UTRDs) who manage the day-to-day activities of each of the residential units. The purpose of this meeting was to assure the UTRDs that the residents’ treatment activities would not be interrupted as a result of the residents’ participation in this research. In addition, the researcher stressed that direct caregivers’ day-to-day activities would be minimally affected by their participation in this research.

Prior to beginning the study, the researcher prepared a list of potential research participants by identifying those persons who sustained a fall during the previous 12 months, October 2001 to November 2002, as indicated on the Fall Incident Report. Initially, 60 residents who had a recorded history of falls were selected for the study. Similarly, the researcher reviewed the “Daily Census Roster” to create a list of individuals who were most similar in demographic characteristics to the proposed study participants.

Of those residents selected for research participation, 58 residents agreed to meet with the investigator and provided written consent for inclusion into the study. Of these 58 residents, 30 residents represented those persons who experienced a fall within the
past year, and 28 residents represented those who did not report a fall during the past year. The 30 residents who experienced a reported fall during the past year were a representation of 161 persons who sustained recorded falls between the months of October 2001 to November 2002, which accounted for a total of 422 falls. This meant that the sample of residents who fell during a 12-month period was approximately 18.6% of the total number of persons who were recorded as having fallen.

Those remaining 62 residents who were initially selected to participate in the study did not meet inclusion criteria (59 residents) either because of severe symptomatology that would prohibit them from participating in the research, or because they refused to participate. Specifically, 32 residents refused to participate on initial contact; 22 residents were unable to participate due to florid psychotic symptoms; two residents had severe dementia and were unable to understand simple instructions; one resident was identified as forensic, and therefore met exclusion criteria; one resident was in restraints on multiple occasions and was unable to be interviewed; and one resident was discharged. In two instances, residents withdrew their consent after agreeing to participate. One resident was excluded from participating in the study because the Guardian who was asked to provide consent for a resident never returned the signed Informed Consent form to the researcher.

Twenty direct caregivers were approached and invited to participate in the research study. These direct caregivers had been assigned the care of resident study participants and were, therefore, knowledgeable about these individuals. They agreed to provide written consent for study participation.
Resident Sample Characteristics

Demographics

Demographic characteristics of the psychiatric residential treatment facility’s residents in this study included gender, age, ethnicity, marital status, and educational level as indicated in Table 3. Participants included 32 females (55.2%) and 26 males (44.8%). The mean age of resident participants was 48 (SD = 9.18) for the residents who had a recorded history of falls and 50 (SD = 10.68) for those residents who had no recorded histories of falling. Thirteen residents were between the ages of 18 and 40 (22.4%), 29 residents were between the ages of 41 to 55 (50%), and the remaining 16 residents were between the ages of 56 and 70 (27.6%). Three African American residents (5%), three Hispanic American residents (5%), and 52 Caucasian residents (90%) agreed to participate in the study.

Approximately 33 residents (56.9%) were single and had never been married, one (1.7%) was separated, and 17 (29.3%) were divorced. Three residents (5.2%) were widowed, whereas four (6.9%) residents were currently married.

The highest level of education completed by one resident (1.8%) was an Associates degree; 13 (23.2%) had taken college coursework but did not attain a degree; 30 (53.6%) obtained a high school diploma; and 12 resident participants (21.4%) did not complete high school. Demographic data are summarized in Table 4.

In addition to the demographic variables of the resident sample, data on psychiatric treatment history, current severity of psychiatric symptoms, psychotropic treatment and medical status were also collected and analyzed. These resident
characteristics were hypothesized to have an effect upon a resident’s level of function and perceived needs (Lehman, Reed, & Possidente, 1998).

Table 4
Demographic Data of Wellspring Resident Sample (n = 58)

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recorded History of Falls</td>
<td>30</td>
<td>51.7</td>
</tr>
<tr>
<td>No Recorded History of Falls</td>
<td>28</td>
<td>48.3</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>32</td>
<td>55.2</td>
</tr>
<tr>
<td>Male</td>
<td>26</td>
<td>44.8</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>Hispanic American</td>
<td>3</td>
<td>5.0</td>
</tr>
<tr>
<td>Caucasian</td>
<td>52</td>
<td>90.0</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18 to 40</td>
<td>13</td>
<td>22.4</td>
</tr>
<tr>
<td>41 to 55</td>
<td>29</td>
<td>50.0</td>
</tr>
<tr>
<td>56 to 70</td>
<td>16</td>
<td>27.6</td>
</tr>
</tbody>
</table>
Table 4. Continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>33</td>
<td>56.9</td>
</tr>
<tr>
<td>Separated</td>
<td>1</td>
<td>1.7</td>
</tr>
<tr>
<td>Divorced</td>
<td>17</td>
<td>29.3</td>
</tr>
<tr>
<td>Widowed</td>
<td>3</td>
<td>5.2</td>
</tr>
<tr>
<td>Married</td>
<td>4</td>
<td>6.9</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completed 2 year degree</td>
<td>1</td>
<td>1.8</td>
</tr>
<tr>
<td>Some college coursework</td>
<td>13</td>
<td>23.2</td>
</tr>
<tr>
<td>High school graduate</td>
<td>30</td>
<td>53.6</td>
</tr>
<tr>
<td>Completed up to 11th grade</td>
<td>4</td>
<td>7.1</td>
</tr>
<tr>
<td>Completed up to 9th grade</td>
<td>7</td>
<td>12.5</td>
</tr>
<tr>
<td>Completed up to 6th grade</td>
<td>1</td>
<td>1.8</td>
</tr>
</tbody>
</table>

**Psychiatric Treatment History**

Psychiatric treatment histories of residents included (1) principal diagnosis; (2) total number of previous state psychiatric residential treatment hospitalizations, and (3) length of stay during current residential inpatient admission.

The principal diagnosis was defined as the condition established after clinical observation to be chiefly responsible for necessitating the admission to the psychiatric inpatient residential treatment facility. Although the majority of residents had more than
one Axis I or Axis II diagnosis, the first one listed in the chart was considered by the researcher to be the principal diagnosis. This was consistent with the Diagnostic and Statistical Manual IV-TR (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000).

Principal diagnoses were coded according to DSM IV criteria and were (1) Delirium, Dementia, and Amnestic and Other Cognitive Disorders; (2) Mental Disorders Due to a General Medical Condition Not Elsewhere Classified; (3) Substance-Related Disorders; (4) Schizophrenia and Other Psychotic Disorders; (5) Mood Disorders; and (6) Anxiety Disorders (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000). The principal diagnosis for each of the resident research participants is identified in Table 5.

Table 5
Principal Psychiatric Diagnosis for Resident Sample (n = 58)

<table>
<thead>
<tr>
<th>Principal Psychiatric Diagnosis</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delirium, Dementia, and Amnestic and Other Cognitive Disorders</td>
<td>5</td>
<td>8.6</td>
</tr>
<tr>
<td>Substance-Related Disorders</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Schizophrenia and Other Psychotic Disorders</td>
<td>43</td>
<td>74.1</td>
</tr>
<tr>
<td>Mood Disorders</td>
<td>7</td>
<td>12.1</td>
</tr>
<tr>
<td>Anxiety Disorders</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The majority of residents (n = 43, 74.1%) had an Axis I diagnosis of Schizophrenia. The second most frequent diagnosis was Mood Disorders (n = 7, 12.1%).
Recall that many residents had more than one documented psychiatric diagnosis listed in their clinical record. For example, residents diagnosed with Schizophrenia were also often diagnosed with a co-occurring substance abuse problem or a co-existing Axis II (Personality Disorder, Developmental Disability) diagnosis. The focus of this study was on the primary diagnosis or the Axis I diagnosis.

Twenty residents reportedly had never been hospitalized in a state residential psychiatric facility prior to the current admission; whereas, one resident reported 17 prior long-term psychiatric residential hospitalizations. The mean number of prior long-term psychiatric hospitalizations for the sample was 1.85 (SD = 3.03).

Total average length of stay in months a resident stayed in Wellspring was 52.6 (SD = 53.9). Length of stay during this current hospitalization ranged from one month to 202 months. Table 6 summarizes the number of prior hospitalizations and length of stay.

**Table 6**

Summary Measures of Number of Prior Hospitalizations and Length of Stay of Residential Psychiatric Inpatient Facility Resident Sample (n = 58).

<table>
<thead>
<tr>
<th>Value</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of hospitalizations</td>
<td>1.85</td>
<td>3.03</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>Length of stay at Wellspring (months)</td>
<td>52.62</td>
<td>53.91</td>
<td>1</td>
<td>202</td>
</tr>
</tbody>
</table>

**Current Severity of Psychiatric Symptoms**

One way in which current severity of psychiatric symptoms was measured was by using the PANSS instrument. Recall that members of Wellspring’s Psychology
Department interviewed residents to obtain PANSS factor scores, which were documented on the PANSS Psychological Summary. An analysis of these five factors, F-1 Negative Factor, F-2 Agitation Factor, F-3 Cognitive Factor, F-4 Positive Factor, and F-5 Depressive/Anxiety Factor were used to identify the severity of residents’ psychiatric symptoms at a particular point in time. An analysis of the data revealed that means for Cognitive and Positive Factors were higher, which was consistent with a documented primary diagnosis of Schizophrenia, the primary diagnosis for a majority of resident research participants. Recall that PANSS scores were not available for persons aged 65 and older; that is, three research participants had not been assessed using the PANSS.

There are other methods for determining severity of psychiatric symptoms, one of which involves using specific computations derived from the REHAB instrument (Baker & Hall, 1994), a subscale of the Cardinal Needs Schedule. PANSS scores were used to determine symptom severity since this was consistent with the standards established at Wellspring. A summary of the current severity of symptoms is addressed in Table 7.

**Psychotropic Medication Treatment**

Psychiatric medications were viewed as a crucial treatment modality for persons with severe and persistent mental illness. All 58 residents in the sample were prescribed at least one psychiatric medication. As indicated in Table 8, 28 residents (48%) were prescribed four or more different psychiatric medications. The minimum number of prescribed psychiatric medications was one medication, and the maximum number was seven medications. Hence, the average number of psychotropic medications prescribed to residents participating in this research was 3.4 (SD = 1.34).
Table 7
Current Severity of Psychiatric Symptoms (n = 55)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>F-1: PANSS Negative Symptoms</td>
<td>13.23</td>
<td>4.23</td>
<td>5</td>
<td>22.1</td>
</tr>
<tr>
<td>F-2: PANSS Agitation Factor</td>
<td>14.57</td>
<td>5.19</td>
<td>5.7</td>
<td>30</td>
</tr>
<tr>
<td>F-3: PANSS Cognitive Factor</td>
<td>15.86</td>
<td>4.50</td>
<td>6</td>
<td>26</td>
</tr>
<tr>
<td>F-4: PANSS Positive Factor</td>
<td>16.20</td>
<td>5.44</td>
<td>5</td>
<td>35</td>
</tr>
<tr>
<td>F-4: PANSS Depressive/Anxiety Factor</td>
<td>13.07</td>
<td>3.51</td>
<td>7</td>
<td>22</td>
</tr>
</tbody>
</table>

Psychotropic medications were of primarily four types, or classes: antipsychotic, antidepressant, mood stabilizing, and anxiolytic. The mean number of types of psychotropic medication prescribed to resident research participants was 2.62 (SD = 0.88). Frequency and percentage of different types of psychotropic medications prescribed to resident sample are summarized in Table 8.

It was noted that nine (16%) resident research participants were prescribed more than four psychotropic medications. This meant that these individuals received more than one medication in the same class of psychotropic medications. The 30 residents with a documented history of falls within the past 12 months were prescribed 38 antipsychotics, 32 mood stabilizers, 15 antidepressants, and 21 anxiolytics. The 28 residents with no documented history of falls were prescribed 37 antipsychotics, 23 mood stabilizers, 10 antidepressants, and 11 anxiolytics.
Table 8

Frequency and Percentage of Different Types of Psychotropic Medications Prescribed to the Resident Sample (n = 58)

<table>
<thead>
<tr>
<th>Number Types of Psychotropic Medications</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>6.9</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
<td>43.1</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>31</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>19</td>
</tr>
</tbody>
</table>

Medical Status

The concomitant occurrence of medical illness or other health risk factors such as obesity among persons with severe and persistent mental illness was an ongoing concern among mental health care providers. Only two residents reported an absence of medical illness. Eleven residents (19%) reported one medical illness; 9 (16%) reported two medical illnesses; 9 (16%) reported three; 12 residents (21%) reported four; 7 (12%) reported five; and 7 (12%) reported six or more medical illnesses. One resident was documented as having ten medical illnesses requiring complex medical treatment.

Residents reported a variety of medical and health-related concerns. The majority of residents reported cardiovascular problems (n = 16, 28%), the most common being hypertension. Diabetes and hypothyroidism were identified among 12 residents (21%) and 11 residents (19%) had neuromuscular-related disorders, such as Multiple Sclerosis or Huntington’s Disease. Seven residents (12%) had respiratory problems, such as Chronic Obstructive Pulmonary Disease.
BMI was used to determine obesity. A BMI of 25 to 29.9 was considered overweight, whereas a BMI of 30 or more was considered obese (National Safety Council, 1995). Mean BMI for both groups, persons with a recorded history of falls within the past 12 months, and those with no recorded history of falls was 28.91 (SD = 5.37).

Finally, the residents were asked to provide their perceived health status by means of responses on the SF-36v2®. Their mean score for the SF-36v2® was 64.3 (SD = 19.03). The minimum score was 21.25 and maximum was 98.61.

**Differences Between Two Resident Sample Groups**

T-test statistics were computed to determine differences between the two resident sample groups, residents who had a recorded history of falls during the past year, and residents who had no recorded history of falls. Variables that were considered during this analysis were age; BMI; Cardinal Risk Factor score (CRS); length of stay; number of psychotropic medications; number of types of psychotropic medications; years of formal education; number of medical diagnoses; perceived health status, as measured by the SF-36v2®; PANSS negative symptoms; PANSS agitation symptoms; PANSS cognitive symptoms; PANSS positive symptoms; and PANSS depressive/anxiety symptoms. See Table 9.

T-test statistics revealed no significant differences between the groups for age, BMI, Cardinal Risk Factor scores, LOS, number of years of formal education, number of types of psychotropic medications prescribed, medical diagnosis, SF-36v2® scores, PANSS negative symptom scores, PANSS agitation symptom scores, PANSS cognitive symptom scores, PANSS positive symptom scores, or PANSS depressive/anxiety
symptom scores. There was, however, a significant difference between the two groups with regard to the number of psychotropic medications prescribed ($p < .05$). That is, the group of resident research participants who reported a history of falls was prescribed more psychotropic medications than those who reported no history of falls. It is interesting to note that, although not significant, there were differences in BMIs for the two groups. The group that reported a history of falls had higher average BMIs (mean = 29.83) than those who reported no history of falls (mean = 27.93).

**Table 9**

Differences Between Two Resident Sample Groups: Persons Who Have a Recorded History of Falls During the Previous 12 Months and Persons Who Have No Recorded History of Falls ($n = 58$)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fall</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Min</th>
<th>Max</th>
<th>DF</th>
<th>T</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>No</td>
<td>49.96</td>
<td>10.68</td>
<td>2.02</td>
<td>30</td>
<td>69</td>
<td>56</td>
<td>0.94</td>
<td>0.3490</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>47.50</td>
<td>9.19</td>
<td>1.68</td>
<td>27</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI</td>
<td>No</td>
<td>27.93</td>
<td>6.25</td>
<td>1.18</td>
<td>19</td>
<td>41</td>
<td>56</td>
<td>-1.36</td>
<td>0.1794</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>29.83</td>
<td>4.31</td>
<td>0.79</td>
<td>23</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRS</td>
<td>No</td>
<td>2.82</td>
<td>1.89</td>
<td>0.36</td>
<td>0</td>
<td>9</td>
<td>56</td>
<td>-0.23</td>
<td>0.8198</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>2.93</td>
<td>1.84</td>
<td>0.34</td>
<td>0</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LOS</td>
<td>No</td>
<td>58.25</td>
<td>62.23</td>
<td>11.76</td>
<td>1</td>
<td>202</td>
<td>56</td>
<td>0.77</td>
<td>0.4472</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>47.37</td>
<td>45.25</td>
<td>8.26</td>
<td>1</td>
<td>157</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Meds</td>
<td>No</td>
<td>3.04</td>
<td>1.20</td>
<td>0.23</td>
<td>1</td>
<td>6</td>
<td>56</td>
<td>-2.04</td>
<td>0.0461</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>3.73</td>
<td>1.39</td>
<td>0.25</td>
<td>2</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 9. Continued

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fall</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Min</th>
<th>Max</th>
<th>DF</th>
<th>T</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Types of Meds</td>
<td>No</td>
<td>2.43</td>
<td>0.96</td>
<td>0.18</td>
<td>1</td>
<td>4</td>
<td>56</td>
<td>-1.64</td>
<td>0.1068</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>2.80</td>
<td>0.76</td>
<td>0.14</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>No</td>
<td>11.62</td>
<td>1.70</td>
<td>0.33</td>
<td>8</td>
<td>14</td>
<td>54</td>
<td>0.67</td>
<td>0.5039</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>11.27</td>
<td>2.12</td>
<td>0.39</td>
<td>5</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Diagnosis</td>
<td>No</td>
<td>2.86</td>
<td>1.96</td>
<td>0.37</td>
<td>0</td>
<td>6</td>
<td>56</td>
<td>-1.38</td>
<td>0.1742</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>3.50</td>
<td>1.59</td>
<td>0.29</td>
<td>1</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SF-36v2®</td>
<td>No</td>
<td>67.51</td>
<td>17.26</td>
<td>3.26</td>
<td>21.5</td>
<td>90.4</td>
<td>56</td>
<td>1.25</td>
<td>0.2168</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>61.30</td>
<td>20.36</td>
<td>3.72</td>
<td>21.3</td>
<td>98.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative PANSS</td>
<td>No</td>
<td>13.89</td>
<td>4.72</td>
<td>0.94</td>
<td>5</td>
<td>22.1</td>
<td>53</td>
<td>1.05</td>
<td>0.2976</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>12.68</td>
<td>3.77</td>
<td>0.69</td>
<td>5.6</td>
<td>20.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agitation PANSS</td>
<td>No</td>
<td>15.01</td>
<td>5.25</td>
<td>1.05</td>
<td>7.9</td>
<td>30</td>
<td>53</td>
<td>0.58</td>
<td>0.5650</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>14.19</td>
<td>5.19</td>
<td>0.95</td>
<td>5.7</td>
<td>27.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive PANSS</td>
<td>No</td>
<td>15.84</td>
<td>4.74</td>
<td>0.95</td>
<td>6</td>
<td>24</td>
<td>53</td>
<td>-0.02</td>
<td>0.9828</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>15.87</td>
<td>4.37</td>
<td>0.80</td>
<td>7</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive PANSS</td>
<td>No</td>
<td>16.60</td>
<td>4.03</td>
<td>0.81</td>
<td>8</td>
<td>25</td>
<td>50</td>
<td>0.51</td>
<td>0.6091</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>15.87</td>
<td>6.44</td>
<td>1.18</td>
<td>5</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressed PANSS</td>
<td>No</td>
<td>13.56</td>
<td>3.72</td>
<td>0.74</td>
<td>8</td>
<td>22</td>
<td>53</td>
<td>0.94</td>
<td>0.3522</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>12.67</td>
<td>3.34</td>
<td>0.61</td>
<td>7</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Research Hypotheses**

The first research hypothesis examined the relationships between and among age, Cardinal Risk Factor scores (CRS), and the response variable, the incidence of falls. Based on the results of the Spearman correlation coefficient tests, there was insufficient evidence to support significant relationships among the variables age, CRS, and incidences of falls.

The second research hypothesis explored the relationships between and among the variables BMI, CRS, and the incidence of falls. Based on results of the Spearman correlation coefficient tests, there was insufficient evidence to suggest significant relationships among the variables BMI, CRS, and incidence of falls.

The third research hypothesis addressed relationships between and among the variables perceived and recorded deficits in residents’ physical health, CRS, and the incidence of falls. Findings based on the results of the Spearman correlation coefficient tests are presented in Table 10.

Based on the results of the Spearman correlation coefficient tests, there were significant relationships between perceived deficits in physical health and the incidence of falls ($r = -.322$, $p = .014$) and between recorded medical deficits (the number of medical diagnoses) and the incidence of falls ($r = .293$, $p = .027$) at the 0.05 significance level.
### Table 10

Relationships Between and Among the Variables Perceived and Recorded Deficits in Residents' Physical Health, Cardinal Risk Factor Scores, and the Incidence of Falls Using Spearman's Correlation Coefficient (r)

<table>
<thead>
<tr>
<th>Number of Falls Reported in Last Year</th>
<th>CRS</th>
<th>SF-36v2&lt;sup&gt;®&lt;/sup&gt;</th>
<th>Medical Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Falls Reported in Last Year</td>
<td>.222</td>
<td>-.322*</td>
<td>.293*</td>
</tr>
<tr>
<td>CRS</td>
<td>.222</td>
<td>-.243</td>
<td>.153</td>
</tr>
<tr>
<td>SF-36v2&lt;sup&gt;®&lt;/sup&gt;</td>
<td>-.322*</td>
<td>-.243</td>
<td>-.021</td>
</tr>
<tr>
<td>Medical Diagnosis</td>
<td>.293*</td>
<td>.153</td>
<td>-.021</td>
</tr>
</tbody>
</table>

* denotes significant finding.

The fourth research hypothesis examined the relationships between and among the variables severity of mental illness, length of stay (LOS), CRS, and the incidence of falls. Based on results of the Spearman correlation coefficient tests, there were no significant relationships between/among the variables severity of mental illness, LOS, CRS, and incidence of falls.

The fifth hypothesis explored the relationships between and among the number and types of psychotropic medications, CRS, and the incidence of falls. Based on the results of the Spearman correlation coefficient tests, there were no significant relationships between and among the number and types of psychotropic medications, CRS, and incidence of falls.
The sixth hypothesis addressed gender, a dichotomous variable, and its relationships between and among CRS and the incidence of falls. Based on the results of the Spearman correlation coefficient tests, there were no significant relationships between and among the variables, gender, CRS and the incidence of falls.

Finally, the seventh hypothesis addressed the relationships between and among the factors number of years of formal education, CRS and the incidence of falls. Based on the results of the Spearman correlation coefficient tests, there were no significant relationships found between and among the variables number of years of formal education, CRS, and the incidence of falls.

A stepwise multiple regression analysis was used resulting in two variables that significantly explained the incidence of falls in the study: the resident’s perceived health deficits as measured by the SF-36v2® (F = 6.03, p = .0175); and CRS (F = 5.70, p = .0210). Data also demonstrated that age significantly explained the number of psychotropic medications residents were prescribed (F = 4.06, p = .0494). Although not significant at the 0.05 level, the incidence of falls could be explained by the number of psychotropic medications residents were prescribed (F = 3.05, p = .0869). Finally, data revealed that female resident research participants had 1.378 times fewer CRS than did men. That meant that men who participated in this study were identified as having 1.378 times more needs than women.

**Resident Experiences With Falls**

Those residents with a recorded history of having fallen within the past 12 months were asked to respond to open-ended queries about what they remembered about their fall experiences, how they thought the fall occurred, and how it made them feel.
Similarly, residents with no recorded history of having fallen were asked whether they thought they might have sustained a fall. Residents with a recorded history of falls usually denied having ever fallen. In fact, 27 of the 30 resident participants who had a recorded history of falls denied that the fall(s) ever took place. One resident research participant, Ms. M, has several documented fall incidents occurring within the past year. When asked about these fall incidences, she stated that she did not really fall: “Oh, I get like that sometimes.” When asked to explain what she meant by “get like that,” she stated,

I feel sick a lot of the time. I never feel right. I just sorta needed to lay down. It’s OK to lay down there [the resident research participant pointed to the floor in a corner of the living area where the interview occurred]. I just sometimes feel like laying down. I don’t see anything wrong with that. The staff don’t like me laying on the floor. They tell me I gotta get up. Why can’t they just leave me alone? They don’t let us lay in our beds during the day – they tell us we gotta be in the Learning Center. When I feel sick, they [the staff] make me go to see the doctor. You know, the one who comes here all the time. He don’t listen to me anyway. He just looks at me and talks really fast. I don’t always understand what he says.

Ms. M has been diagnosed with numerous medical illnesses, which were being treated with a variety of medications. According to her clinical record, at the time of her participation in the research, she was receiving approximately 16 different medications per day; of these, six were identified as psychotropics. Many of the medications Ms. M was prescribed required multiple dosing, meaning that they were administered at various times throughout the day. Based upon Ms. M’s responses on the instrument, “Personal Experiences With Medication,” she was unable to list any of the medications she was currently taking, nor could she identify any experienced side effects. In fact, when asked to describe what she knew about her medications, Ms. M stated, “I think I take Haldol…. No that’s not right. I don’t know. It’s hard to keep all this stuff straight.”
Two of the three residents who did acknowledge that they experienced a fall within the past year recalled that they had a “spell” at which time they felt weak and dizzy. Although the two resident research participants could not recall specific events leading up to the falls, they did attribute the feelings of weakness and dizziness to their psychotropic medications. One of the two resident research participants stated that having fallen made her feel “bad” but she did not elaborate.

The majority of respondents with a recorded history of falls within the past year echoed the sentiments offered by one of the resident research participants who stated, “I’m alright. There’s nothing wrong with me. I don’t know who told you that I fell.”

One resident, Mr. B, acknowledged that he was involved in a fall, but stated that someone else was responsible for the fall. He asserted that the fall occurred while staying overnight at a medical facility, where he was transferred due to a medical emergency involving his swallowing of batteries. He stated, “The floor was wet and they weren’t watching what they were supposed to be doing. I’m going to sue them.” When asked about a recent fall incident that he experienced within the past month, he stated that he never fell at Wellspring, despite the fact that an incident report was generated by direct caregivers who had witnessed the event.

The majority of residents with no recorded histories of falls (n = 24, 86%) denied having ever fallen. The remaining four individuals stated that they had fallen sometime in the past, prior to their admission to Wellspring, and that it had contributed to some of their current medical problems, such as lower back pain, difficulty in walking, etc. One resident research participant, Ms. Q, who was admitted to Wellspring one month prior to her participation in this study stated,
I know the reason I fell is because of that awful medicine they put me on. They don’t seem to understand that all I need is Valium. I’ve taken Valium for years. Now they want to change it to something else. They give me all sorts of crap to take. You know, I tripped and fell when I was staying at the other hospital. I think that’s the reason my back hurts all the time – and my legs. See, I can’t walk. They want me to go to the Learning Center, but I don’t know how I’ll get there. Look, I can’t even make it to the bathroom at night [resident showed researcher a wastebasket located near the resident’s bed containing approximately two cups of urine.] No one understands or wants to help me. They are such shits. Can you contact my son? I need some candy and a phone card. Can you call him for me?

Although an analysis of emergent themes from these scenarios was not within the scope of this research, further study using a qualitative approach may yield valuable information regarding perceptions of residents about their fall experiences.

**Direct Caregivers**

Twenty direct caregivers agreed to participate in this study. Three instruments were utilized during the face-to-face interviews. Two of the three instruments were subscales of the Cardinal Needs Schedule, the REHAB and the Caregiver Stress Interview. The responses from these particular instruments provided specific information about the resident research participants that they cared for on a day-to-day basis. This information was integrated with the Cardinal Needs Schedule to produce the Cardinal Risk Factor score. The Caregiver Stress Interview was of particular interest in that it asked direct caregivers about their perception of stress when working with residents.

The Caregiver Stress Interview was an 11-item, semi-structured interview. It assessed direct caregiver stress in response to affective symptoms as expressed by residents; violent or aggressive acts committed by residents that either placed themselves or others at risk; physical health concerns; socially embarrassing behaviors; and
residents’ needs for assistance with domestic skills, finances, transportation, social activities, personal hygiene, and dressing.

As indicated in Table 11, issues, which were involved with resident health concerns and resident’s display of embarrassing behaviors, such as incontinence, swearing, or sexually inappropriate behavior, produced the most stress in direct caregiver respondents. It was interesting to note that resident research participants’ violent behaviors, either self-directed or directed at others, did not significantly contribute to the stress levels of direct caregivers.

**Table 11**

Frequency and Percentage of Caregiver Stress Ratings When Working With Resident Research Participants (n = 58)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Often</th>
<th>%</th>
<th>Sometimes</th>
<th>%</th>
<th>Rarely</th>
<th>%</th>
<th>Never</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Stress</td>
<td>13</td>
<td>22</td>
<td>26</td>
<td>45</td>
<td>16</td>
<td>28</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Anxiety</td>
<td>12</td>
<td>21</td>
<td>19</td>
<td>33</td>
<td>14</td>
<td>24</td>
<td>13</td>
<td>22</td>
</tr>
<tr>
<td>Depression</td>
<td>7</td>
<td>12.1</td>
<td>13</td>
<td>22.4</td>
<td>10</td>
<td>17.2</td>
<td>28</td>
<td>48.3</td>
</tr>
<tr>
<td>Violence</td>
<td>2</td>
<td>3.4</td>
<td>11</td>
<td>19.1</td>
<td>10</td>
<td>17.2</td>
<td>35</td>
<td>60.3</td>
</tr>
<tr>
<td>Self-Harm</td>
<td>3</td>
<td>5.2</td>
<td>3</td>
<td>5.2</td>
<td>3</td>
<td>5.2</td>
<td>49</td>
<td>84.4</td>
</tr>
<tr>
<td>Health</td>
<td>34</td>
<td>59</td>
<td>16</td>
<td>27</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>Embarrassing Behaviors</td>
<td>30</td>
<td>52</td>
<td>9</td>
<td>16</td>
<td>0</td>
<td>0</td>
<td>19</td>
<td>32</td>
</tr>
<tr>
<td>Domestic Skills</td>
<td>22</td>
<td>38</td>
<td>15</td>
<td>26</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>36</td>
</tr>
<tr>
<td>Self Care</td>
<td>24</td>
<td>41</td>
<td>8</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>26</td>
<td>45</td>
</tr>
</tbody>
</table>
As indicated in Table 11, 13 direct caregivers responded that 13 (22%) of the resident research participants frequently created stressful situations. Resident study participants who displayed symptoms of anxiety and/or depression reportedly produced varying degrees of stress. Only five residents who exhibited self-harmful or violent behaviors reportedly caused high stress in direct caregivers. Interestingly, caregivers responded that they did not believe themselves to be at risk of harm from violence caused by residents; that is, caregivers’ reported stress levels from being injured by residents were minimal. Yet, there was an overarching concern that “when residents act up, there aren’t enough men staff available to cover the living areas” (Direct caregiver research participant, personal communication, November 16, 2002). In fact, a number of female and male staff stated that more male staff members were needed to “keep residents in line. Some of them get violent or out of control and having a man there helps to keep things under control” (Direct caregiver research participant, personal communication, November 16, 2002).

Residents who displayed socially embarrassing behaviors did contribute to the stress level of caregivers; caregivers reported experiencing stress often based on the embarrassing behaviors of 30 (52%) resident research participants. Nine resident (16%) research participants sometimes created stressful situations for caregivers.

The third instrument direct caregivers were asked to complete was the Self-Efficacy Scale (SES). The SES was used to determine each caregivers’ self-efficacy. Perceived self-efficacy was thought to influence the direct caregiver’s perception of stress. The SES has a minimum average score of one (1) and a maximum average score of five (5). The higher the score, the greater the person’s self-efficacy. The direct care
research participants had a minimum score of 2.57 and a maximum score of 4.87. The mean was 3.84 (SD = 0.54).

When examining the SES scores in relation to the direct caregivers’ primary work sites, there were some apparent differences. For example, one direct caregiver who was employed in the medical unit (Living Area 2) had a mean SES score of 4.39. Those direct caregivers who were employed in the Geriatric living areas (Living Area 5) reported a mean SES score of 4.02 (SD = 4.45). See Table 12 for direct caregivers’ SES scores.

Table 12
Direct Caregivers SES Scores Based on Living Area

<table>
<thead>
<tr>
<th>Living Area</th>
<th>n</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living Area 1</td>
<td>1</td>
<td>3.84</td>
<td></td>
</tr>
<tr>
<td>Living Area 2</td>
<td>1</td>
<td>4.39</td>
<td></td>
</tr>
<tr>
<td>Living Area 3</td>
<td>4</td>
<td>3.77</td>
<td>0.82</td>
</tr>
<tr>
<td>Living Area 4</td>
<td>2</td>
<td>3.43</td>
<td>0.37</td>
</tr>
<tr>
<td>Living Area 5</td>
<td>7</td>
<td>4.02</td>
<td>0.45</td>
</tr>
<tr>
<td>Living Area 6</td>
<td>5</td>
<td>3.70</td>
<td>0.54</td>
</tr>
<tr>
<td>TOTAL</td>
<td>20</td>
<td>3.84</td>
<td>0.54</td>
</tr>
</tbody>
</table>

Direct caregivers reporting the highest SES scores, that is, those staff employed in Living Areas 2 and 5, were primarily trained as Certified Nursing Assistants, whereas, the other Living Areas employed direct caregivers who were identified as “mental health specialists”, indicating minimal on-the-job training. Based on the results of the Spearman
correlation coefficient tests, there were no significant relationships between SES scores and caregiver stress.

When asked about how they prevented falls, direct caregivers primarily focused on environmental maintenance; that is, they stated that they cleaned up spills, tried to prevent residents from “running” along the corridors, and kept obstacles and debris out of the path of residents. When asked whether they had received inservice/training about falls within the past two years, six direct caregivers (25%) stated that they had received training in the form of either classes or informal inservice education. All but one of the respondents reported the two types of training to be helpful. The remaining direct caregivers (75%) reported that they had never received training in the prevention of falls.

**Summary**

In this chapter, the results of findings related to the seven hypotheses were provided. T-test statistics were initially computed to determine differences with regards to the variables being studied between the two resident sample groups, residents who had a recorded history of falls during the past year, and residents who had no recorded history of falls. The researcher found that there was a significant difference between the two groups with regard to the number of psychotropic medications prescribed (p < .05). There was evidence to suggest that resident research participants who reported a history of falls were prescribed more psychotropic medications than those who reported no history of falls.

To answer the research hypotheses on the relationships between and among variables, Spearman’s correlational coefficient analyses were performed and the results reported. There was insufficient evidence to indicate a relationship between age, BMI,
severity of psychiatric symptoms, length of stay, the number and types of psychotropic medications, the number of years of formal education, CRS and the incidence of falls. Therefore, when examining the first research hypothesis, which explored the relationships between and among age, Cardinal Risk Factor scores (CRS), and incidence of falls, the researcher found that there was insufficient evidence to indicate a significant relationship between and among the variables. Similarly, when answering the second research hypothesis, which examined relationships between and among the variables BMI, Cardinal Risk Factor scores, and the incidence of falls, the researcher found that there was insufficient evidence to indicate a significant relationship between and among the variables.

To answer the third research hypothesis, which addressed relationships between and among the variables perceived and recorded deficits in residents' physical health, CRS, and the incidence of falls, the researcher found that there was a significant negative relationship between perceived deficits in physical health and the incidence of falls, and a significant positive relationship between recorded medical deficits (the number of medical diagnoses) and the incidence of falls.

To answer the fourth research hypothesis, which examined the relationships between and among the variables severity of mental illness, length of stay, CRS, and the incidence of falls, the researcher found that there was insufficient evidence to indicate significant relationships between/among the variables. The fifth hypothesis, which explored the relationships between and among the number and types of psychotropic medications, CRS, and the incidence of falls was not supported by the data; that is, there was insufficient evidence to indicate any significant relationships between and among the
number and types of psychotropic medications, CRS, and incidence of falls. To answer the sixth hypothesis, which addressed the relationships between/among gender, CRS and the incidence of falls, there was insufficient evidence to suggest any significant relationships between and among the variables. The seventh hypothesis which addressed the relationships between and among the factors number of years of formal education, CRS and the incidence of falls was unsupported by the data in that there was insufficient evidence to indicate any significant relationships exist between and among the variables.

A stepwise multiple regression analysis was used resulting in two variables that significantly explained the incidence of falls in the study: the resident’s perceived health deficits as measured by the SF-36v2® and the CRS. Data also demonstrated that age significantly explained the number of psychotropic medications residents were prescribed.

Although not significant at the 0.05 level, the incidence of falls was explained by the number of psychotropic medications residents were prescribed. Finally, data revealed that women who participated in this study were identified as having 1.378 times fewer needs than men, or, conversely, men were identified as having 1.378 times more needs than women.
CHAPTER 5
DISCUSSION, CONCLUSIONS, PRACTICE IMPLICATIONS, AND RECOMMENDATIONS

The purpose of this chapter is to provide a discussion about the research findings and present conclusions. In addition, implications and recommendations for future research, mental health practice, and mental health policy are presented.

Discussion of Findings

The Administrator of the long-term psychiatric residential treatment facility, Wellspring, permitted the investigator to conduct the study within the facility. Two groups of residents were identified, those who had a history of falls within the past 12 months and those without a history of falls. The total number of residents participating in this study, 58, represented approximately 12% of the total population of the facility. Twenty direct caregivers who were assigned to care for residents in the research population agreed to participate in the research. There were no refusals.

Characteristics of the Residents

Many characteristics were examined to determine if there was sufficient evidence to indicate a relationship among the various characteristics of two groups of residents living in the long-term psychiatric residential treatment facility. Demographic characteristics such as gender, age, and number of years of formal education were analyzed. Additional variables such as psychiatric treatment history, current severity of psychiatric symptoms, psychotropic treatment, and medical status were also analyzed.
These characteristics were considered to be influential in the incidence of falls in persons with severe and persistent mental illness. The conceptual framework that suited this particular study was an adaptation of Andersen’s Behavior Model for Vulnerable Populations (Andersen, 1995). Vulnerable populations are those for whom the risk of poor physical, psychological, or social health has or is quite likely to become a reality (Aday, 1993). The model proposed by Andersen (1995) focused on the theoretical structure of access to health care integrating the elements of predisposing, enabling, and need of the individual.

Predisposing domain, the first element in the Behavior Model for Vulnerable Populations, has been examined in the context of the severe and persistent mentally ill resident. This element included age, gender and the number of years of formal education. Gender and age represent a biological imperative suggesting that the residents will have health needs or deficits (Andersen, Rice, & Kominski, 2001). Social factors, another component of the predisposing domain, consists of elements such as an individual’s education, marital status, which may influence the social network of a person in the community, and can ultimately facilitate or impede an individual’s perceived health care needs and access to services (Andersen et al., 2001). Hence, an individual’s position in the social structure can influence one’s vulnerability (Aday, 1993).

The second element of the Behavior Model for Vulnerable Populations is the enabling domain (Andersen, 1995). Factors concerning this element are REHAB indicators, perceived and documented deficits in physical health, body mass index (BMI), primary caregiver stress, primary caregiver self-efficacy, resident length of stay, and number and types of psychotropic medications.
Finally, the Behavior Model for Vulnerable Populations has a need domain, which focuses on severity of psychiatric illness and mental status, and the resident’s perceived risk factors and needs. The presence of needs was determined by integrating the responses of residents, direct caregivers, and the clinical judgment of the investigator as guided by the Cardinal Needs Schedule (Marshall et al., 1995) resulting in identification of 126 needs among the 58 residents. In recent years, the concept of needs for care has been proposed as an exemplar in planning mental health service interventions (Anderson & Lyons, 2001; McCrone & Strathdee, 1994; Murray et al., 1996). Though this approach is considered a potentially useful model, it has not yet been extensively implemented nor researched.

Based on the measures and analyses used in this study, very few significant relationships were found among the various characteristics of residents. No significant relationships were discovered among the variables, age, gender, and number of years of formal education, BMI, severity of mental illness, length of stay, the number and types of psychotropic medications, the response variable incidence of falls, and Cardinal Risk Factor score.

**Perceived Deficits in Physical Health**

Spearman correlational coefficient analyses demonstrated a significant negative relationship between perceived deficits in physical health and incidence of falls ($p = 0.014$). That is, scores on the SF-36v2® were higher for resident research participants who had a recorded history of falls within the past year than for those resident research participants with no recorded history of falls.
There are several possible explanations for this finding. First, recall that the occurrence of falls may have serious consequences for both the resident and the caregivers who are responsible for their resident’s care. Falls are commonly believed to be attributable to individual failure, carelessness or the natural process of aging (Tideiksaar, 1998). Too, residents may become fearful that they may sustain another fall or may find themselves restricted to the living area for “their own protection.” Many of the residents at Wellspring who experience falls are identified as being on “fall precautions” which may involve placing the individual on “Supervised Grounds Access.” Supervised grounds access limits the resident’s ability to leave the living area during pre-designated times in order to go to the canteen, bank, library, boutique, or other outside recreational areas. The residents must rely on direct caregivers to escort them wherever they need to go. In addition to having restricted access to outside activities, residents who are on fall precautions, and therefore supervised grounds access, are also expected to eat their meals in the satellite dining rooms, which are located within the confines of the respective units. Restriction of a resident to her/his living area may be perceived as a form of physical restraint. Indeed, in the psychogeriatric setting, the prevention of hazards related to falls is often one of the justifications afforded to the use of physical restraints. In one study examining reasons for restraint use by staff in nursing homes, it was found that 40% of caregivers used restraints as an intervention against falls (Cohen, Neufeld, Dunbar, Pflug, & Breuer, 1996). It is a routine practice to restrain psychogeriatric patients to prevent falls (Waring, 1991).

Those persons who are restricted to their living areas for reasons of safety or health deficits may perceive themselves to be viewed as socially unfavorable. Being
viewed favorably, or social desirability, is an important characteristic and has been reported as leading to response bias in mentally ill research participants who complete self-report measures regarding perceived health status (Bardwell, Ancoli-Israel, & Dimsdale, 2001). Therefore, residents who are at risk for falling may try to portray their perceived health status in a more positive light in order to minimize the perceived consequences of the fall incident. Recall, when asked an open-ended question about their falls, while living Wellspring, a majority of those residents who had a reported fall within the past 12 months denied having ever fallen, or stated that someone else was responsible for their fall.

Although a negative correlation between perceived health deficits and incidence of falls was established, stepwise multiple regression analysis identified perceived health deficits as measured by the SF-36v2® ($F = 6.03, p = .0175$) as significantly explaining the incidence of falls. Therefore, this is the first factor in the conceptual model adapted from Andersen’s Behavioral Model for Vulnerable Populations (1995) that proposes an explanatory model related to the occurrence of falls in a long-term psychiatric residential treatment facility.

**Recorded Medical Deficits**

A statistically significant relationship also existed between recorded medical deficits and the incidence of falls ($p = .027$). Indeed, persons with severe and persistent mental illness have many debilitating and chronic illnesses, such as hypertension, chronic obstructive pulmonary disease, poor oral health and dentition, and diabetes (Lawrence & Coghlan, 2002; Murphy, Gass-Sternas, & Knight, 1995). Acute or chronic illnesses, Parkinson’s Disease, vestibular problems, stroke, incontinence, gait/balance impairment,
postural hypertension, foot problems and sensory impairment are conditions that can lead to an increased incidence of falls. In fact, up to 10% of falls unrelated to syncope are related to acute illness, such as pneumonia, stroke, anemia, or dehydration (Vassallo & Sharma, 1998).

**Cardinal Needs Schedule**

A stepwise multiple regression analysis was used resulting in two variables that significantly explained the incidence of falls in the study: the resident’s perceived health deficits as measured by the SF-36v2® ($F = 6.03$, $p = .0175$); and CRS ($F = 5.70$, $p = .0210$). The current discussion will focus on the CRS, or needs as measured by the Cardinal Needs Schedule. This is the second factor in the conceptual model adapted from Andersen’s Behavioral Model for Vulnerable Populations (1995).

The Cardinal Needs Schedule utilizes a negotiated model of needs assessment, in which needs are not a fixed concept that can be objectively measured. Rather, needs are viewed as dynamic, being influenced by a range of contextual factors and on which there is no single correct perspective (Natten & Beecham, 1993; Slade, 1994; Slade & Thornicroft, 1995). Hence, the Cardinal Needs Schedule included input from staff, residents, and the clinical record. Although some researchers suggest that disparities may arise between staff and residents’ perceptions of needs for care (Lesalvia, Ruggeri, Mazzi, & Dall'Agnola, 2000), the Cardinal Needs Schedule also included data gleaned from the clinical record to complete the needs assessment. It was not within the scope of this research to determine if differences existed between staff and residents’ perceptions, and/or whether or not they were significant or predictable.
The areas of functioning that were assessed using the Cardinal Needs Schedule were (1) psychosis, (2) side effects from psychotropic medications, (3) anxiety or depression, (4) self harm or violence, (5) organic disorder, (6) health, (7) socially embarrassing behavior, (8) drugs and alcohol, (9) domestic skills, (10) finance and welfare, (11) transport and amenities, (12) literacy, (13) work, (14) social life, (15) hygiene and dressing, and (16) accommodation. Those areas of functioning where needs were identified were (1) psychosis (27 needs), (2) side effects (7 needs), (3) anxiety or depression (33 needs), (4) self harm or violence (27 needs), (5) health (1 need), (6) socially embarrassing behavior (28 needs), (7) domestic skills (1 need), (8) finance and welfare (1 need), and (9) hygiene and dressing (1 need).

It is interesting to note that the area of functioning, health, only has one identified unmet need. Since residents are based in a tertiary facility, the assumption could be that health care needs are being met adequately, and that there are no unmet needs. This assumption was formally investigated in research by Lasalvia, Ruggeri, Mazzi, and Dall’Agnola (2000). The research findings of other investigators suggest that if persons with severe and persistent mental illness see their primary care physicians on a routine basis, they are more likely to think that they receive the right kind of help for their physical health needs and be more satisfied with the type of help received (Beecroft et al., 2001). At Wellspring, the residents see their primary care physician on a daily basis and during medical rounds.

Although not a significant finding, data revealed that women who participated in this study were identified as having 1.378 times fewer needs than men, or, conversely, men were identified as having 1.378 times more needs than women. Data revealed that
men were identified as having more needs in the functional areas of psychosis, side
effects related to psychotropic medications, self harm or violence, health, socially
embarrassing behaviors, domestic skills, finance and welfare, and hygiene and dressing.
Caution needs to be exercised when attempting to explain these findings. Current
research indicates that derivational thinking and gender bias are particularly evident in
the healthcare arena and may influence the way in which healthcare professionals identify
needs of their residents (Hardman, 1996; Leo, 2001). Leo (2001) asserts that gender
biased instructional materials and training in medical schools influence gender role
stereotypes. In fact, previous investigations of gender bias in anatomy or physical
diagnosis texts have noted that illustrations of male models exceed those of female
models (Giacomini, Roze-Koker, & Pepitone-Arreola-Rockwell, 1986; Mendelsohn,
Nieman, & Isaacs, 1994). Researchers have further suggested that medical students and
other healthcare workers may be unfamiliar with female healthcare issues, and consider
male healthcare issues to be the “norm” (Mendelsohn et al., 1994; Nechas & Foley,
1994). Hence, the female becomes invisible; female residents’ needs and/or concerns
may go unnoticed, minimized or ignored by the person conducting the assessment. Russ
(1983) describes this phenomenon as that of ‘double standard of content’: the notion that
female residents’ experiences can only be defined in terms of the existence and
characteristics of male residents. Hence, male resident’s needs and concerns become the
focus of attention, particularly when they involve stereotypical attributes, such as violent
or embarrassing behaviors (Hardman, 1996; Russ, 1983).

Based on the finding that only one health need was identified, context-specific
interventions as part of a fall prevention program may not be perceived as a health-related
need either by residents, direct caregivers, or healthcare professionals. Of the 30 research participants who had a history of falls within the past 12 months, there was no evidence of a follow-up fall risk assessment, and only four had individualized Nursing Care Plans that addressed specific interventions designed to prevent falls.

One of the critical roles of nurses employed in a psychiatric setting is the monitoring and prevention of falls in persons with severe and persistent mental illnesses (Poster et al., 1991). Nurses are responsible for the administration of risk assessments on a routine basis. Risk assessments provide valuable information as to specific concerns that might cause a person to fall. If the assessment reveals an acute illness or a health need, the nurse is in a key position to make sure that the resident is seen by the primary care physician for diagnostic workup. If side effects from psychotropic medications are evident, such as alterations in gait, blurred vision, etc., the nurse is in a position to refer the resident to the psychiatrist for re-evaluation of psychotropic therapy or referral to the neurologist, or some other health care providers, as appropriate. Nurses are front-line gatekeepers who can develop and implement context-specific interventions designed to prevent falls and subsequent injuries.

**Psychotropic Medications**

Results gleaned from stepwise multiple regression analysis demonstrated that age significantly explained the number of psychotropic medications residents were prescribed \(F = 4.06, \ p = .0494\). Although not significant at the 0.05 level, the incidence of falls could be explained by the number of psychotropic medications residents were prescribed \(F = 3.05, \ p = .0869\).
Psychotropic medications are an integral part of the treatment of symptoms associated with severe and persistent mental illness. With the ever-increasing number of novel and effective psychotropic agents, physicians are faced with integrating newly acquired pharmacological facts into their decision-making process when selecting the most appropriate agents for the residents. The ever-expanding list of psychotropic medications may contribute to prescribing practices that lack scientific merit, such as polypharmacy. Polypharmacy is defined as the prescribing of two or more psychotropics in the same class (Procyshyn & Flynn, 2000). One factor that may have an influence on the physician’s prescribing behavior is the treatment setting, although this has never been fully investigated.

Although many of the atypical antipsychotics are identified as having fewer side effects, some of these medications do correlate positively with an increased risk of extrapyramidal/parkinsonian symptoms (EPS) (Procyshyn & Flynn, 2000). An increased risk of EPS would possibly necessitate the addition of an anticholinergic to counteract the side effects (Procyshyn & Flynn, 2000). Anticholinergic medications, in addition to most psychotropic medications, have been implicated in the incidence of falls (Cameron, 1997a, 1997b; Ray et al., 1989; Ray et al., 1991; Tack et al., 1987; Tinetti et al., 1994; Tinetti & Williams, 1997).

Furthermore, a significant relationship has been demonstrated between tardive dyskinesia and the amount of anticholinergic medication prescribed in residents receiving long-term psychotropic therapy (Procyshyn & Flynn, 2000). Tardive dyskinesia, an irreversible movement disorder associated with long-term antipsychotic therapy has been
associated with numerous side effects, including gait and balance disturbances that can also lead to an increased incidence in falls.

In addition to the increased risk of falls, atypical antipsychotics have been alleged to predispose residents to many other debilitating side effects, such as drug-induced weight gain, diabetes, cardiovascular, and other nonneurologic side effects. Weight gain promoted by atypical antipsychotic agents has become a serious problem for younger and middle-age residents with chronic psychosis, particularly those with comorbid medical conditions such as ischemic heart disease, diabetes, chronic obstructive pulmonary disease, or arthritis, for whom substantial weight gain may worsen the effects of disease and further impair function (Jeste, Caligiuri, & Paulsen, 1995).

**Direct Caregivers**

The Cardinal Needs Schedule identified only one need for health. Yet, direct caregivers identified resident health concerns, along with a resident’s display of embarrassing behaviors, such as incontinence, swearing, or sexually inappropriate behavior, as producing the most stress. Findings reveal that direct caregivers who were trained as Certified Nursing Assistants and had some experience with the prevention of falls had the highest Self Efficacy Scores of the direct caregiver research participants.

Direct caregiver research participants, when queried, expressed an interest in receiving additional education/training related to fall prevention and safety. They felt that competence-based training would not only enhance the care of residents, but would also benefit Wellspring.

According to the data, resident research participants’ violent behaviors, either self-directed or directed at others, did not significantly contribute to the stress levels of
direct caregivers. However, direct caregivers expressed a common theme regarding the need for an increase in male staff to “control” residents who became violent. The direct caregivers stated that a male presence was effective in keeping violent residents “in line” (Direct caregiver research participant, personal communication, November 16, 2002). Further research is needed to further explore these comments within the context of Derivational Thinking.

Conclusions

Of the 58 residents that were interviewed, a typical portrait of a resident in a long-term psychiatric residential treatment facility included in this study can be described as a 49-year old, never married, Caucasian woman who has graduated from high school and has been a resident of Wellspring for approximately 53 months. She has a diagnosis of Schizophrenia, or one of its subtypes, and has had at least one prior long-term psychiatric residential treatment facility admission. Length of stays at the long-term psychiatric residential treatment facility varied from one month to 202 months. Ten resident research participants (17%) had lived at the long-term residential treatment facility for the past 10 years. The longest period of inpatient hospitalization for the resident research participants who had documented falls within the past 12 months was approximately four years; the longest period of inpatient hospitalization for the resident research participants who had no documented falls within the past 12 months was approximately five years.

The resident research participants were receiving an average of three psychotropic medications per day; nine (16%) of whom were receiving more than four psychotropic medications per day. This meant that these individuals received more than one medication in the same class of psychotropic medications.
The concomitant occurrence of medical illnesses or other health risk factors such as obesity among persons with severe and persistent mental illness was an ongoing concern among mental health care providers. Only two residents self-reported an absence of medical illness. The most commonly identified health care problems were cardiovascular disorders \((n = 16, 28\%)\); diabetes and hypothyroidism \((n = 12, 21\%)\); neuromuscular-related disorders \((n = 11, 19\%)\); and respiratory problems \((n = 7, 12\%)\).

The research participants were considered to be overweight, with a mean BMI of 28.91 \((SD = 5.371)\). Based on results of the Spearman correlation coefficient tests, there was a significant relationship between recorded medical deficits (the number of medical diagnoses) and the incidence of falls \((r = .293, p = .027)\) at the 0.05 significance level.

Although documented health deficits significantly correlated with the incidence of falls, Spearman correlation coefficient tests revealed a negative relationship between perceived health deficits and the incidence of falls \((p = .014)\). That is, scores on the SF-36v2® were higher for resident research participants who had a recorded history of falls within the past year than for those residents with no recorded history of falls. The majority of the resident research participants who had a documented fall within the past 12 months denied that the fall ever took place.

An assessment of residents’ needs, utilizing the Cardinal Needs Schedule, was considered. Recall that the Cardinal Needs Schedule, which applies a negotiated model of needs assessment, revealed a total of 126 needs for the 58 resident research participants. Predominant needs included psychosis (27 needs), side effects from psychotropic medications (7 needs), anxiety or depression (33 needs), self harm or violence (27 needs), and socially embarrassing behavior (28 needs).
Although the Cardinal Needs Schedule identified only one resident need for health, direct caregivers identified resident health concerns as causing them stress in their roles as caregivers. Although the current research did not focus on whether or not the incidence of falls occurring among resident research participants caused stress, findings did reveal that direct caregivers who were trained as Certified Nursing Assistants and had some experience with the prevention of falls had the highest self efficacy scores of the direct caregiver research participants.

**Implications for Practice**

Much information was obtained for resident research participants who lived in a long-term psychiatric residential treatment facility regarding their perceptions of health deficits, needs, and the occurrence of falls. There were some barriers to successfully acquiring information from the resident research participants. Some residents were hesitant to engage in conversation with the researcher or sign the informed consent. They expressed some anxiety that they may be “signing their lives away.” Some residents were also experiencing a severity in symptoms, which prohibited them from participating in the study. Since the research took place close to a holiday season, residents were manifesting increased stress because of either receiving an anticipated pass to go home with their families, or the fear that their families may not show up to visit.

Throughout the data collection period, many residents articulated a desire to return to community living away from the residential treatment facility. Moreover, there was some expressed concern that these research findings might be used to smooth the progress of the resident’s discharge from the facility. Therefore, the researcher recognized the need for honesty, flexibility and patience, and the value of developing and
maintaining rapport with the residents and staff prior to engaging in, and during the research process. The researcher also revisited several resident research participants on a number of occasions, since their psychiatric symptoms or activity schedule prohibited them from completing the interviews in one session. This approach proved to be useful.

Many of the residents were assigned to attend Learning Center groups throughout the day: Treatment hours, the time that residents are either involved in vocational or structured learning activities occurred between 9:00 a.m. until 11:00 a.m. and again from 1:00 p.m. until 3:00 p.m. These treatment hours, also known as active treatment, are mandated by regulating bodies external to Wellspring, such as the Agency for Health Care Administration (AHCA) and Centers for Medicare and Medicaid Services (CMS, known formerly as HCFA), in order to ensure that residents are not being “warehoused.” Assignation to these groups is based on findings of extensive interdisciplinary assessments, completed at the time the resident is admitted to Wellspring and at scheduled intervals throughout their stay at the facility. All scheduled activities are included in the detailed service plan which outlines all challenges the resident is experiencing and the modalities that are being used to address those challenges. Residents’ attendance is rewarded through a token economy system; residents receive “smart bucks” which have monetary value and can be exchanged in places of business within the confines of Wellspring. Typically, the residents spend their “smart buck” on high caloric snack food items and tobacco products.

All other mandatory activities, such as meals, medications, and visits with the primary care physician or other healthcare providers, such as the podiatrist or dentist, are scheduled according to the practitioner’s convenience, and may interfere with the
resident’s other scheduled activities. Furthermore, residents may be “restricted” to the living area until it is their turn to go see the practitioner.

Residents do have the right to refuse to attend group activities, however, they are restricted to the living area during those hours of treatment. When Learning Center activities have concluded, grounds access commences for those residents who are not under any limitations to move about freely around the grounds.

Many residents were closely monitored by staff who functioned as “gatekeepers” and attempted to steer the researcher in the direction of “appropriate” subjects. They were willing to identify those residents who would be willing to “answer your questions without too much trouble.” In such instances, the researcher would graciously thank them, but always rely on the pre-determined approved protocols.

**Implications for Mental Health Policy**

Managed care providers as well as state legislators continue to exert pressure to shorten inpatient stays; economic pressures have led state governments to shrink and close long-term psychiatric residential treatment facilities. These financial realities have increasingly forced health care professionals employed in long-term psychiatric settings to confront the long-recognized clinical phenomenon that residents may develop an excessive dependence on the hospital and that this dependency can seriously complicate discharge (Gordon & Groth, 1961; Mendel & Green, 1967). This dependency, also known as institutionalization (Martin, 1955), has often been observed among inpatients with long-term psychiatric hospitalization. Institutionalization is characterized by apathy, lack of initiative, and reluctance to leave the hospital setting (Glanze, 1992). Individuals who clinicians identify as "institutionalized" are described as highly dependent on the
hospital in which they reside, show little or no interest in the outside world, and are often resistant to being discharged (Glanze, 1992; Martin, 1955).

Based upon AHCA and CMS guidelines, residents are required to receive comprehensive treatment based on an extensive assessment process. Assessments form the basis for treatment planning and service provision, and are an integral part of the service delivery system.

Although residents receive an extensive array of services to include vocational rehabilitation, life management skills, etc., little focus is placed on health-related self-care behaviors. Medication self-management programs and primary care clinics where residents schedule and keep their appointments might be developed to enhance self-care, community-based skills that are essential for a successful tenure in the community. According to the results of the REHAB, approximately six of the study participants had General Behavior scores of 40 and below, suggesting that these individuals would be successful in relocating to community placements.

**Recommendations**

This research study of residents in a long-term psychiatric residential treatment facility provides a description of the various characteristics of two groups of research participants, those who had a history of falls within the past 12 months and those residents who did not have a history of falls within the past 12 months. All or both groups of residents within the long-term psychiatric residential treatment facility have a history of severe and persistent mental illness.

Residents rely on the expertise of the direct caregivers who are assigned their care. Most direct caregiver research participants stated that they have limited education
with regard to fall prevention, and only identify environmental hazards that may predispose the resident to falls.

The direct caregivers in this long-term psychiatric residential treatment facility identified one particular resident need that created stress: health. Although not a significant finding, it is important to note that direct caregivers who were not trained as Certified Nursing Assistants had lower self-efficacy scores. To improve the quality of care being offered in the long-term residential treatment facility, it is recommended that (1) all direct caregivers be offered annual competence-based training on falls and fall prevention; and (2) all direct caregivers be offered instruction in identifying and managing their stress while employed in an institutional setting.

All residents who are at risk for falls might be identified for fall prevention strategies. In an effort to prepare residents for their eventual transition to community living, researchers suggest developing “practicums” where skills are practiced and competencies are achieved (Bellus, Kost, & Vergo, 2000). Usually, the focus of resident competency training is in the realm of rehabilitation, which identifies communication, social functioning, problem solving, and academic life skills, as paramount to successful community living (Bellus et al., 2000). Nurses could develop similar practicums for residents to develop and enhance health-related self-care behaviors, such as medication management and treatment adherence, exercise, diet, fall prevention, following through on clinic appointments, dental hygiene, etc.

In the current model of service delivery at Wellspring, representatives from a variety of disciplines routinely come together with their findings to develop a plan of care and service provision for residents. This technique can prove to be fragmented, without a
clear focus in service delivery. The Cardinal Needs Schedule is a research instrument based on a negotiated model of needs assessment, which has not been designed for clinical use. A recommendation based on the findings of this research is to adapt the Cardinal Needs Schedule to the clinical setting and begin using it to determine resident’s met and unmet needs, and further analyze it’s effectiveness in predicting falls and other high risk health problems. Use of a comprehensive assessment instrument that relies on resident, direct caregiver, and professional input may facilitate the recognition of relevant needs, and foster the development of a collaborative relationship between and among members of the service planning team, to include residents, family members, Guardians and Guardian Advocates, professionals and paraprofessionals. The outcome of an integrative approach of service delivery will be to address and develop strategies for resolving unmet needs, thereby improving psychiatric, health, and social functioning. This approach is consistent with Wellspring’s person-centered model of service delivery.

Of the 30 research participants who had a history of falls within the past 12 months, only four had individualized Nursing Care Plans that addressed fall prevention. An opportunity exists for nurses to be proactive regarding fall prevention. Fall prevention and safety campaigns with residents taking leadership roles in the process could reduce stigma, bolster morale and improve outcomes.

Although it was not the intent of the researcher to collect and analyze stories that were inadvertently obtained during interviews with resident and caregiver research participants, the researcher recommends further studies using qualitative methods to enhance current knowledge about fall prevention among persons with severe and persistent mental illness. These studies may provide provocative insights into the
perceptions of residents and staff regarding falls, and might further enhance the nursing professional’s ability to develop context-specific fall prevention programs for persons with severe and persistent mental illness.
APPENDIX A
INSTRUMENTS
Subject ID _____ Fall No Fall Date ________________

DEMOGRAPHIC DATA FORM

1. Date of Birth ____________________________________________

2. Age ____________________________________________________

3. Gender Female (2) _______ Male (1) ________

4. BMI ____________________________________________________

5. Current Marital Status (1) Married
(2) Single, never married
(3) Separated
(4) Divorced
(5) Widowed

6. Ethnicity (1) Asian
(2) African American
(3) Caucasian
(4) Hispanic
(5) Native American
(6) Mixed __________
(7) Other ______________

7. Last grade of school completed (1) Elementary (Grades 1-5)
(2) Middle (Grades 6 – 8)
(3) Senior (Grades 9 – 12)
(4) GED
(5) Some College
(6) College Degree
(7) Some Graduate School
(8) Graduate School Degree

8. Date of Admission to State Hospital ________________________
9. Other State Hospital Admissions

<table>
<thead>
<tr>
<th>State Hospital Name</th>
<th>Location</th>
<th>Length of Stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>9a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9b</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10a. Guardian/Guardian Advocate

Yes  No

10b. Name ________________________________
     Location ______________________________

11. Psychiatric Diagnoses

<table>
<thead>
<tr>
<th>Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axis I</td>
</tr>
<tr>
<td>Axis II</td>
</tr>
<tr>
<td>Axis III</td>
</tr>
<tr>
<td>Axis IV</td>
</tr>
<tr>
<td>Axis V</td>
</tr>
</tbody>
</table>

12. If resident has a history of falls, how many previous falls? ____________

COMMENTS:
<table>
<thead>
<tr>
<th>1. Name(s) of medication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Dose in Mg.</td>
<td>mg. mg. mg. mg. mg. mg. mg. mg.</td>
</tr>
<tr>
<td>2a. # of doses at this # of mg. In 24 hours.</td>
<td># doses # doses # doses # doses</td>
</tr>
<tr>
<td>3. IF DOSE VARIES WITHIN 24 HOURS: Dose in mg.</td>
<td>mg. mg. mg. mg. mg. mg. mg. mg.</td>
</tr>
<tr>
<td>3a. # of doses at this # of mg. In 24 hours.</td>
<td># doses # doses # doses # doses</td>
</tr>
<tr>
<td>4. Date Medication started (Mo/Yr)</td>
<td>/ / / /</td>
</tr>
<tr>
<td>5. How often are reactions to the medication checked? (Indicate whom checks for side effects by the appropriate response).</td>
<td>Not checked</td>
</tr>
<tr>
<td>6. Does resident willingly take medications? (Check lab data, documentation) (circle either Y or N)</td>
<td>Y N Y N Y N Y N</td>
</tr>
<tr>
<td></td>
<td>Y N Y N Y N Y N</td>
</tr>
</tbody>
</table>
**Instruction:** Circle the appropriate rating for each dimension following the specified clinical interview. Refer to the Rating Manual for item definitions.

<table>
<thead>
<tr>
<th>Positive Scale</th>
<th>ABS</th>
<th>Min</th>
<th>Mild</th>
<th>Mod</th>
<th>Sev</th>
<th>Sev</th>
<th>Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1. Delusions</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>P2. Conceptual Disorganization</td>
<td></td>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>P3. Hallucinatory Behavior</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>P4. Excitement</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>P5. Grandiosity</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>P6. Suspiciousness</td>
<td></td>
<td></td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>P7. Hostility</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Negative Scale</th>
<th>ABS</th>
<th>Min</th>
<th>Mild</th>
<th>Mod</th>
<th>Sev</th>
<th>Sev</th>
<th>Ext</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1. Blunted Affect</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>N2. Emotional Withdrawal</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>N3. Poor Rapport</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>N4. Passive/Apathy</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>N5. Difficulty in Abstract Thinking</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>N6. Lack of spontaneity</td>
<td></td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>N7. Stereotipical Thinking</td>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
### General Psychopathology Scale

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>Somatic Concern</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G2</td>
<td>Anxiety</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G3</td>
<td>Guilt Feelings</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G4</td>
<td>Tension</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G5</td>
<td>Posturing/ Mannerisms</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G6</td>
<td>Depression</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G7</td>
<td>Motor Retardation</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G8</td>
<td>Uncooperativeness</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G9</td>
<td>Unusual Thought Content</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G10</td>
<td>Disorientation</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G11</td>
<td>Poor Attention</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G12</td>
<td>Lack of Judgment/ Insight</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G13</td>
<td>Disturbance of Volition</td>
<td>1 2 3 4 5 6 7</td>
</tr>
<tr>
<td>G14</td>
<td>Poor Impulse Control</td>
<td>1 2 3 4 5 6 7</td>
</tr>
</tbody>
</table>
### Profile Summary

<table>
<thead>
<tr>
<th>Scales</th>
<th>Raw Total</th>
<th>Percentile</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Syndrome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative Syndrome</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composite Index</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Psychopathology</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Cluster Scores

| Anergia                     |           |            |       |
| Thought Disturbance         |           |            |       |
| Activation                  |           |            |       |
| Paranoid/Belligerence       |           |            |       |
| Depression                  |           |            |       |

Positive syndrome = Sum of P1 through P7  
Negative syndrome = Sum of N1 through N7  
Composite index = Positive syndrome minus negative syndrome  
General psychopathology = Sum of G1 through G16

### Cluster Scores

| Anergia                     | N1+N2+G7+G10 |
| Thought Disturbance         | P2+P3+P5+G9 |
| Activation                  | P4+G4+G5   |
| Paranoid/Belligerence       | P6+P7+G8   |
| Depression                  | G1+G2+G3+G6 |
SCI-PANSS PSYCHOLOGICAL REPORT SUMMARY

Subject ID _____ Fall No Fall Date ________________

<table>
<thead>
<tr>
<th>F-1 Negative Factor</th>
<th>F-2 Agitation Factor</th>
<th>F-3 Cognitive Factor</th>
<th>F-4 Positive Factor</th>
<th>F5 Depressive/ Anxiety Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>withdrawal</td>
<td>G8.</td>
<td>Abstract Thinking</td>
<td>G2. Anxiety</td>
<td></td>
</tr>
<tr>
<td>G7. Motor retardation</td>
<td>S3. Affective lability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G16. Active social avoidance</td>
<td>TOTAL FACTOR TOTAL FACTOR (x.7143) = TOTAL FACTOR (x.7143) = TOTAL FACTOR = TOTAL FACTOR =</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Range of Total Factor Score: 5-10 = Absent – Minimal level of Sxs. 15-20 = Moderate – Moderate/Severe Level of Sxs.
10-15 = Minimal – Mild level of Sxs. 20-25 = Moderate – Moderate/Severe Level of Sxs.
15-20 = Mild – Moderate Level of Sxs. 30-35 = Severe – Extreme Level of Sxs.

Range of Symptom Score: 1 = Absent 5 = Moderate/Severe
2 = Minimal 6 = Severe
3 = Mild 7 = Extreme
4 = Moderate

Additional PANSS Scale Ratings:

Based on the methods used to obtain these scores, this administration of the SCI-PANSS appears to be:

( ) Valid ( ) of Questionable Validity ( ) Not Valid

Source: SCIPANSS PSYCHOLOGICAL REPORT SUMMARY – RECOMMENDATIONS. Wellspring Psychology Dept.
THE SF-36v2™ HEALTH SURVEY

Instructions for Completing the Questionnaire
Please answer every question. Some questions may look like others, but each one is different. Please take the time to answer each question carefully.

YOUR HEALTH IN GENERAL

1. In general, would you say your health is:

<table>
<thead>
<tr>
<th>Excellent</th>
<th>Very Good</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

2. Compared to one year ago, how would you rate your health in general now?

<table>
<thead>
<tr>
<th>Much better now than one year ago</th>
<th>Somewhat Better now than one year ago</th>
<th>About the same as one year ago</th>
<th>Somewhat worse now than one year ago</th>
<th>Much worse now than one year ago</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

3. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

<table>
<thead>
<tr>
<th>Yes, Limited A lot</th>
<th>Yes, Limited a little</th>
<th>No, not limited at all</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

a) Vigorous activities, such as running, lifting heavy objects, participating in strenuous sports.

b) Moderate activities, such as moving, a table, pushing a vacuum cleaner, bowling, or playing golf.


<table>
<thead>
<tr>
<th>Yes, Limited</th>
<th>Yes, Limited</th>
<th>No, not limited</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot</td>
<td>a little</td>
<td>at all</td>
</tr>
<tr>
<td>c) Lifting or carrying groceries.</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>d) Climbing several flights of stairs.</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>e) Climbing one flight of stairs.</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>f) Bending, kneeling, or stooping.</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>g) Walking more than a mile.</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>h) Walking several hundred yards.</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>i) Walking one hundred yards.</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>j) Bathing or dressing yourself.</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

4. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

<table>
<thead>
<tr>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Cut down on the amount of time you spent on work or other activities.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>b) Accomplished less than you would like.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>c) Were limited in the kind of work or other activities.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
### 5. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

<table>
<thead>
<tr>
<th>Problem</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Cut down on the amount of time you spent on work or other activities.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>b) Accomplished less than you would like.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>c) Did work or other activities less carefully than usual.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

### 6. During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbors, or groups?

<table>
<thead>
<tr>
<th>Extent</th>
<th>Not at all</th>
<th>Slightly</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

### 7. How much bodily pain have you had during the past 4 weeks?

<table>
<thead>
<tr>
<th>Severity</th>
<th>None</th>
<th>Very mild</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Very severe</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

### 8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

<table>
<thead>
<tr>
<th>Extent</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Moderately</th>
<th>Quite a bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
9. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks....

<table>
<thead>
<tr>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
</table>

a) did you feel full of life? O O O O O O
b) have you been very nervous? O O O O O O
c) have you felt so down in the dumps nothing could cheer you up? O O O O O O
d) have you felt calm and peaceful? O O O O O O
e) did you have a lot of energy? O O O O O O
f) have you felt downhearted and depressed? O O O O O O
g) did you feel worn out? O O O O O O
h) have you been happy? O O O O O O
i) did you feel tired? O O O O O O

10. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?

<table>
<thead>
<tr>
<th>All of the time</th>
<th>Most of the time</th>
<th>Some of the time</th>
<th>A little of the time</th>
<th>None of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
11. How TRUE or FALSE is each of the following statements for you?

<table>
<thead>
<tr>
<th></th>
<th>Definitely true</th>
<th>Mostly true</th>
<th>Don’t know</th>
<th>Mostly false</th>
<th>Definitely false</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) I seem to get sick a little easier than other people.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>b) I am as healthy as anybody I know.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>d) I expect my health to get worse.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>d) My health is excellent.</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>

12. For individuals who have fallen:
   a. Now, let’s talk about your recent accident (fall). Do you remember when it happened?
   b. If yes, can you tell me how you think the accident happened?
   c. How did you feel about having fallen?

13. For individuals who have no recorded falls:
   a. Have you ever experienced an accident where you ___________________________? (fill in the blank with the proper cue word, such as slipped, lost your balance, mis-stepped, tripped, stumbled)
   b. If yes, can you tell me how you think the accident happened?
   c. How did you feel about having the accident?

THANK YOU FOR ANSWERING THESE QUESTIONS
<table>
<thead>
<tr>
<th>FACE-TO-FACE INTERVIEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review the medications obtained on records review. Ask the resident what medications she/he is taking and record verbatim.</td>
</tr>
<tr>
<td>1a. Did the doctor explain how these medications help you?</td>
</tr>
<tr>
<td>(Record Verbatim)</td>
</tr>
<tr>
<td>________ yes ________ no</td>
</tr>
<tr>
<td>2. If Yes, what did the doctor say?</td>
</tr>
<tr>
<td>(Record Verbatim)</td>
</tr>
<tr>
<td>3. Did the doctor mention any side effects that you need to watch out for?</td>
</tr>
<tr>
<td>IF YES, ASK:</td>
</tr>
<tr>
<td>3a. What are they? (Record verbatim)</td>
</tr>
<tr>
<td>________ yes ________ no</td>
</tr>
<tr>
<td>4. Record number of side effects mentioned by Resident in #3(above).</td>
</tr>
<tr>
<td>__________</td>
</tr>
<tr>
<td>5. Have you experienced any side effects from medicine?</td>
</tr>
<tr>
<td>If yes, what are the side effects?</td>
</tr>
<tr>
<td>________ yes ________ no</td>
</tr>
</tbody>
</table>
Give the subject a blank piece of paper and a pencil.

SAY, “I want you to draw the face of a clock with all the numbers on it. Make it large.

After the patient has drawn the face of the clock,
Say: “Now draw the hands, pointing at 20 minutes before 4 o’clock.”

Follow the instructions for scoring on the next page.
## CLOCK DRAWING SCORE SHEET

Score the clock by selecting the appropriate item below.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Normal drawing, numbers and hands in approximately correct positions, hour hand distinctly different from minute hand and approaching 4 o’clock.</td>
</tr>
<tr>
<td>9</td>
<td>Slight errors in placement of hands (not exactly on 8 and 4, but not on one of the adjoining numbers) or one missing number on clock face.</td>
</tr>
<tr>
<td>8</td>
<td>More noticeable errors in placement of hour and minute hand (off by one number); number spacing shows gap.</td>
</tr>
<tr>
<td>7</td>
<td>Placement of hands significantly off course (more than one number); very inappropriate spacing of numbers (e.g., all on one side).</td>
</tr>
<tr>
<td>6</td>
<td>Inappropriate use of clock hands (use of digital display or circling of numbers despite repeated instructions); crowding of numbers at one end of the clock or reversal of numbers.</td>
</tr>
<tr>
<td>5</td>
<td>Perseverative or otherwise inappropriate arrangement of numbers (e.g., numbers indicated by dots). Hands may be represented, but do not clearly point at a number.</td>
</tr>
<tr>
<td>4</td>
<td>Numbers absent, written outside of clock or in distorted sequence. Integrity of the clock face missing. Hands not clearly represented or drawn outside of clock face.</td>
</tr>
<tr>
<td>3</td>
<td>Numbers and clock face no longer connected in the drawing. Hands not recognizably present.</td>
</tr>
<tr>
<td>2</td>
<td>Drawing reveals some evidence of instructions received, but representation of clock is only vague; inappropriate spatial arrangement of numbers.</td>
</tr>
<tr>
<td>1</td>
<td>Irrelevant, uninterpretable figure or no attempt.</td>
</tr>
</tbody>
</table>

NB: Roman numerals and embellishments of the clock (clock feet, bells) are acceptable.

Scores between 7 and 10 should be considered normal.
A score of 6 is borderline.
A score of 5 or less indicates significant cognitive impairment consistent in Alzheimer’s


Included in study | Yes | No
**MINI-MENTAL STATE EXAM (MMSE)**

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SCORE</th>
<th>POINTS</th>
<th>ITEM</th>
<th>SCORE</th>
<th>POINTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Orientation</strong></td>
<td></td>
<td></td>
<td><strong>Language</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. What is the year?</td>
<td>(1)</td>
<td></td>
<td>6. Point to a pencil and watch. Have resident name them as you point.</td>
<td>(1) for each = 2</td>
<td></td>
</tr>
<tr>
<td>Season?</td>
<td>(1)</td>
<td></td>
<td>7. Have the resident repeat &quot;No ifs, ands, or buts.&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date?</td>
<td>(1)</td>
<td></td>
<td>8. Have the resident follow a three-state command:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day?</td>
<td>(1)</td>
<td></td>
<td>&quot;Take the paper in your right hand.&quot;</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>Month?</td>
<td>(1)</td>
<td></td>
<td>&quot;Fold the paper in half&quot;</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td><strong>2. Where are we</strong></td>
<td></td>
<td></td>
<td><strong>Registration</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State?</td>
<td>(1)</td>
<td></td>
<td>9. Have the resident read and obey the following: &quot;Close your eyes.&quot;</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>County?</td>
<td>(1)</td>
<td></td>
<td>10. Have the resident write a sentence of her/his own choice. (The sentence should contain a subject and an object and should make sense. Ignore spelling errors when scoring).</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>Town/City?</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Floor?</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Address/Name of building?</td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attention and Calculations</strong></td>
<td></td>
<td></td>
<td><strong>Recall</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Name three objects taking one second to say each. Then ask the resident all three after you have said them. Repeat the answers until the resident learns all three</td>
<td>(1) for each = 3</td>
<td>5. Ask for names of three objects learned in question 3. Give one point for each correct answer</td>
<td>(1) for each = 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Ask for serial sevens. Give one point for each correct answer. Stop after five answers. Alternative: Spell world backward.</td>
<td>(1) for each = 7</td>
<td>11. Enlarge the design printed below to 1 to 5 cm per side and have the resident copy it. (Give one point if all the sides and angles are preserved and if the intersecting sides form a quadrangle).</td>
<td>(1)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL SCORE:**

NB: A score of 23 points or less (out of 30) for a person with more than 8 years of formal education is indicative of cognitive impairment.

Cardinal Needs Schedule

Demographic Characteristics Inventory

This information is to be obtained from the resident directly.

1. Gender: Female (2) _______ Male (1) _______
2. Current Marital Status: (1) Married
   (2) Single, never married
   (3) Separated
   (4) Divorced
   (5) Widowed
3. Date of Birth: __________/_________/___________
4. Age: ____________________
5. Ethnicity: Asian (1) _______ Black (2) _______ Caucasian (3) _______
   c Hispanic (4) _______ Native American (5) _______
   d Mixed (6) _______ Other (7) _______
   Last grade of school
   Completed
   (1) Elementary (Grades 1 – 5)
   (2) Middle (Grades 6 – 8)
   (3) Senior (Grades 9 – 12)
   (4) GED
   (5) Some College
   (6) College Degree
   (7) Some Graduate School
   (8) Graduate School Degree
6. Date of Admission to State Hospital: _________________
7. Previous Admission Date(s) and Length of Stay ___________________
8. Guardian/Guardian Advocate: Yes __________ No __________
9. Psychiatric Treatment History

9a. Presently attending
   1). Learning Center
   2). Vocational Rehab/Work
   3). Individual Therapy
   4). Group Therapy
   5). Rehab/CRP

9b. Past psychiatric treatment history.

   1) Inpatient hospitalizations (most recent first):
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________

   2) State psychiatric institution hospitalizations (most recent first):
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________

   3) Outpatient treatment – individual/group therapy
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________

   4) Outpatient treatment – day treatment/partial hospitalization:
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________
      Date: __________________________ Length of stay (days) ____________
DSM-IV Diagnosis

10. Axis I: ___________________________ Date: __________________________

11. Axis II: ___________________________ Date: __________________________

12. Axis III: ___________________________ Date: __________________________
Subject ID _____ Fall No Fall Date ________________

Cardinal Needs Schedule

*The Resident Opinion Interview*

1. General Question
   1a. How do you feel about your day to day life at the moment? 1a_____
   
   1 = Bad, 2 = Fairly bad, 3 = Neutral, 4 = Fairly good, 5 = Good, 8 = Not known, 9 = N/A

   Additional Information:

2. Accommodation
   *How do you feel about where you are living at the moment?*
   2a. How would you feel about moving somewhere else?
      What sort of place would you like to move to? 2a_____

      1 = Will move  2 = Will not move  8 = Not known  9 = N/A

   Additional Information:

3. Health
   *What is your health like at present? Do you suffer from any physical illnesses or distressing symptoms? Are you receiving any treatment for physical problems?*
   3a. (If yes) Do you have any physical symptoms that are causing you a lot of worry? 3a_____

      1 = Yes  2 = No  8 = Not known  9 = N/A

   Additional Information:

4. Drugs and Alcohol
   *Before you came to the State Hospital, how much alcohol did you drink in a week? ______ Do you consider this to be a problem?*
   4a. (If yes) Would you like help with this problem? 4a_____

      1 = Yes  2 = No  8 = Not known  9 = N/A

   Additional Information:
Did you take any non-prescribed drugs? (If yes) Do you consider this to be a problem?

4b. (If yes) Would you like help with this problem? 4b

1 = Yes  2 = No  8 = Not known  9 = N/A

Additional Information:

5A. Domestic Skills

NB: Section 5A is for residents who want to move only, for residents who do not want to move, proceed to section 5B.

Do you have any difficulty keeping your home and belongings clean and tidy? If you were to move to (______________________) would this be a problem?

5Aa (If yes) Would you be prepared to accept help so that you could try to do this better? 5Aa

1 = Yes  2 = No  8 = Not known  9 = N/A

Do you have any difficulties getting yourself to regular meals? If you were to move to (______________________) would this be a problem?

5Ab (If yes) Would you be prepared to accept help so that you could try to do this better? 5Ab

1 = Yes  2 = No  8 = Not known  9 = N/A

Do you have any difficulties getting your shopping done? If you were to move to (______________________) would this be a problem?

5Ac (If yes) Would you be prepared to accept help so that you could try to do this better? 5Ac

1 = Yes  2 = No  8 = Not known  9 = N/A

Additional Information:
5B. Domestic Skills

NB: Section 5B is for residents who do not want to move. If the client does want to move and section 5A has been completed, proceed to section 6.

Do you have any difficulty keeping your home and belongings clean and tidy?

5Ba (If yes) Would you be prepared to accept help so that you could try to do this better?

1 = Yes 2 = No 8 = Not known 9 = N/A

Do you have any difficulties getting yourself to regular meals?

5Bb (If yes) Would you be prepared to accept help so that you could try to do this better?

1 = Yes 2 = No 8 = Not known 9 = N/A

Do you have any difficulties getting your shopping done?

5Bc (If yes) Would you be prepared to accept help so that you could try to do this better?

1 = Yes 2 = No 8 = Not known 9 = N/A

Additional Information:

6A. Finance and Welfare

NB: Section 6A is for clients who want to move only; for clients who do not want to move, proceed to section 6B.

Do you have any difficulty sorting out your money or financial affairs? If you were to move to (__________________) would this be a problem?

6Aa. (If yes) Would you be prepared to accept help so that you could try to do this better? (By this we don’t mean having somebody to look after money for you but to help you to be more independent in looking after your own money.)

1 = Yes 2 = No 8 = Not known 9 = N/A

Additional Information:
6B. Finance and Welfare

NS: Section 6B is for clients who do not want to move.

Do you have any difficulty sorting out your money or financial affairs?

6Ba. (If yes) Would you be prepared to accept help so that you could try to do this better? (By this we don’t mean having somebody to look after money for you but to help you to be more independent in looking after your own money.)

1 = Yes  2 = No  8 = Not known  9 = N/A

Additional Information:

7. Transport and Amenities

Are there any public facilities or amenities like libraries or restaurants that you are unable to use at present, but would like to use?

7a. (If yes) Would you be willing to accept help with this problem?

1 = Yes  2 = No  8 = Not known  9 = N/A

Is there anywhere locally that you need to go to but cannot because of difficulties using public transportation?

7b. (If yes) Would you be willing to accept help with this problem?

1 = Yes  2 = No  8 = Not known  9 = N/A

Additional Information:

8. Literacy

Do you ever have problems with reading and writing? (If yes) What sort of problems?

8a. (If reading poor) Would you like some help to improve your reading or writing?

1 = Yes  2 = No  8 = Not known  9 = N/A

Additional Information:
9. Work
(For those in employment) How satisfied are you with your work at present?
9a. (If dissatisfied) Would you like some help to find a different job? 9a
1 = Yes 2 = No 8 = Not known 9 = N/A

(For those not employed) Would you like to work?
9b. (If yes) Would you like somebody to help to find a job? 9b
1 = Yes 2 = No 8 = Not known 9 = N/A

Additional Information:

10. Social Life
(For those with no daytime activities) How do you spend your day at the moment? Are you satisfied with this?
10a Would you like more things to do during the day? you could try to do this better? 10a
1 = Yes 2 = No 8 = Not known 9 = N/A

How satisfied are you with your social life in general? Would you like to go out more?
10b Is this an area of your life that you would be prepared to accept some help with? 10b
1 = Yes 2 = No 8 = Not known 9 = N/A

Additional Information:
Instructions: These seven questions are all concerned with particular types of deviant, or embarrassing behaviour. Each question is followed by three possible answers. The answers show how often a type of behaviour happened. You answer each question by checking the ONE box which best describes the patient’s behaviour last week. Take account of any reports of incontinence, etc., which happened when you were not with the resident during the week.

Circle the appropriate number. 1 = Yes 2 = No 3 = Unknown

Part 1. Deviant Behavior

1. Was the resident incontinent?
   a. Incontinent of urine or feces more than once in the past week
      1 2 3
   b. Incontinent once in the past week
      1 2 3
   c. Never incontinent
      1 2 3

2. Was the resident physically violent?
   a. Violent (i.e., hit someone, broke something) more than once in the past week
      1 2 3
   b. Violent once in the past week
      1 2 3
   c. Never violent
      1 2 3

3. Did the resident hurt or mutilate her/himself?
   a. More than once in the week
      1 2 3
   b. Hurt self once in the week
      1 2 3
   c. No self-injury
      1 2 3

4. Was the resident sexually offensive in any way? (Judge offensiveness as a stranger would)
   a. More than once in the week
      1 2 3
   b. Once in the week
      1 2 3
   c. No sexually offensive behavior
      1 2 3
5. Did the resident leave the living area or facility without notice?
   a. More than once in the week 1 2 3
   b. Once in the week 1 2 3
   c. Never left 1 2 3

6. Did the resident shout or swear at others?
   a. More than once every day in the week 1 2 3
   b. Once, or on only some days in the week 1 2 3
   c. No shouting or swearing 1 2 3

7. Did the resident talk or laugh to her/himself?
   a. More than once every day in the week 1 2 3
   b. Once a day, or only on some days in the week 1 2 3
   c. Did not talk to self 1 2 3

Apart from the deviant behavior that occurred last week, what else occurred during the past 90 days? Check the line concerned & write alongside approximately when the behavior occurred.

1. Incontinence
2. Violence
3. Self mutilation
4. Sexual offensiveness
5. Absent without prior arrangement
6. Shouting at others
7. Talking to self

Part Two. General Behavior

Instructions
These 16 questions are all concerned with the social and everyday behavior of the resident. Each question is followed by a line. Next to each line are three statements. The statements range from the worst possible standard of behavior at the left to the standard of behavior expected from ‘normal’ people at the right. Answer each question by putting a mark through the line at the point which best shows how the resident has been during the last week. Remember, use the standard of ordinary life outside of the State Hospital; only consider the resident’s behavior over the last week, and make your rating by putting a mark through the line.

8. How well did the resident get along with others in the living area?

I---------------------------------------------------------------------------------------I
Very poor relationship Got along with some residents part of the time. Got along well with other residents.
Solitary and withdrawn.
9. How much did the resident mix with others outside of their living area?

| Did not mix socially in or outside the living area | Went to social activities or to outside activities | Mixed socially during outside activities |

10. What did the resident do with her/his spare time?


11. How active was the resident?

| Sat are lay most of the time in one place, without moving. | Periods of inactivity; otherwise moved reasonably normally. | Normal amount and speed of activity. |

12. How many words did the resident use when she/he spoke?

| Mute, or occasional sounds. | Spoke in short sentences only. | Talked for a normal length of time. |

13. How much did the resident initiate conversation?

| Never started a conversation. | Occasionally started a conversation. | Started conversation with staff & residents. |
14. How sensible was the resident’s speech?
Check, if mute ____________

I------------------------------------------------------------------------------------I
Bizarre, delusional or jumbled speech. Impossible to make out.  Talked some nonsense and some sense. Spoke sensibly and to the point.

15. How clearly did the resident speak?
Check, if mute ____________

I------------------------------------------------------------------------------------I
Speech unclear. Speech partly unclear but could be mainly understood. Speech was easily understood.

16. How good were the resident’s table manners?

I------------------------------------------------------------------------------------I
Bad table manners. A bit messy. Ate normally. Didn’t spill food. Would not have stood out in a restaurant.

spilt food all over front, spilt some food on self. Kept face, hands, hair clean & tidy throughout the day.

used fingers, scoffed food. (If staff fed resident, rate here.)

17. How well did the resident wash & care for her/himself?

If staff always completes, check ____________

I------------------------------------------------------------------------------------I
Did not wash (or shave). Attempts to wash (or shave) were not regular or of good quality. A bit dirty. Kept face, hands, hair clean & tidy

Face, hands, hair were dirty & untidy. (If staff washed or shaved resident, rate here.)
18. How well did the resident dress her/himself?
   If staff always completes, check _____________

Buttons undone, clothes disarranged, items of clothing missing. (If staff dressed resident, rate here).

Dressed self, but usually poor in 1 or 2 ways. Neatly dressed self. Would not stand out in public.

19. How well did the resident look after her/his own things?
   If staff always completes, check _____________

Bed unmade, clothes scattered, rubbish around bed area. (If staff made resident’s bed, rate here).


20. How much prompting or help did the resident need to do things for her/himself?

Cared for self & only did things if constantly supervised or tasks had to be done by staff.

Did some things with prompting & supervision. Did things without prompting or supervision.

21. How well did the resident manage money?
   If no money or managed all by other, check _____________

Poor use of money. failed to use it, lost it, or spent it all as soon as she/he got it. (If resident had no money, or if it was looked after by staff, rate here).

Spent some money on simple purchases. Used money correctly for various goods or services. Budgeted money over the week.
22. Did the resident use public facilities outside the State Hospital?

I-------------------------------------------------------------------------------------I
Never left the State Hospital. Visited local shops or parks. Used several facilities; i.e., restaurants, attractions.

Overall Rating

23. How good was the resident’s general behavior last week?

I-------------------------------------------------------------------------------------I
Taking everything into account, into very poor socially & at doing things for self. Several problems were present which would affect the resident’s ability to live outside the State Hospital. Taking everything account, as good socially & at looking after oneself, as needed to live outside the State Hospital.

In answering the questions so far you have considered the resident’s behavior during the last week. On the whole, was the resident’s behavior during the week:

Better than usual
About the same as usual
Worse than usual

Add any comments that you wish about the resident’s behavior.

Cardinal Needs Schedule

The Caregiver Stress Interview

Instructions

Although looking after the mentally ill can be very rewarding, it can also be stressful. The purpose of this interview is to determine how far caring for _________________ puts you under stress. This stress may be felt in three different ways:

a. The first way a behavior can put you under stress is by making you or other caregivers worried or anxious.

b. The second way a behavior can cause stress is by making you or other caregivers angry or upset.

c. The third way a behavior can cause stress is by making it difficult for you to get on with your normal routine at home or at work.

Please bear these three types of stress in mind while you are answering the following questions. Thank you.

1. Overall rating of stress

1a. Does caring for _________________ put you under stress?

1 = No stress or occasionally stressful (once a month)
2 = Stressful sometimes (once a week)
3 = Stressful most of the time (most days)
4 = Constant stress (all of the time)

Additional Information:

2. Anxiety or depression

Over the past month has _________________ worries or anxieties been a problem for you?

2a. (If so) Do they put you under stress (i.e. do they make you worried, angry or make it difficult for you to get on with your normal routine?)

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A
2b. What about other staff/relatives, does it put them under stress?

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A

Over the past month have low moods been a problem for you?

2c. (If so) Has it put you under stress? (i.e. do they make you worried, angry or make it difficult for you to get on with your normal routine?)

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A

2d. What about other staff/relatives, has it worried them or got on their nerves?

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A

Additional Information:

3. Self Harm or Violence

3a. Over the past month, have you felt worried or at risk because you felt that might become violent?

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A

3b. Over the past month, to your knowledge, have other members of staff/relatives felt this way?

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A

3c. Over the past month, have threatened to harm themselves or actually harmed themselves? Has this put you under stress? (For example has it made you worried, angry or made it difficult for you to get on with your normal routine.)

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A

3d. What about others, have they been worried or upset by it?

1 = Often, 2 = Sometimes, 3 = Rarely, 4 = Never, 8 = Not known, 9 = N/A

Additional Information:
4. Health
Are you or others worried about ________________ physical conditions?  
4a. (If yes)
   i. Is this because it is difficult for you to manage?
   ii. Or is it because you think something is wrong but do not know what it is?
   iii. Or is it because you think they need treatment that they are not getting?

1 = Yes to i, ii, or iii; 2 = No to i, ii, or iii; 8 = Not known; 9 = N/A

Additional Information:

5. Socially Embarrassing Behaviors
Does ________________ have a problem with any of the following?
   i. Incontinence?
   ii. Swearing?
   iii. Sexually offensive behavior?

5a. (If yes)
   i. Has this behavior put you under stress? (i.e., has it made you worried, angry or made it difficult for you to get on with your normal routine?)
   ii. Has this behavior been stressful to others?
   iii. Have these problems (List the offensive behaviors) gotten this person into trouble in the past 90 days?

1 = Yes to i, ii, or iii; 2 = No to i, ii, or iii; 8 = Not known; 9 = N/A

Additional Information:

6. Domestic Skills
Does ___________________________ have any problems with cleaning and tidying, getting meals or shopping?

6a. (If yes) Does it put you under stress? (In the sense that it makes you worried, angry or difficult for you to get on with your normal routine?)

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

Additional Information:
7. Finance and Health

Does ____________________ have any difficulty in managing their own money or financial affairs?

i. Does this put you under stress (i.e. Does it make you worried, angry or difficult for you to get on with your normal routine?)

ii. Is ____________________ likely to lose their place here because of this problem?

1 = Yes to i or ii; 2 = No to i or ii; 8 = Not known 9 = N/A

Additional Information:

8. Social Life

Does ____________________ spend a lot of time on the ward during the day?

8a. (If yes) Does this put you under stress (i.e. Does it make you worried, angry or difficult for you to get on with your normal routine?)

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

Additional Information:

9. Transport and Amenities

Does ____________________ have any trouble using public transport or public amenities?

9a. (If yes) Does the fact that they cannot use public transport or amenities cause you any problems?

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

Additional Information:
10. Hygiene and Dressing

Does ______________ have a problem with personal hygiene (washing & dressing)?

10a. Is this a major problem for you as a caregiver? (By this we don't mean that you have to help them a lot, but rather the fact that you have to help them puts you under a lot of stress, i.e., forcing someone to take a bath, or having to spend so much time that you cannot cope with the rest of your work).

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

Additional Information:

11. Supplementary Questions

The last few items are general questions concerned with how well you think residents are able to cope in their day to day life.

11a. Is ______________ able to get their own meals? 11a

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

11b. Is __________ generally able to do their own shopping? 11b

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

11c. Is __________ generally being exploited financially to the extent that this is seriously affecting quality of life?

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

11d. Is ______________ able to use public transportation? 11d

1 = Yes, 2 = No, 8 = Not known, 9 = N/A
The Additional Information Questionnaire

Instructions

The Additional Information Questionnaire should be completed following the Resident Opinion and Caregiver Stress Interviews. Investigators are also advised to study clinical notes before completing this questionnaire. Any intervention which has been offered recently (within 30 days) should be recorded in the additional information section at the end of this questionnaire. This should include nursing care plans, medications, psychological or treatment interventions, etc.

1. Psychotic Symptoms
   1a. Over the past month, has the resident put his or her health or safety at risk through bizarre or neglectful behavior? (for example by gross self neglect or gross disregard of personal safety.)

   1 = Yes, 2 = No, 8 = Not known, 9 = N/A

   Additional Information:

2. Self Harm or Violence
   2a. Has the resident seriously injured anyone through violence in the past five years?

   1 = Yes, 2 = No, 8 = Not known, 9 = N/A

   2b. (If yes) Has she/he seriously injured anyone through violence in the past year?

   1 = Yes, 2 = No, 8 = Not known, 9 = N/A

   2c. Has the resident deliberately set fires inside the State Hospital in the last five years? (This doesn’t include Accidental fires).

   1 = Yes, 2 = No, 8 = Not known, 9 = N/A
2d. (If yes) Has she/he set fires inside the past year?  

1 = Yes, 2 = No, 8 = Not known, 9 = N/A  

2e. Should she/he be considered serious risk to members of the public?  

1 = Yes, 2 = No, 8 = Not known, 9 = N/A  

2f. Has there been any suicide attempts or episodes of self harm in the past year, for example permanent mutilation (deep cutting) or potentially life threatening overdoses?  

1 = Yes, 2 = No, 8 = Not known, 9 = N/A  

Additional Information:  

Organic Disorder  

3a. Has there been a major global deterioration in the resident's memory or self-care skills over the past year which was not attributable to florid psychotic symptoms?  

1 = Yes, 2 = No, 8 = Not known, 9 = N/A  

3b. Was there evidence of organic disorder at this interview?  

1 = Yes, 2 = No, 8 = Not known, 9 = N/A  

3c. Was there evidence from notes that organic disorder is present?  

1 = Yes, 2 = No, 8 = Not known, 9 = N/A  

If yes to any question, administer the Mini Mental Status Questionnaire Examination and enter the MMSE score on Autoneed through the 'Auxiliary Schedules' screen.  

Additional Information:
4. Health
   4a. Was there evidence of physical disorder at interview?  
       1 = Yes, 2 = No, 8 = Not known, 9 = N/A

   4b. Was there evidence from the clinical notes that physical disorder was present?  
       1 = Yes, 2 = No, 8 = Not known, 9 = N/A

   4c. Was there evidence of serious physical disorder? (either a chronic disabling condition or a non-trivial acute condition?)  
       1 = Yes, 2 = No, 8 = Not known, 9 = N/A

   Additional Information: (Record details of any problems with physical health and current treatments below)

5. Socially Embarrassing Behaviors
   5a. Has the resident been arrested in the past year because of socially embarrassing behaviors?  
       1 = Yes, 2 = No, 8 = Not known, 9 = N/A

   Additional Information:

6. Finance and Welfare
   6a. Is the resident:
       i. Homeless (living in a night-shelter or dormitory)?
       ii. About to be evicted.
       iii. Living in sub-standard accommodation

       1 = No to i., yes to ii.  2 = No to ii, yes to i.  8 = Not known  9 = N/A

   Additional Information:
7. Work
7a. Is the resident employed (including part-time, sheltered or voluntary work?)

1 = Yes, 2 = No, 8 = Not known, 9 = N/A

Additional Information:

8. Social Life
8a. How does the resident spend her/his time during the day?

1 = Employed, 2 = Attends daytime activities,
3 = Attends activities rarely or does not attend,
8 = Not known, 9 = N/A

8b. How often does the resident go out at night to visit friends or attend some social event or entertainment?

1 = Hardly ever, 2 = Once or twice a month,
3 = At least once a week, 8 = Not known, 9 = N/A

Additional Information:
Subject ID _____ Fall No Fall Date ______________________________

Self-Efficacy Scale (Direct Care Staff)

This questionnaire is a series of statements about your personal attitudes and traits. Each statement represents a commonly held belief. Read each statement and decide to what extent it describes you. There are no right or wrong answers. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by marking the number that best describes your attitude or feelings. Please be very truthful and describe yourself as you really are, not as you would like to be.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Neither Agree Or Disagree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. I like to grow house plants.  
2. When I make plans, I am certain I can make them work. (GSE)  
3. One of my problems is that I can not get down to work when I should. (GSE)  
4. If I can’t do a job the first time, I keep trying until I can. (GSE)  
5. Heredity plays the major role in determining one’s personality.  
6. It is difficult for me to make new friends. (SSE)  
7. When I set important goals for myself, I rarely achieve them. (GSE)  
8. I give up on things before completing them. (GSE)  
9. I avoid facing difficulties. (GSE)
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Neither Agree Or Disagree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

10. I like to cook. 1 2 3 4 5

11. If I see someone I would like to meet, I go to that person instead of waiting for her or him to come to me. (SSE) 1 2 3 4 5

12. If something looks too complicated, I will not even bother to try it. (GSE) 1 2 3 4 5

13. There is some good in everybody. 1 2 3 4 5

14. If I meet someone interesting who is very hard to make friends with I’ll soon stop trying to make friends with that person. (SSE) 1 2 3 4 5

15. When I have something unpleasant to do, I stick to it until I finish. (GSE) 1 2 3 4 5

16. When I decide to do something, I go right to work on it. (GSE) 1 2 3 4 5

17. I like science. 1 2 3 4 5

18. When trying to learn something new, I soon give up if I am not initially successful. (GSE) 1 2 3 4 5

19. When I’m trying to become friends with someone who seems uninterested at first, I don’t give up very easily. (SSE) 1 2 3 4 5

20. When unexpected problems occur, I don’t handle them well. (GSE) 1 2 3 4 5

21. If I were an artist, I would like to draw children. 1 2 3 4 5
<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Moderately Disagree</th>
<th>Neither Agree Or Disagree</th>
<th>Moderately Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

22. I avoid trying to learn new things when they look to difficult for me. (GSE)  
23. Failure just makes me try harder. (GSE)  
24. I do not handle myself well in social gatherings. (SSE)  
25. I very much like to ride horses.  
26. I feel insecure about my ability to do things. (GSE)  
27. I am a self-reliant person. (GSE)  
28. I have acquired my friends through my personal abilities at making friends. (SSE)  
29. I give up easily. (GSE)  
30. I do not seem capable of dealing with most problems that come up in life. (GSE)  

31. Open-ended questions about falls.  
31a. Can you tell me about how you prevent falls.  
31b. Have you received inservice training about falls?
31c. If so, what type of training.

31d. Do you think it was helpful?
APPENDIX B
METHODOLOGY DIAGRAM
METHODOLOGY DIAGRAM
RESIDENTS OF WELLSPRING

Approval by Committee for the Protection of Human Subjects
University of Florida

Permission from Administrator
Names of Residents from Fall Risk Incident Review and Daily Census Roster will be obtained from Administrator

Permission from Residents/Guardians and Signing of Informed Consent
Request Residents' Consent to Participate
Request Consent from Guardian
Informed Consent Form Signed

PHASE I - Retrieval of Recorded Demographic and Clinical Data

RECORDS REVIEW
1. Demographic Data Form
2. Medication Profile Data Form
3. PANSS

PANSS Scores > 25 - for any of the 5 factors, resident is debriefed and discontinued from study

FACE-TO-FACE INTERVIEW
4. SF-36v2 Health Survey
5. Personal Experiences with Medications
6. Clock Drawing Test (Residents 65 years & >)
7. MMSE (Residents 65 years & >)

Clock Drawing Test scores < 6, or MMSE scores < 23 - resident is debriefed and discontinued from study.

PHASE II - Face-to-Face Interviews Using Two Subscales of the Cardinal Needs Schedule

8. Demographic Characteristics Survey
9. Resident Opinion Interview (ROI)

PHASE III - Records Review Using One Subscale of the Cardinal Needs Schedule

12. The Additional Information Questionnaire

Resident Debriefing

152
METHODOLOGY DIAGRAM
DIRECT CAREGIVERS OF WELLSPRING

Approval by Committee for the Protection of Human Subjects
University of Florida

Select Direct Caregiver who is assigned the care of 
residential study participant

Attain Informed Consent

Request Direct Caregivers’ Consent to Participate in the Study
Informed Consent Form Signed

Face-to-Face Interview

10. Cardinal Needs Schedule: REHAB Scale
11. Cardinal Needs Schedule: The Direct Caregiver Stress
Interview
13. Self-Efficacy Scale

Caregiver Debriefing
APPENDIX C
INSTITUTIONAL REVIEW BOARD STUDY ACCEPTANCE
AND PROTECTION OF HUMAN SUBJECTS
INSTITUTIONAL REVIEW BOARD STUDY ACCEPTANCE 
AND PROTECTION OF HUMAN SUBJECTS

This study was submitted for approval by the Committee for the Protection of Human Subjects at the University of Florida, Gainesville, Florida. This discussion involves six essential elements.

1. The researcher attained written permission from the long-term state mental health treatment facility’s administrator for the facility’s clinical records to be reviewed and the residents and direct caregivers to participate in the study. The researcher also attained informed consent from three parties (1) residents who had not fallen within the past year (or their Guardian), (2) residents who had no recorded history of falls within the past year (or their Guardian), and (3) direct caregivers. The purpose of the research and the procedure was carefully explained to the participants. The researcher detailed the participant’s anticipated roles, levels of involvement, and the anticipated time frame of the study. The informed consent forms and all data collected were treated in confidence. These documents were stored under lock and key in the researcher’s professional office and will be retained for five years. No one but the researcher had access to these data.

2. The researcher reviewed the Risk Incident Review (RIR) and the “Daily Census Roster” to determine the potential subjects for this study. If the resident’s name had been recorded in the RIR or “Daily Census Roster”, she/he was considered to be a potential subject. From this list, the researcher invited individuals to participate in this study who were 18 to 103-year-old females and males. The inclusion criteria were those
participate in the study and sign the informed consent form or whose guardian was willing to sign the consent form; and were currently residing at Wellspring.

The exclusion criteria were residents who were not willing to sign an informed consent form; were under the jurisdiction of the Court; had a developmental disability or other cognitive disability such as dementia that would prohibit them from participating in the study; and who no longer resided at Wellspring.

3. The researcher retrieved information from the resident’s records regarding (a) psychotropic medications currently prescribed, (b) amount of education, (c) SCI-PANSS scores, and (d) prior fall history. This study partially relied on a resident’s self-reported information through a private face-to-face interview and individually administered research instruments.

4. There were very limited risks to the participants in this study. In fact, when a resident participated in the study, the benefits became apparent and included heightened staff awareness about (a) resident’s perception of deficits in their physical health (b) Cardinal Risk Factors and identified interventions for decreasing risks; (b) resident’s knowledge about their medications and possible deleterious effects from the medications; and (c) cognitive deterioration or severity of psychiatric symptoms. Once a resident agreed to participate and chose not to answer specific questions, the researcher at no time throughout this study, attempted to coerce any subject to respond to questions. All participants were free to withdraw from the study at any time. If any individual decided to withdraw from the study, that decision did not affect their treatment in any way.
5. Confidentiality on all information was carefully maintained. Participants' names were not entered onto any of the questionnaires or other data-collecting instruments. All data were coded, with a master codebook of corresponding participant names and code numbers. Only the researcher had access to the codebook that was kept under lock and key in the researcher's professional office. Scientific articles, presentations, publications, etc. will reflect only the use of aggregate data. No one, including the researcher of this study, will be able to determine which participant made specific responses or remarks.

6. One thing might change whether or not the researcher would talk with someone else about potential subjects and their care at the psychiatric residential facility. If a potential subject was suspected of being abused, or neglected, or if that person's rights were being violated, (i.e., withholding treatment) then the law requires that the researcher must let someone know about it so the person can get help. Also, if the potential subject indicated that she/he is suicidal, homicidal or having other destructive thoughts, the researcher responded and shared this information with the professional staff members who were responsible for the individual’s care. If this situation should have occurred, the researcher would also inform the participant that this information was being provided to those responsible for her/his care, and the reason for sharing it.

There were two telephone numbers that the researcher had access to report abuse, neglect, or violation of a resident’s right. The two telephone numbers are 1-800-96-ABUSE or 1-800-342-0823. If the situation would have occurred, before the researcher telephoned someone at either of these numbers, she would have discussed it with the resident, staff, and the administrator at the psychiatric residential facility, then the
researcher would make the telephone call and report the concern. The researcher would have also shared with all responsible parties what would have been said to the persons at either or both of the two identified telephone numbers.
REFERENCES


Morse, J., Black, C., Oberle, K., & Donahue, P. (1989). A prospective study to identify the fall-prone patient. *Social Science and Medicine, 28*(1), 81-86.


BIOGRAPHICAL SKETCH

Jacquelyn Kay Janovsky Warren began her nursing education while on active duty with the United States Army. At that time, the military was funding a variety of degree programs, to include nursing. She attained a Bachelor of Science degree in nursing from the University of Wisconsin – Milwaukee in 1973, and was commissioned as a First Lieutenant shortly thereafter.

After completing the Army Operating Room Nurse Course, she found herself assigned to a number of interesting duty assignments, most of them overseas. Her interest in cultural influences on healthcare delivery and practices began to grow, and she found herself desiring to further her education. In addition to her developing interest in an anthropological perspective of nursing, she soon found her niche in the operating room as a perioperative nurse. The perioperative role afforded her the opportunity to hone communication skills, and develop relationships with her patients.

After leaving the military, she came to the University of Florida in pursuit of knowledge. In 1989, she graduated with her Masters Degree in Psychiatric-Mental Health Nursing.

Currently, she works for the State of Florida Department of Children and Families in the field of psychiatric nursing. She is an appointed member of the State Formulary Committee and the Department of Children and Families Pharmacy and Therapeutics Committee.
I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Faye A. Gary, Chair  
Distinguished Service Professor of Nursing

Lois Malasanos  
Distinguished Service Professor of Nursing

Hossein Yarandi  
Associate Professor of Nursing

Martha I. Hardman  
Professor of Linguistics

Terry Mills  
Assistant Professor of Sociology
This dissertation was submitted to the Graduate Faculty of the College of Nursing and to the Graduate School and was accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

May 2003

[Signature]
Dean, College of Nursing

[Signature]
Dean, Graduate School