The Association of Health Literacy with Self-care Agency in Older Adults in Jamaica

Heather F. Fletcher

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The Association of Health Literacy with Self-care Agency
in Older Adults in Jamaica

by

Heather F. Fletcher

______________________________

A Dissertation submitted in partial satisfaction of
the requirement for the degree of
Doctor of Philosophy in Nursing

______________________________

June 2014
Each person whose signature appears below certifies that this dissertation in his/her opinion is adequate, in scope and quality, as a dissertation for the degree Doctor of Philosophy.

_________________________________________, Chairperson
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_________________________________________
Eileen Fry-Bowers, Associate Professor of Nursing

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Mark Haviland, Professor of Psychiatry, School of Medicine
ACKNOWLEDGEMENTS

I would like to use this opportunity to thank all the persons who have contributed to the completion of the dissertation. Thanks to my mother (now deceased) for the inspiration for the topic on health literacy. Special thanks to the dissertation committee members – Dr. Betty Winslow (chair), Professor of Nursing, Dr. Mark Haviland, Professor of Medicine and Nursing and Dr. Eileen Fry-Bowers, Associate Professor of Nursing who provided expert scholarly guidance and supportive feedback. Although the comments challenged me at times, they were also a source of inspiration and scholarship.

To the Loma Linda University School of Nursing, Dr Karen Radke, and the Northern Caribbean University who provided financial support without which I would not have been able to pursue this degree. Thanks to Professor Richard Osborne and the Health Literacy team at the Deakin University for access to and the provision of technical support with the use the newly developed Health Literacy Questionnaire. Special thanks to Dr. Marge Bott who permitted the use of Dr. Valmi Sousa’s (now deceased) Appraisal of Self-care Agency Scale – Revised version. I am indebted to Dr. Soo Borson for the use and research support of the Mini-Cog. Thanks to Dr. Soo Borson for the use and research support of the Mini-Cog. Thanks to Dr. M. Haviland – Loma Linda University, Dr. RV Rikard – North Carolina State University and Mr. Calvin Campbell – Northern Caribbean University for the invaluable statistical support. Special thanks to Dr. Carol Barnes Reid who provided local support. I am grateful to Mrs. Sonia Lewis for editorial assistance. Thanks to the older adults who participated in the pilot studies and the dissertation research conducted in Jamaica. I am grateful to the many persons who offered support, encouragement and prayers without which I could not have been successful. My family’s love cannot be overstated; thanks to my husband, Astley and our
three daughters – Lasonya, Larytha, and Lamoyje’ for their unswerving loyalty during the years of my academic pursuit. Finally, thanks to God for enabling strength.
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**ABBREVIATIONS**

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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ADL</td>
<td>Activities for Daily Living</td>
</tr>
<tr>
<td>AGFI</td>
<td>Adjusted Goodness of Fit Index</td>
</tr>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
</tr>
<tr>
<td>ASAS-R</td>
<td>Appraisal of Self-Care Agency Scale</td>
</tr>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>CFA</td>
<td>Confirmatory Factor Analysis</td>
</tr>
<tr>
<td>CFI</td>
<td>Comparative Fit Index</td>
</tr>
<tr>
<td>CI</td>
<td>Confidence Interval</td>
</tr>
<tr>
<td>CINAHL</td>
<td>Cumulative Index to Nursing and Allied Health Literature</td>
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<tr>
<td>CNCDS</td>
<td>Chronic Non-Communicable Diseases</td>
</tr>
<tr>
<td>df</td>
<td>Degrees of Freedom</td>
</tr>
<tr>
<td>ED</td>
<td>Electoral District</td>
</tr>
<tr>
<td>EFA</td>
<td>Exploratory Factor Analysis</td>
</tr>
<tr>
<td>F</td>
<td>$F$-value in Multiple Regression</td>
</tr>
<tr>
<td>GFI</td>
<td>Goodness of Fit Index</td>
</tr>
<tr>
<td>HbA$_1c$</td>
<td>Glycosylated Hemoglobin</td>
</tr>
<tr>
<td>HeLMS</td>
<td>Health Literacy Management Scale</td>
</tr>
<tr>
<td>HLQ</td>
<td>Health Literacy Questionnaire</td>
</tr>
<tr>
<td>HTN</td>
<td>Hypertension</td>
</tr>
<tr>
<td>IADL</td>
<td>Instrumental Activities for Daily Living</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>JADEP</td>
<td>Jamaica Drug for the Elderly Program</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------------------------------------</td>
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<tr>
<td>JAMAL</td>
<td>Jamaica Movement for the Advancement of Literacy</td>
</tr>
<tr>
<td>LAC</td>
<td>Latin America and the Caribbean</td>
</tr>
<tr>
<td>M</td>
<td>Mean</td>
</tr>
<tr>
<td>MEDLINE</td>
<td>Medical Information from the U.S. National Library of Medicine</td>
</tr>
<tr>
<td>MeSH</td>
<td>Medical Subject Headings</td>
</tr>
<tr>
<td>MMSE</td>
<td>Mini Mental State Examination</td>
</tr>
<tr>
<td>N and n</td>
<td>Number of Subjects</td>
</tr>
<tr>
<td>NAAAL</td>
<td>National Assessment of Adult Literacy</td>
</tr>
<tr>
<td>NHF</td>
<td>National Health Fund</td>
</tr>
<tr>
<td>OR</td>
<td>Odds Ratio</td>
</tr>
<tr>
<td>p</td>
<td>Probability Value</td>
</tr>
<tr>
<td>PASW</td>
<td>Predictive Analytic Software (SPSS)</td>
</tr>
<tr>
<td>PCLOSE</td>
<td>$p$ of Close Fit</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan American Health Organization</td>
</tr>
<tr>
<td>PATH</td>
<td>Program for Advancement through Health and Education</td>
</tr>
<tr>
<td>PubMed</td>
<td>Public Medicine (biomedical citations)</td>
</tr>
<tr>
<td>r</td>
<td>Correlation Coefficient</td>
</tr>
<tr>
<td>$R^2$</td>
<td>Coefficient of Determination</td>
</tr>
<tr>
<td>REALM</td>
<td>Rapid Estimate of Adult Literacy in Medicine</td>
</tr>
<tr>
<td>RMR</td>
<td>Root Mean Square Residual</td>
</tr>
<tr>
<td>RMSEA</td>
<td>Root Mean Square Error of Approximation</td>
</tr>
<tr>
<td>sTOFHLA</td>
<td>Short Test of Functional Health Literacy in Adults</td>
</tr>
<tr>
<td>SD</td>
<td>Standard Deviation</td>
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<table>
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<tr>
<th>Abbreviation</th>
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<tr>
<td>SJE</td>
<td>Standard Jamaica English</td>
</tr>
<tr>
<td>SKILLD</td>
<td>Spoken Knowledge in Low Literacy in Diabetic Scale</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences (PASW)</td>
</tr>
<tr>
<td>STATIN</td>
<td>Statistical Institute of Jamaica</td>
</tr>
<tr>
<td>$t$</td>
<td>Student’s $t$, (a statistical hypothesis test)</td>
</tr>
<tr>
<td>TLI</td>
<td>Tucker-Lewis Index</td>
</tr>
<tr>
<td>TOFHLA</td>
<td>Test of Functional Health Literacy in Adults</td>
</tr>
<tr>
<td>UNESCO</td>
<td>United Nations Educational, Scientific and Cultural Organization</td>
</tr>
<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>$\bar{x}$</td>
<td>Mean</td>
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<td>$\alpha$</td>
<td>Alpha</td>
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ABSTRACT OF THE DISSERTATION

The Association of Health Literacy with Self-care Agency in Older Adults in Jamaica

by

Heather F. Fletcher
Doctor of Philosophy Graduate Program in Nursing
Loma Linda University, June 2014
Dr. Betty Winslow, Chairperson

Older adults are the fastest growing segment of the population in Jamaica. With an increase from 10% (252,225) of the total Jamaican population in 1995 to 11% (279,051) in 2005, the rate is expected to rise to 25% by 2025. Thus, it will be critically important to understand factors that may contribute to health maintenance, disease prevention, and wellness promotion. Two such factors – not studied extensively in this country - are health literacy and self-care. The purposes of this study were to (a) generate health literacy profile data with the newly-developed Health Literacy Questionnaire for community-dwelling older adults in Jamaica and (b) determine whether relationships exist among aspects of health literacy and self-care practices while controlling for potential socio-demographic influences. The research design was cross-sectional and correlational; multistage sampling and a survey were used. The Health Literacy Questionnaire measures nine aspects of health literacy (e.g., gathering, reading, and understanding health information, social support, and healthcare provider and system engagement). Self-care was measured with an established scale, Appraisal of Self-care Agency Scale. A sample of 200 community-dwelling elders 60 years and older completed the survey. Because the Health Literacy Questionnaire is new, there are no published
normative data. There was variation in scores across the nine aspects of health literacy, and among the highest scores were those for social support and active engagement with healthcare providers. Scores for self-care were relatively high, with 84% of the sample scoring in the high perceived capacity range (based on an established cut-off score). As predicted, there was a strong positive correlation between health literacy and self-care. Regression analysis revealed three of the health literacy scales—critical appraisal, social support, and ability to engage the healthcare provider—to be statistically significant predictors for self-care after controlling for education, region, health status, age, and sex.

It seems reasonable to conclude that gains in health literacy can facilitate improvements in older adults’ self-care ability. Nurses can play pivotal roles in this by assessing health literacy, providing education and information, and, particularly, fostering genuine understanding.

Key words: older adult, community dwelling, health literacy, self-care, self-care agency
CHAPTER ONE
INTRODUCTION

Older adults are the fastest growing segment of the population in the Latin America and the Caribbean region (LAC) and the world. This increase in longevity and improved health in the LAC, of which Jamaica is a part, is related to successes of the 20th century, such as the decrease in infant mortality and health care advances. The World Health Organization (Barreto et al., 2012) has noted that older adults within this region will experience longevity accompanied by disability. This is related to the lack of available resources to meet the growing health demands to institute and maintain health promotion and illness preventative programs. Consequently, Morris, James, Laws and Eldemire - Shearer (2011) believe that health promotion strategies for older adults should not only be age-specific but also include self-management information on chronic diseases.

Approximately 8% of the population in the LAC region are over sixty years, and this trend is expected to continue with this group increasing to 25% of the population by 2025. The prevalence of disability related to chronic non-communicable diseases (CNCDs) has been on the rise with the increase in the elderly population. Unfortunately, CNCDs constitute the leading cause of morbidity and mortality in LAC especially among elders who reside in rural districts. This scenario is complicated by poverty, lack of money to meet health care needs, changes in the family structure resulting in little support for the aged person, and functional limitations (Powell et al., 2012).

With a population of approximately 2,868,380 people, Jamaica, the study site, is located in the Caribbean, south of Cuba. This island reports a life expectancy of 73.45
years ("CIA: The World Factbook: Jamaica," 2011). Among those who are considered older (75-84 years) and oldest (85 years and older), men experience better health than women of the same cohort with rural elders reporting lower health status (Bourne, 2009). For older adults to experience positive health outcomes, they will need the support of the health care system.

The Jamaica healthcare system has been influenced over the years by the ideologies of successive governments, healthcare reform policies such as the Moyne Commission, the socio-political realities and epidemiological factors. One of the key objectives of the healthcare system is to promote health and wellness for the populace. This realization has been challenged by many local and international economic factors. In 2008, the government instituted a no user fee policy. This free health care policy resulted in an increased demand for goods and services and overburdened workers. The government has been unable to effectively delivery healthcare due to lack of funds to provide adequate budgetary allocations. Consequently, the health system is in crisis. Regardless of this austerity and the associated poverty affecting many older adults, Jamaica has been able to achieve some success in providing better access to healthcare (Barnett, Lalta, & Bailey, 2010; P. Bourne, Solan, Sharpe-Pryce, Campbell-Smith, & Francis, 2013; De La Haye & Alexis, 2012; Maharaj, 2010). The changes in the healthcare delivery system are not unique to Jamaica.

In the US, not only is the health care system changing, but it also is complex. This complexity can create disparities for the aging person. To complicate the scenario, there is a growing concern that inadequate literacy skills are prevalent among those 65 years and older with almost one half or 44% scoring in the sixth grade level. If older
adults are to remain or become successful health consumers, they must be able to understand and use the health information (Bennett, Chen, Soroui, & White, 2009; Federman, Sano, Wolf, Sui, & Habn, 2009; Speros, 2005). The ability to be a successful health consumer may depend on the older adult’s level of health literacy.

Health literacy has been defined as the capacity to obtain process and understand health information to be used to make health decisions. General literacy and education can contribute to health literacy and positive health outcomes. There are however other factors to be considered such as advanced age, income, employment, working conditions and the social environment. Also, with many varying definitions available, there is no consensus with regards to what constitutes health literacy and the conceptual dimensions (Bostock & Steptoe, 2012; Kickbusch, 2002; Sørensen et al., 2012).

The Problem

The population of older adults in Jamaica is increasing based on improved health care and social factors. Increased longevity however, is associated with a high prevalence of chronic diseases, which are related to the aging process, lifestyle practices, cultural and health beliefs. Many older adults experience difficulty with reading and understanding general information based on their level of literacy (Sørensen et al., 2012). Hence, they are also at risk for inadequate health literacy which predisposes them to diminished self-care involvement thus affecting health and wellbeing (Bostock & Steptoe, 2012; Kim & Yu, 2010; S.Y. D. Lee, Arozullah, Cho, Crittenden, & Vicencio, 2009; Macabasco-O'Connell et al., 2011; Sudore et al., 2006).
Purposes and Aims of the Study

The purposes of this study are to (a) generate health literacy profile data with the newly-developed Health Literacy Questionnaire for community-dwelling older adults in Jamaica and (b) determine whether relationships exist among aspects of health literacy and of self-care practices. Broadly, health literacy – the capacity to obtain, process, understand and use basic health information (Harrison et al., 2010; S.Y.Lee, et al., 2004; Nielson-Bohlman, Panzer & Kindig, 2004; Osborne, et al., 2013; Paasche-Orlow & Wolf, 2007) – will be correlated with self-care, defined as the actions taken by an individual to preserve health and maintain well-being. Data will be gathered with a survey. The specific aims of the study are to: (a) determine levels of the nine aspects of health literacy for the entire sample (Jamaican adults 60 years and older) as well as by selected sample characteristics (e.g., gender and region); determine associations with selected sample characteristics such as age and health status, (b) determine levels of self-care using a single ASAS-R composite score for the entire sample as well as by selected sample characteristics (e.g., gender and region); determine associations with selected sample characteristics such as age and health status and (c) determine whether individual aspects of health literacy predict self-care.

Definitions of the Study

The following operational definitions will be used in this study:

- Older adults: The World Assembly, on Ageing in 1982, defined the “elderly” as persons aged 60 years and over (Oriol, 1982). For the purpose of this study, an elderly person is someone who has attained the chronological age of sixty years and over and
whose welfare is addressed in the *National Policy for Senior Citizens* in Jamaica (Eldemire-Shearer, 2008).

- **Community dwelling**: A residential environment where the older adult lives and self-care activities are performed.

- **Health Literacy**: Is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Paasche-Orlow & Wolf, 2005 & 2007; Harrison et al., 2010; Nielson-Bohlman, Panzer & Kindig, 2004; S.Y. Lee, et al., 2009) and as measured by The Health Literacy Questionnaire (Osborne, 2013).

- **Self-care**: Self-care practices are those deliberate activities that persons perform on their own behalf in order to maintain health, life and well-being (Orem et al., 2003; Sousa, 2010) as measured by the Appraisal of Self-care Agency Scale (ASAS-Revised).

- **Self-care Agency**: Is a multidimensional concept that includes the ability to engage in self-care actions conditioned by age, developmental state, life experiences, sociocultural orientation, health, motivation, energy and knowledge (Evers, Isenberg, Philipsen, Senten, & Brouns, 1993; Gast et al., 1989; Hart & Foster, 1998)

### Significance of the Study

### Significance to Theory

This study will address health literacy and its association with self-care which is of concern to the discipline of nursing. Hence, it is an appropriate topic for consideration. The application of Orem self-care theory can help to guide nursing practice. Nurses can use the theory to assess older adults based on their self-care agency, conditioning factors...
and their right to self-care. This study can produce findings that could add to our theoretical understanding of the concepts (health literacy and self-care).

The researcher used the Health Literacy Questionnaire (HLQ) in Jamaica (originally developed in Australia). Findings from this study may add to our conceptual understanding of health literacy and contribute to the development of the new HLQ measure. Health literacy is seen as a theory that supports behaviour change since it assists individuals to understand and use health information (Pleasant, 2011) and not just a collection of skills. As the knowledge evolution continues, this study can add to the promotion of behaviour change while expanding its scope by adding self-care from a Jamaican perspective. The Orem’s self-care theory was used to undergird this study. Wallace et al., (2012), in their systematic review on theory use, remark that many studies on health literacy could benefit from the use of Orem self-care theory.

**Significance to Practice**

Problems associated with inadequate health literacy is widespread and is linked to lower levels of self-reported health; less use of preventive care and cancer screening; less effective diabetes management, exacerbations in complications and increased hospital rates (Roter, 2011; Wolf, Gazmararian, & Baker, 2005). Considering that a study of this nature has not been done in Jamaica, the findings may be used to inform nursing practice as to the scope of health literacy among older Jamaican adults. This may stimulate discussions to identify strategies and solutions to create a more health literate older Jamaican population. The potential outcome of improved health literacy in older adults may result in better self-care performance.
As client advocates, nurses can sensitize the health care community regarding pertinent issues that could facilitate the older adults’ involvement in self-care. For example, the print literacy skills expectations for older adults may not be realistic considering the visual deficits that may be present. If older adults have access to relevant and appropriate information, they may be encouraged to take care of themselves. It would be useful for the elders to be screened for cognition status as this can affect their ability to process information and self-care. Additionally, nurses can evaluate programs that are designed to increase health literacy to ascertain whether they are relevant to the aging population. According to Evangelista and Shinnick (2008), clients cannot be expected to follow through with self-care activities unless they fully understand and can remember the information. Some older adults may be willing to do self-care but may suffer from the effects of aging such as vision and hearing deficits. Findings from this study can strengthen our empirical understanding of self-care from a Jamaican viewpoint. Considering that research can provide evidence for practice, the preliminary findings from this study could influence the caring and discharge protocols as it relates to the provision of health education to older adults. As nurses become more aware of the health literacy self-care issue, relevant interventions (based on recommendations from this study) could be implemented to assist older adults to understand and retain health information.

**Significance to Policy**

Economically, health literacy deficits are costly. An estimated $106-238 billion per year is spent in the US for associated health literacy deficit sequel (Low Literacy Report, 2007). There is evidence that deficits in health literacy contribute to increased
health care cost related to inappropriate uses of health services, poor self-management of health problems and medication errors. Persons with limited health literacy skills are twice as likely to die from complications related to ill-health or if alive tend to suffer poor quality of life (Cornett, 2009; Pawlak, 2008; Zarcadoolas, Pleasant & Greener, 2006 & Wolf et al., 2007).

According to Koh et al. (2012) approximately 12% of US adults are considered proficient in health literacy while 1/3 lacks the ability to critically appraise health information. Rehospitalisation of patients with (for example heart failure) cost over $10,000 per person. With discharge strategies that included patient education, rehospitalisation rates decreased by 30%. A comparison of the US and Jamaican statistics, may reveal rich information that could guide policy decisions. As a country, Jamaica faces severe financial challenges. It is highly probable that policymakers will be interested in using scarce health dollars to improve accessibility to healthcare system that meets the needs of older Jamaicans regardless of their level of health literacy (Koh et al., 2012).

This study is poised to help to identify the preliminary relationship of health literacy with self-care in Jamaica. The findings may be used to initiate a dialogue with the Ministry of Health regarding the possible roots of health literacy deficit and to evaluate the role health literacy can play in meeting the Millennium Development Goals (MDGs) target. With a growing population of older adults, the National Council for Senior Citizens in Jamaica could be encouraged to make health literacy one of its target goals. This policy intervention could result in self-care programs that would encourage older adults to make healthy lifestyle choices.
Significance to Nursing Research

This research is from a nursing perspective can contribute to existing empirical literature regarding health literacy and self-care. Considering that there seem to be limited studies done in nursing, this study could be added to the presentations on health literacy and self-care at conferences and workshops to inform the nursing fraternity. Also, this study could provide the background for other nursing studies to be done in Jamaica while widening the scope of the geographical areas.

This study is being done outside of the US within a different culture and setting. Sometimes studies on similar topics done in the US may not be relevant to other countries such as Jamaica. Hence, this study could provide information on health literacy and self-care that could be applicable to the Jamaican setting. The findings can provide additional insights into the health literacy-self-care discussion. As it relates to self-care, this study may provide a platform on which to build future nursing research. To date, no study of this nature has been conducted with the Jamaican population, hence, it will add to the body of knowledge in nursing and allied health disciplines. Also, with the use of the Health Literacy Questionnaire (HLQ), this study will contribute to tool validation. Extant research studies (especially from Australia) could be enriched by the findings from this study regarding the HLQ utilization in Jamaica (despite cultural differences) as the authors seek international utilization.

Chapter Summary

As the population of older adults in Jamaica continues to increase, there is a need for a more health literate people. If the benefits of health literacy are to be realised (that of people being able to access, read and understand health information in order to self-
care), nurses should advocate for policy changes so that more emphasis is placed on the older adult health education process. The discussion on inadequate health literacy and its effects on self-care activities in older adults is a pertinent and timely issue to be studied. Within the last decade, the healthcare environment has experienced significant technological advances resulting in more precise diagnosing and increases in treatment options. Life expectancy has increased, and people are able to live longer with more chronic diseases on a poly-pharmacy regime. Home-based self-care activities (e.g., proper nutrition and exercise) complemented by healthcare providers support are critical components especially in an economy where lack of funds to meet basic needs exist. Since health maintenance and disease prevention in older population are key indicators of a healthy nation, then one would understand the inestimable worth that health literacy and self-care can play in the process.

**Overview of Remaining Chapters**

This paper is organized in four remaining chapters – Literature Review, Methods, Findings, and Discussion sections respectively. Chapter Two will introduce the reader to the key concepts (health literacy, self-care agency in older adults) by positing a conceptual and research base complemented by a critical analysis of selected research studies. To cap the literature review, the Orem self-care theory as the theoretical framework relevant to the phenomenon is discussed. The Methods section will provide a discussion related to research design, sampling strategies, ethical issues and the tools used to measure the variables. The analysis plan (included in the Methods section) is designed to address the research aims from a statistical approach. A discourse regarding the data collected, the analysis and the results of the study are covered in the Findings
section. The final section discusses the interpretations of the findings, state the strengths and limitations of the study and provide recommendations for theory, policy, nursing practice and research.
CHAPTER TWO

LITERATURE REVIEW

Overview of Section

Although health literacy as a concept has been well documented and originated in the areas of medical field and public health, there is a growing contribution in the research literature from the nursing perspective. This input from the nursing discipline is important, as nurses have been contributing to the health literacy of clients through health education, providing support and helping clients to navigate the healthcare system. With such progress, this research study is poised to contribute to nursing knowledge. This could help to place this phenomenon within the spheres of practice, research, and education in nursing.

In contrast, self-care as a concept is widely studied and used within the nursing profession. Orem’s seminal work has contributed in a meaningful way (Faucett, Ellis, Underwood, Naqvi, & Wilson, 1990; Hartweg, 1990, 1991; Orem, Renpenning, & Taylor, 2003; Renpenning & Taylor, 2003). In addition, self-care is an older concept because people from ancient times have been caring for themselves and supporting self-care in others. The benefits of self-care have been both empowering for clients as well as the healthcare industry. This is so, (both empowerment and self-care are beneficial) as involvement in one’s care build self-efficacy and a desire to continue participation. Also, clients who are motivated to self-care can make health education and nursing care easier. Regrettably, the science of self-care has not kept pace with the evidence-based practice arena. Hence, the utility of the concept could be improved through this research.
The purpose of this chapter is to provide a comprehensive review of the existing body of theoretical and empirical knowledge related to health literacy and self-care. The literature review was done through the use of PubMed, CINAHL, Medline, Google Scholar and other reviews such as meta-analysis and meta-synthesis. Published works from 1990 to 2013 were used to capture both historical and current perspectives related to self-care and health literacy. A combination of terminologies from the Medical Subject Headings (MeSH) was used for searching key terms such as literacy, health literacy, self-care, older adults and self-care theory. The literature search included relevant articles from a cross-section of disciplines. The search was, however, limited to human subjects. Approximately eighty per cent of the articles were confined to issues related to the older adults (60 years and older). Only articles and reviews written in English were used.

The term literacy is defined, followed by a discussion regarding health literacy including its history, connection to the Jamaican language system and relevance to the study. A critical analysis of the relevant research articles is presented followed by a summary. Information related to the older adults such as aging theories, the epidemiology of aging and the value of health literacy to this population is addressed. Self-care as a concept is discussed from the historical and conceptual perspectives. Critiques of relevant research studies are included. Preceding the chapter summary is the section that focuses on the theoretical framework relevant to self-care. Orem’s self-care model as the underpinning theory for this study is described and evaluated for its utility.
Literacy

History and Definitions of Literacy

The history of literacy dates back to a paradigm shift from oral to a written tradition of communication among Egyptians and Greeks (Baines, 1983). According to the Merriam-Webster Online Dictionary (2010), literacy is a noun that was coined in 1883 that involves the ability to read and write. The word ‘literate’ according to the same source, is derived from the Middle English and Latin, meaning “marked letters.” Literacy as defined by the National Centre for Education Statistics (1992) as (cited in Speros 2005, p.2) is "using printed and written information to function in society to achieve one's goals. . .”

Likewise, the United Nations Educational, Scientific and Cultural Organization (UNESCO) states that literacy is a fundamental human right that should include educational opportunities and support that should be equitable for persons with or without disability (Keefe & Copeland, 2011). Adding to the discussion, Jolls and Thoman (2008) declared that in a global culture, for one to be considered literate, involves more than just reading and writing. One should be able to critically interpret the powerful images of the multimedia culture and to be able to express oneself. Other authors who have supported the value and benefit of literacy include Billek-Sawhney & Reichert, 2005; Jolls & Thoman., 2009 and Merchant & Carrington, 2009.

If a person is not literate, then health literacy can be a challenging task for both client and health care provider. Being literate can be considered the foundation from which health information can be shared. Jukkala, Deuprea, and Graham (2009) and Mika, Kelly, Price, Franquiz & Villarreal (2005) believe that inadequate health literacy skills
affects not only a client’s ability to obtain, interpret, and use information but also their ability to act on it. There is a need, the authors assert, for health care providers to be aware and knowledgeable of the influence inadequate literacy and health literacy skills can have on older adults. They argue that this deficit can make it more difficult if not impossible for the client to participate in preventive measures.

**History of Literacy in Jamaica**

Jamaica’s development of formal education started with the British model, which was specially designed for the White minority. The formation of the schools was done without the consideration of the differences between Jamaican and British cultures. In 1833, after the Abolition of Slavery Act, the Negro Education Grant was authorized in 1845. This resulted in the increased enrolment of Blacks but there were still concerns regarding their level of literacy. Out of this concern, a non-governmental organization called The Jamaica Welfare Ltd. was formed in 1936. This organization was renamed Jamaica Social Welfare Commission with the aim to reduce illiteracy as it was recognized as a barrier to efforts designed to improve social conditions (Riley, 2002).

Although the official language was English, the school system was influenced by a Creole-speaking environment. The English language was what the slave masters used while the slaves on the plantation spoke a variety of languages from West Africa. Consequently, as the language developed, the people of Jamaica adopted English, also called “Mother Tongue,” as the official language for classroom instruction for literacy. However, the English-lexicon Creole became the non-standard or colloquial dialect commonly known as “Patwa” (Bryan, 2004; Devonish & Carpenter, 2007).
In 1959, the first international conference on language policy was held at the University College of the West Indies, currently called the University of the West Indies. Advocates of this policy included Frederic G. Cassidy who posited the need for the visibility of the Creole languages. He believed that it was an integral part of the Jamaican people’s life that affected the way they think and behaved. He was adamant that any attempt to try to understand the people without including their languages would be futile. To aid this process, in 1970, UNECSO sponsored a survey that revealed that 40-50% of adults aged 15 and older were illiterate. This revelation resulted in the formation of the National Literacy Board in 1972. The plan was to eradicate illiteracy within four years. This literacy push led to the establishment (in 1974) of the Jamaica Movement for the Advancement of Literacy (JAMAL) currently called the Jamaica Foundation for Lifelong Learning (Devonish & Carpenter, 2007; Riley, 2002).

JAMAL’s successful literacy campaign from 1974 through 1989 resulted in more than 248,000 persons becoming functionally literate, but the struggle to achieve literacy was not over. There were concerns that efforts were being placed on teaching people a language (English) they could not speak or write. Patwa or the Creole was considered the ‘bad or broken English’ that was associated with the urban working class and the poor rural farming communities and by extension the ‘Black masses.’ Patwa was not associated with national identity or good self-esteem. It was used for ‘light moments’ and fun, whereas English was for serious work and formal expression. The reverse is that as society changes, there is an increasing demand for people to acquire functionally literate skills to navigate the world and to bring about change. Whereas both languages are used simultaneously, there are generational differences in language usage between
grandparents who were more likely to use Patwa than parents and children (Devonish & Carpenter, 2007; Riley, 2002).

In a Jamaican Ministry of Education and Culture policy document, literacy was defined as the ability to use critical understanding, problem solving and oral-aural skills (in Bryan, 1998 p. 56). A participatory action research study conducted by Cross (2003) highlighted the value of oral literacy used to reason or communicate in a creative manner, whereas the Standard Jamaican English (SJE) was minimized. The study showed that people were able to achieve realistic success in life without having the seemingly requisite literacy skills. Students’ ability to switch between the SJE and the Patwa created translation challenges for teachers and proved difficult for students. Patwa or Creole has been accepted as the vernacular for the majority of Jamaicans, and it is likely to be heard in places where people gather. These places include the marketplace, the media, i.e., the radio or TV, and in places such as Parliament and churches. People used the language that met their needs. So although English is presently considered the official language of Jamaica, Patwa is generally spoken and has formed part of the literacy development of the people and their culture. The literacy rate for Jamaica reported by UNICEF is 86% (Bryan, 2004; Cross, 2003; Devonish & Carpenter, 2007; Literacy –Jamaica, n.d.) This understanding of the Jamaican language is critical in the discussion regarding health literacy.

**Health Literacy**

**History of Health Literacy**

Although some believe that health literacy as an underlying thread in a quantity of written materials is visible as far back as the 1960s, the actual term evolved in the 1970s.
The term found its roots in a 1974 paper entitled *Health Education as Social Policy* (cited in Doak, C, Doak, L. & Root, 1985), in which health literacy was used as the goal to be realized for all grade levels. Between 1980 and 1990, there was a greater focus on patient and health education using the biomedical model. Health literacy as a concept is relatively new to public health, social science, nursing, and medical literature. Historically, nursing has not contributed significantly to health literacy clarification or research. There has also been a forging of interdisciplinary research involvement and participation in the measurement of health literacy (Cornett, 2009; Doak, C, Doak, L. & Root, 1985, 1996; Hepburn, 2012; Mancuso, 2008; Pawlak, 2005; Porche, 2009; and Speros, 2005). As the concept (health literacy) continues to evolve, it is important to note: (a) the scope of the definitions have broadened; (b) other emerging fields from medicine now have more disciplines, entering the discussion; (c) the delineation of types of health literacy (e.g., functional, interactive, and critical) and d) domains (e.g., clinical, prevention, and navigation of health system) have dominated the health literacy landscape. One cannot escape the dynamic nature of health literacy that begs for analysis, clarification, and synthesis as part of knowledge development for health promotion (Cornett, 2009; Doak, C, Doak, L. & Root, 1985, 1996; Hepburn, 2012; Mancuso, 2008; Pawlak, 2005; Porche, 2009; and Speros, 2005).

It must be noted that in this study, the discussion of health literacy, will deal primarily with adults. Everyday people are bombarded with health information in the media. However, some are unable to attach meaning to the messages. Even those who are considered literate sometimes find medical jargon daunting. One must now consider the fate of the illiterate. Mancuso (2008) speaking from an educator’s perspective, believes
that there is a complex relationship between literacy and health; in that, for the individual to attain the goals of health literacy (such as autonomy and well-being), instruction in basic literacy is a prerequisite.

The appeal is for those who teach to be concerned with cognitive and skill development and learner motivation. There continues to be a need for educators to examine the professional development practices that support adult literacy. Consequently, the long-term goal of achieving health literacy may be realised (Harrison, Mackert, & Watkins, 2010; Institute of Medicine, 2004; Lee, Arozullah, & Cho, 2004 Paasche-Orlow & Wolf, 2005 & 2007). From this perspective, nurse educators have a role to play by integrating the concept in the nursing curriculum.

**Definitions of Health Literacy**

Health literacy as defined by different authors is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions (Harrison et al. 2010; Nielson-Bohlman, Panzer, & Kindig, 2004; Lee, et al., 2004; Paasche-Orlow & Wolf, 2005 & 2007). Other authors (Berkman, Davis, & McCormack, 2010) believe that health literacy is the degree to which individuals can obtain process, understand, and communicate (oral and listening) health-related information to make informed health decisions.

In support of the communication aspect of health literacy, (Helitzer, Hollis, Sanders, & Roybal, 2012) posit that health literacy should include critical competencies such as multidimensional set of dispositions, ability to read and write, possess analytic skills to be able to work with numbers, be able to listen, speak and see, demonstrate the capacity to do problem-solving and make decisions. To complement those competencies,
a health literate person should demonstrate the motivation, self-efficacy and a willingness to seek health care when needed (Helitzer et al., 2012)

Another definition that has been proposed, states that health literacy can be considered a constellation of skills that includes the ability to perform basic reading and numerical tasks required to function in health care environment (American Medical Association, 1999 as cited in Speros, 2004 and Chew et. al., 2004). The World Health Organization (1998, as cited in Speros, 2005) declared that health literacy represents the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand, and use information in ways that promote and maintain good health. Yet another definition states that health literacy is a concept used to describe the individual’s literacy capacities that can act as a mediating factor in health and clinical decision making (Nutbeam, 2008).

An expanded definition suggested by Zarcadoolas, et al. (2006), is that health literacy is the wide range of skills and proficiency that people develop and use to understand, evaluate, and incorporate health information and concepts to make informed choices. This action can help to reduce health risks and increase quality of life. Mancuso (2008) adds language proficiency to the definition. Language use should include the individual’s ability to read, write, speak English, calculate and decipher problems at levels of proficiency that is deemed necessary to function on the job, in society, achieve one’s goals and to develop one’s knowledge and potential.

To extend the conceptual base from which to better understand health literacy, Speros (2005) used Walker and Avant’s technique to clarify the meaning of the concept. The concept analysis revealed that health literacy empowers people to act in new and
changing health-related situations by applying advanced cognitive and social skills. The defining attributes were: reading, numeracy, comprehension, capacity to use information in health, and successfully function as a consumer. Health literacy is conceptualized as a multidimensional concept (Shaw, Armin, Torres, Orzech, & Vivian, 2012) that includes other attributes such as skills and competence that influence health information seeking behaviour, the ability to understand, critique, and use health information. According to Federman et al. (2009) verbal fluency is an attribute associated with health literacy.

Consequences of being health literate as reported (Speros, 2005) are increased self-reported health status, lower health care cost, increased health knowledge, shorter hospitalization, and less frequent use of health care services. Shaw et al. (2012) reported decreased health risk and better quality of life as an end product of being literate while increased symptom awareness and decreased barrier to healthcare provider support (Boxell et al., 2012) were reported for those with adequate health literacy. For those with limited health literacy, the consequences included poor medication knowledge (Mosher, Lund, Kripalani, & Kaboli, 2012) and misunderstanding of prescription labels (Davis et al., 2006) due to reading difficulties that resulted in wrong interpretations.

The empirical referents included in the above mentioned articles were Test of Functional Health Literacy in Adults (TOFHLA), sTOFHLA, Rapid Estimate of Adult Literacy in Medicine (REALM), Short Assessment of Health Literacy for Spanish-speaking (SAHLSA), Newest Vital Signs and National Assessment of Adult Literacy (NAAL) (Boxell et al., 2012; Federman et al., 2009; Mosher et al., 2012; Shaw et al., 2012; Speros, 2005 & Wolf et al., 2006).
The analysis of health literacy was very useful as the material helped to clarify the concept, establish building blocks for research and inform nurses’ decision making skills in identifying persons who were at risk for inadequate health literacy.

For the purpose of this study, the conceptual definition of health literacy is the degree to which individuals have the capacity to obtain, process and understand basic health information and services needed to make appropriate health decisions (Paasche-Orlow & Wolf, 2005 & 2007; Harrison et al., 2010; Nielson-Bohlman., Panzer., & Kindig, 2004; & Lee, et al., 2004). This concept will be operationalized by using The Health Literacy Questionnaire (Osborne 2013).

**Critique of Health Literacy Studies**

**Health Literacy and Health Outcomes**

Health outcomes as a dependent variable in connection with health literacy have been widely studied. Based on the health literacy status, person can experience improvement or deterioration in ones’ health. There are medical service utilization issues, self-care management matters and qualitative –related outcomes such as existing or lacking healthcare partnership.

Many researchers have examined health literacy as a variable among different populations. A cross-sectional descriptive study conducted by Bourne et al. (2010) explored the connection between health literacy and health seeking behaviour of men 55 years and older. The study was conducted in Jamaica, a small island north of the Caribbean with a population of over 2.6 million people (at the time of the study). The sample of 2,000 men was drawn from the parish of St. Catherine. It was highlighted that
there was a lack of information in developing countries like Jamaica regarding health literacy.

The literature review contained relevant information related to health literacy and health seeking behaviour. Based on the stratified multistage sampling strategy, a 132 item questionnaire was used followed by analysis managed by SPSS. The study received ethical approval. The tool did not have a specific name, but data was collected on health status, health seeking behaviour and social and functional status. It was difficult to ascertain how health literacy was measured or analysed. The variables measured to evaluate health literacy were physical wellness, healthy lifestyle, self-care, religious activity, psychological conditions and physical functioning.

The findings revealed that 56.9% of persons in the urban area and 44.5% in the rural area were literate. The researchers noted that those with limited health literacy were identified as having difficulties with words that were commonly used in healthcare settings. The value of health literacy in promoting health-seeking behaviour in men was a strong conclusion. The study was the first of its kind in Jamaica. Considering that health literacy was not measured directly, it was identified as a weakness of the study.

A study conducted by Mitchell, Sadikova, Jack, & Paasche-Orlow (2012) examined a health outcome issue related to health literacy and reutilization of hospital services after discharge. The setting was Boston US with a sample of 708. The Rapid Estimate of Adult Literacy in Medicine (REALM) was used to measure health literacy.

The findings showed that 20% were considered to have low health literacy, whereas 29% were marginal, and 51% were deemed adequate. Those with low health literacy were on Medicaid ($p < .001$) and were either of Black or Hispanic origin ($p <$
Low literacy was seen as an independent significant risk factor in the reutilization of hospital services after discharge (Mitchell et al., 2012).

Schillinger et al. (2002) studied clients in the San Francisco area who had type 2 diabetes to ascertain the association of health literacy with the disease. For the purpose of the study, health literacy was defined as a combination of skills, that included the ability to read and work with numbers as part of one’s functioning with the health care arena. With the rationale, background and eligibility criteria outlined, the researchers selected two primary care clinics for the recruitment of the sample of 408 older adults. The ethical considerations were adequate.

This cross-sectional observational study identified the gap in knowledge regarding how health literacy can affect health outcomes. Health literacy was measured using the s-TOFHLA a 36-item reading comprehension test. From the regression analysis, the findings revealed that clients with inadequate health literacy skills were less likely to have tight glycaemic control (HbA1c <7.2%, OR 0.57; 95% Confidence Interval (0.32-1.00, \(p = .05\)). The generalizability of the study is applicable to this study considering the sample included Asian, Black, Latino and White patients and the large sample size is considered a strong study. For this study, the research study being discussed (Schillinger et al., 2002) is relevant as the population will be older adults who are non-White and are likely to have a higher percentage of females.

Another study that explored health literacy in a diabetic population was conducted from a qualitative perspective in the Rocky Mountain region, US (Sakraida & Robinson, 2009). There was a clear purpose statement outlining the plan to describe the transition experiences related to health literacy self-management of the diabetic condition. The
rationale for doing the ethnographic study for the given population lacked specific details. This qualitative study was part of a mixed method design (parent study) that was concurrent with the quantitative portion.

Quota sampling was used resulting in a total of four men and two women. The study was approved by an Institutional Review Board (IRB) and major ethical issues were discussed. The stated aim of the study of exploring the experiences of persons with diabetes can be considered relevant to this proposal. Two themes were described that can have relevant implications for nursing practice. They were transitioning experience to self-advocacy and partnering with the health care provider. Since Jamaica has a high percentage of diabetics, the experiences of the subjects (with health literacy) from a cultural perspective can help to support research in this geographical location.

The negative health outcomes highlighted in the previous studies were poor health-seeking behaviour among men, reutilization of hospital services after discharge and low glycemic control. These outcomes were associated with inadequate health literacy. While adequate health literacy was related to the clients’ ability to advocate for themselves as they were more aware of their health needs and were able to forge partnerships with the healthcare providers.

**Socio-economic Factors**

Socio- economic statuses (SES) are known to influence health literacy. Depending on the socio-economic status of an individual, they may experience enhanced ability or be placed at risk for health literacy deficit. The main factors that will be discussed in this section are education, income and health insurance coverage.
A cross-sectional study conducted in an academic general medical practice (no details of actual location given) by DeWalt, Boone, Lohr & Pignone (2007) involved 250 respondents. They were placed in a randomized, controlled trial in a literacy-sensitive planned intervention. The clients, both Whites and African Americans, were those with poor glycaemic control. The sample was stratified into two groups; those with high or low health literacy skills. Health literacy was measured using REALM and diabetic knowledge was measured by the Spoken Knowledge in Low Literacy in Diabetic Scale (SKILLD). The results showed that those with low health literacy skills were older, African Americans, living on < $15,000 per annum, with fewer years of education, and were more likely to be uninsured. It was found that those with lower health literacy skills were less motivated to participate in their self-care. A weak relationship was found between literacy and self-efficacy ($r = -0.122, p < 0.04$) while a moderate correlation ($r = .305, p < 0.001$) existed between knowledge and literacy. There was a significant difference between those who had health insurance and those who lacked on diabetes outcomes ($p = 0.006$). This study has relevance for this proposal as the population (older adults) used are similar given the African heritage.

Attention to the relationship between years of schooling and health literacy level has been the subject of other articles from conceptual and empirical perspectives (Berkman, Davis, & McCormack, 2010; Campbell & Duddle, 2010; Ishikawa, Takeuchi, & Yano, 2008; Wolf et al., 2005). Berkman et al. (2010) posited (conceptually) that given the evolving nature of health literacy, educational attainment is not a stable index as persons with similar educational levels can have different reading and mathematical skills.
Campbell and Duddle (2010) support this perspective non-empirically based on their definition of health literacy and from their screening criteria. The argument is that for older adults, there is a long lapse between their years of formal schooling and time of screening. This information is useful for the current study as the chosen population are older adults.

On the contrary, the view that education should not be considered as a reliable covariate was not shared by Ishikawa et al. (2008). Their argument was based on a study conducted in Tokyo, Japan with 157 patients who had type 2 diabetes. The purpose of the study sought to evaluate the psychometrics of a newly developed tool dealing with functional, communicative, and critical health literacy skills.

In evaluating the tool, an exploratory factor analysis was performed. All items were retained, and the internal consistencies for the subareas were: functional had an $\alpha = 0.84$, communicative was $\alpha = 0.77$ and critical had an $\alpha = 0.65$. Findings also revealed that those with low socioeconomic status, advanced age, and lower educational attainment, had lower health literacy skills. The reliability of the tool composite score was Cronbach’s alpha of .78. The results showed a mean age of 65 years and the mean duration of being diagnosed with diabetes was 11.5 years. Limited diabetes knowledge was related to inadequate health literacy skills. They concluded that limited educational attainment tended to be associated with lower levels of health literacy.

Wolf et al. (2005) support the use of years of formal school as a significant predictor of health literacy skills. They conducted a study in six states in the US. The literature review discussed the consequences of low health literacy indicating that at least 48% of persons had health literacy deficits. The purpose of the study was to evaluate the
association between health literacy, self-reported physical and mental functioning, and health-related activities. With a sample of 2,923 persons, consent was secured for the cross-sectional survey and collected data using the s-TOFHLA. Logistic regression and chi-square statistical tests revealed that those with inadequate health literacy skills were older, African American or Hispanic with lower income and who had lower educational attainment.

The large sample size was one of the strengths of the study and enhances generalizability. Given the nature of the variables, the study would have benefited from a longitudinal approach to ascertain if interventions could have improved the outcome of the clients. The role of education was thought to be underestimated when used as a covariate; it appears to have reduced the effect of the association between health literacy and health status. The relevance of this study to the current study is the possible similarity of the characteristics of the sample to the Jamaican older adults. Also, it would be important to identify the barriers to health seeking behaviours and strategies needed for health professionals to recognize those with health literacy deficits.

Socio-economic status can influence a person’s health literacy. Although occupation is commonly included in SES, none of the studies included this variable. The variables studied were income, insurance coverage and education. Limited income, low education and inadequate health insurance coverage were connected to inadequate health literacy.

**Health Literacy and Functional Status**

To be considered functional which is the ability to manage one self, is an essential pre-requisite for health. Many studies have explored this concept. Physical, mental or
cognitive functional status can influence a person’s ability to access, understand, process or use health information. On the flip side, inadequate health literacy can result in declines in functional status.

Wolf et al. (2005) conducted a study (previously mentioned) to measure the relationship between health literacy and functional status of 2,923 older adults. The ethnic background included African American, Whites, Hispanic –English and Spanish speaking Medicare enrollees. This cross-sectional study showed that respondents with inadequate health literacy skills (measured using TOFHLA) had worse physical health (67.7 vs. 78.0, p < .001); they were likely to report difficulty with Instrumental Activities of Daily Living (OR 2.25; 95% CI); had challenges with Activities of Daily Living; limitations because of physical health and fewer accomplishments because of poor health. Other findings revealed that those with inadequate health literacy had a higher prevalence of chronic diseases when compared with those who had better health literacy skills (e.g., hypertension 50% vs. 43%, p = 0.05; diabetes 19% vs. 13%, p < .001).

A study was conducted by Sudore et al. (2006) with a sample of 2,512 community-dwelling older adults. The setting was the US with White and Black Medicare enrollees. REALM was the tool used to assess health literacy levels. Although it was stated as a cross-sectional study, a prospective cohort design was used in which data was collected in year one and three. Mean age of sample was 76 years; with 38% Blacks (overall) and 37% of the total were Black males. Of note were 60% females who had a significantly higher health literacy level. Those with low health literacy were likely to be male, Black and have less than a high school education. In addition, 12% reported low income and 24% had inadequate health literacy skills. Disparities were observed in
accessing preventive services; and it is believed that the level of understanding was linked to poor communication, mistrust, fear or intimidation, lack of self-efficacy complicated by slow cognitive and functional decline.

Zahnd, Scaife, and Francis (2009) added a new direction to the study of health literacy. They studied a sample 4,671 predominately White (87.7%) in the USA. The health literacy measure was the National Assessment of Adult Literacy (NAAL). It was found that the literacy deficit was greater in rural settings. The results showed that older adults with limited education, less money, and no insurance are likely to report poorer functional health.

A study conducted by Baker, Wolf, Feinglass, Thompson, Gazmararian and Huang (2007) investigated the association between being at older age and having functional health. With a sample of 2,774 Medicare enrollees, the study was conducted in Cleveland, Houston, Tampa, and South Florida. The tools used were sTOFHLA, MMSE, SF-36, and vision assessment. The ethical considerations were mentioned, and analysis strategies were relevant. Results revealed mean age of 73.1 (SD 6.3) in a largely White (84%) sample of 57% females. Thirty-two percent did not complete high school. For the MMSE, older adults scored lower (maximum = 30) than younger older adults. The findings showed that health literacy scores decreased by 1.4 points for every increase in age (p < .001). After adjusting for sex, race, ethnicity and education, health literacy scores decreased by 1.3 points (95% CI, 1.2-1.4) for every year. Older adults might perform poorly on scales because they tend to perform tasks slower and may be affected by fatigue during an interview process. There is a need to include a greater percentage of different ethnic groups, such as Blacks.
Health literacy can affect functional status. Persons with low health literacy tend to report worse health, experience challenges with ADLs and IADLs, tend to have poor communication skills and lack self-efficacy. There seems to be a connecting link between poor functional health and ability to access health information. Persons with cognitive deficit may have challenges understanding, processing and use health information which in turn can result in functional decline.

**Summary**

From the literature review, there were many studies that examined health literacy from a medical, public health perspective and also raised issues that address phenomena of nursing concern. Nurses have been collaborating with clients to ensure that they have adequate health information to make health care decisions. This study builds on the current state of knowledge in nursing. Most of the studies were conducted in the US and other developed countries. Population aging is widespread and the Latin America and the Caribbean (LAC) are also affected. This current study was conducted in Jamaica, which is part of the LAC. Although study findings are not be generalizable to LAC, it does provide information regarding health literacy in older adults who are living in that region.

It was noted that some studies report a large percentage of Whites even when Blacks were included. This study provides more information on Blacks as it relates to health literacy. Diabetes management related to health literacy is a common feature in some studies included in this literature review. This study included older adults who have chronic diseases including diabetes. Findings from this study were used to compare with extant empirical data on the role that health literacy plays in the client’s ability to self-care with chronic diseases. Another contribution of this study is the examination of
education attainment as a covariate to understand whether it can be considered as a stable or unstable predictor for self-care.

**Older Adults**

*Overview and Definitions*

The concept of aging according to well-known American gerontologist Bernard Streher, (Vina, Borras, & Miquel, 2007) must fulfill four key elements: Aging must be universal, intrinsic, progressive and deleterious. Aging has been defined as the measurement of time from birth in which there is an accumulation of different harmful changes in the body. These changes are considered to be the cause of increased risk of disease and death. Aging can also mean the process of growing older and changing over a period of time. To provide a broad conceptual base, a brief overview of the fundamental aging theories will be provided. This is germane to the discussion as one theory cannot fully explain the reason people age. The authors argue that aging is not a disease (Ebersole, Touhy, & Hess, 2008; Hansen-Kyle, 2005; Tosato, Zamboni, Ferrini, & Cesari, 2007).

**Aging Theories**

Within this study, embedded in the gerontology field, aging theories are included to explain the issues related to older adults and inform our worldview. There are over 300 theories, and this number will continue to increase and/or change as knowledge expands (Ebersole et al., 2008; Viña et al., 2007). There are three broad classifications of aging theories namely: biological, sociological, and psychological. The biological aging theories postulate that aging results in the changing of physiologic processes in the cell, tissues, and body systems. There are two main categories, a) stochastic (e.g., wear & tear,
cross linkages and free radicals) and b) nonstochastic (e.g., program aging, gene and immunity theories). As the field’s knowledge base expands, there are emerging biological theories such as neuroendocrine control or pacemaker theory (Ebersole et al., 2008). These theories provide information regarding the physiological processes in the body that occur as one ages.

The second classification (sociological) includes role, activity, disengagement, continuity, age-stratification, and social exchange theory. In keeping with cutting edge knowledge, the modernization theory provides information relevant for the 21st century. Sociological theorists argue that for one to achieve meaning in life (in addition to health and well-being) factors such as quality of relationship, accomplishment of goals, and remaining active through the lifespan must be considered. These theories posit that as people age there are social adaptations that the older adults will need to make to maintain health.

The psychological aspect is the third classification. These theories are about ego development and the associated challenges throughout the lifespan. It is the belief of the theorists that personality, mental processes and attitudes can have effects on a person’s level of adaptation to life changes. Psychological theories include Jung’s theory of personality, developmental theories of Erikson and Peck and Maslow’s hierarchy of human needs (Ebersole et al., 2008; Tosato et al., 2007; Vina et al., 2007). Considering that psychological aging theories include biological and sociology, the aging adult will have to make life adjustments that relate to memory, learning, feelings and intellect (Lueckenotte, 2006).
Regardless of the theoretical perspectives, older adults experience changes in their physiological functions that can result in loss or decline in function. This loss can be manifested in the body’s inability to maintain internal milieu resulting in deterioration in the skeletal muscular system in terms of force and elasticity; lower glomerular filtration in the kidneys; lower pulmonary ventilation; a lower maximal blood flow through the heart; intolerance to glucose association with aging; changes in vision, hearing capacity, memory; motor co-ordination, and other neural functions. Other negative effects of aging include atrophy or degeneration of vital organs; decrease in the number of elastic fibres such as crosslinks of collagen fibres in the dermis; increased susceptibility to trauma, infections and other forms of stress; impaired immune system, and increased incidence of cancer with increasing age (Ebersole et al., 2008; Meiner & Lueckenotte, 2006; Vina et al., 2007). These changes can affect the older adult’s ability to access health information due to functional decline. There can be increased difficulty in understanding health information that is necessary to care for self. It is not uncommon for older adults to experience altered mental status that may result in confusion and inability to coordinate their own care.

On the other hand, there is healthy or successful aging. This portrayal is an attempt to refute negative stereotype images of being an older adult. Old agers are seen as ugly, useless, and poor. Successful aging originally came from research done by Havighurst in the 1960s, which focused on adding years to life. By extension, it is the method of proactively coping with potential risk factors and taking steps to prevent them from occurring. From a generic perspective, healthy aging is the body’s ability to continue to function mentally, physically, and psychologically concurrently with the
negative changes related to aging. When defined from a gerontological perspective, it is the absence of chronic diseases or the body’s ability to resist, mitigate or eliminate risk factors that would cause chronic diseases. Socially and psychologically, healthy aging is the ability to afford home ownership, to demonstrate a positive attitude, being able to make own decisions, and having reliable social support systems. From a nursing standpoint, healthy aging is possessing good functional status with the capacity to be independent and maintain healthy practices (Hansen-Kyle, 2005; P.-L. Lee, Lan, & Yen, 2011). Achievement of healthy aging can be enhanced through self-care measures based on adequate health literacy skills.

**Epidemiology of the Aging Population**

The World Assembly, on Ageing in 1982, defined the “elderly” as persons aged 60 years and over (Oriol, 1982). However, many publications use 65 years as the defining criterion. For the purpose of this study, an elderly person is someone who has attained the chronological age of 60 years and over, and whose welfare is addressed in the National Policy for Senior Citizens (Eldemire-Shearer, 2008).

Population aging is one of humanity’s greatest triumphs associated with advances in public health but also poses significant challenges. It is a phenomenon in which elders are considered to be a large segment of the population resulting from low birth and death rates. There is also a decrease in fertility rates and increase in life expectancies. Global aging will put increased economic and social demands on all countries. The world is experiencing a demographic shift in which the proportion of people age 60 and over is growing faster than any other age group. The median age of the world’s population has increased from 26.6 years in 2000 and is projected to increase to 37.3 in 2050 to 44.6
years in 2100. In the US, it is predicted that by 2030, 20% of the population will be 65 years and older. In Jamaica, there was an increase from 10% (252,225) to 11.3% (305,164) in 2011. This is expected to rise to 25% by 2025. In 2011, older adults in the 80 and over age group represent 34% of the total population (Bourne et al., 2010; Eldemire-Shearer, 2008; D. Eldemire-Shearer, 2012; Houde & Melillo, 2009; Lutz, Sanderson, & Scherbov, 2008; Palloni & McEniry, 2007).

Older adults living in developed countries such as in the US may experience increased morbidity related to aging and lifestyle practices. Hence, the country will need 35% increase in formally trained health professionals. The situation is further complicated with the shortage of nurses and other health professionals who are trained to care for frail older adults. Many older adults, living in developing countries, have experienced massive improvements in survival, resulting in increased longevity. These people have also experienced changes in their functional decline. This has accounted for the increases in prevalence of morbid conditions and slower improvements in mortality (Houde & Melillo, 2009; Wong, Peláez, Palloni, & Markides, 2006).

Life expectancy in LAC has increased from between 30 to 40 years (from 1960 to 2008) to approximately 70.4 years. It is predicted that older adults in LAC region will have worse health status than older adults in developed countries. This burden of disease will result in increased need for healthcare and services. Access to healthcare and services may depend on older adult’s health literacy skills. Another factor for consideration is that access to healthcare and services in this region continues to shrink as a consequence of scarce resources (Barreto et al., 2012; Loewy, 2004; Wong et al., 2006).
Cardiovascular disease has the highest mortality rate, whereas mental illness accounts for a large proportion of persons with disability. When economies fail, poverty tends to increase resulting in social and economic inequalities. Rising unemployment rates especially among the poorest, can result in erosion of the vulnerable persons’ (including older adults’) ability to maintain health (Barreto et al., 2012; Loewy, 2004; Wong et al., 2006).

Jamaica has made remarkable progress as it relates to poverty reduction when compared to other Caribbean countries. A significant predictor of health has been access to education. Most females (60%) have only primary education. Within the region there have been improvements, but the Caribbean girls and women are making greater strides over their male counterparts from primary to tertiary level education (Barreto et al., 2012; Loewy, 2004; Wong et al., 2006).

Table 1

*Population by Age and Sex: Manchester, Jamaica*

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-69</td>
<td>11,518</td>
<td>5,861</td>
<td>5,657</td>
</tr>
<tr>
<td>70-79</td>
<td>8,215</td>
<td>3,792</td>
<td>4,423</td>
</tr>
<tr>
<td>80-89</td>
<td>4,114</td>
<td>1,732</td>
<td>2,382</td>
</tr>
<tr>
<td>90+</td>
<td>904</td>
<td>209</td>
<td>642</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24,751</strong></td>
<td><strong>11,594</strong></td>
<td><strong>13,104</strong></td>
</tr>
</tbody>
</table>

In Jamaica, although life expectancy has increased, there continues to be a feminization of the population as females tend to have a three to four year longer life span. This is also evident in the parish of Manchester, Jamaica (the study site). According
to the data from the Statistical Institute of Jamaica (STATIN, 2011), the population of the 60 to 69 age group, males constitute 24% (5,861) of the total population, whereas females comprise 23%. However, as age range increases (70 to 90 and over) there is a significant decline in the number of males when compared to females. For example, in the 90 and over age group, females comprise 2.5% (642) and males 0.8% (209) respectively (see Table 1).

With the increase in life expectancy, there is an escalation in chronic diseases such as obesity, diabetes, hypertension and the possible complications such as stroke, heart disease and amputation. It has been reported that 50% of the visits to medical facilities of older adults are related to the care of diabetes (41.1%) and 37.2% for hypertension. Overall, medical visits for chronic diseases have been 62.5% while 34.6% for other illnesses and injuries. Although many of older adults are affected by chronic diseases and disability, it is reported that 83% of those living in rural Jamaica are in good health. There is a worrying trend, however, in which many older adults opt to retire in Jamaica after working in other territories. This increases the demands on an already overburdened health system (Bourne et al., 2010; P. A. Bourne, 2009; Eldemire-Shearer, 2008; Loewy, 2004).

**Summary**

According to the Pan American Health Organization (PAHO) (Bureau, 2002), not only is the world experiencing global aging but also an epidemiologic transition. There is a change in the causes of death. Deaths from infectious disease and acute illness have decreased giving rise to chronic diseases and degenerative illnesses. This combination of the epidemiologic transition and the increasing number of older persons represents a
challenge to public health and nursing. To address these challenges, the nursing profession, public health agencies and community organizations should continue to expand their traditional (i.e. low cost strategies such as nutrition and exercise health education) scope. Improving health literacy should be included in the strategies designed to maintain health, prevent disability and to build the capacity of older adults through self-care.

Older Adults and Health Literacy

Risk Factors

According to Cutilli (2007), older adults are at risk for health literacy deficits related to the aging process, they tend to have less education and often fall into the low socio-economic class, compounding poor health status associated with chronic diseases. This argument was strengthened by Donelle and Hoffman (2009) who reported that the baby boomers (1946-1965 cohort) are one-third of the Canadian population and 12% of the US population of older adults. This cohort tends to have chronic preventable diseases that are costly to the health care system.

Low health literacy is not only a burden on the client, but also on the health system. Nurses can use specific strategies to teach and communicate health information with older adults. As nurses collaborate with these clients, nurses must understand that physical and psychological factors can affect the person’s ability to understand health information. Factors such as depression, fatigue, functional limitations related to aging and lack of motivation to learn can affect the older adult’s ability to obtain, understand, process or use health information. Nurses should also investigate the living environment, support systems, unmet needs (pain, food) and so forth while facilitating health literacy
Health literacy is seen as a resource to assist the older adult with achieving self-care and positive health outcomes. When an older adult understands the risks involved in being old and if the person has chronic diseases, adequate health literacy can mitigate their risks for complications and premature death (Zarcadoolas, et al., 2006). Adequate health literacy within a population can also lower health care costs. Money as a scarce resource can be used for health promotion activities. Individuals with higher levels of health literacy can empower people to continue to take action to self-care, which in itself is a resource that will decrease their relative risk (Pawlak, 2005; Speros, 2005).

**Older Adults Cognitive State and Health Literacy**

In a study conducted by Mosher, Lund, Kriplani and Kaboli (2012), older adults’ medication adherence and health knowledge was measured with health outcomes. The study was conducted in Iowa City with a sample of 310 veterans who were 55 years and older. Health literacy was measured with REALM. Findings revealed that of the total sample, 95% were males with a mean age of 74 and 99% were White persons.

The overall medication knowledge was 54%. Those with low health literacy scored 29%, whereas 49% were marginal, and 56% were considered to be adequate ($p < .001$). Health literacy was not significantly ($p = .14$) related to medication adherence. Those with low health literacy had 84% adherence which was better than those with marginal and adequate health literacy skills. Although those with low health literacy skills had poorer medication knowledge, they were cognitively intact and seemed to have
developed coping skills that enabled them to adhere to their medication regime (Mosher et al., 2012).

Another study ((Baker, Gazmararian, Sudano, & Patterson, 2000) examined the relationship between aging and functional health literacy skills. The study was conducted in Cleveland, Houston, Tampa, and South Florida with 2,774 older adults. The sTOFHLA was used to measure health literacy, whereas Mini-Mental State Examination (MMSE) was used to evaluate cognitive function, and the Short Form (SF-36) Health Survey was used for functional health assessment.

The result of the study revealed a mean age of 73.1 ($SD = 6.3$) with 59% females and 84% White. Data related to the presence of chronic diseases showed 46% with hypertension, 15% with diabetes and 23% had coronary heart disease. Correlation of health literacy and cognitive status revealed that literacy skills were lowered by 1.4 (mean) points for every year of increase in age ($p < .001$). After adjusting for sex, race, ethnicity and education, health literacy scores were reduced by 1.3 (mean) for every year of increase in age. Adjusting effect from MMSE, there was a decline of 0.9 for every increase in age by years ($p < .001$). The MMSE showed that older persons had lower scores. Functional health was positively associated with self-reported frequency of reading the newspaper. Having hypertension or cardiovascular accident negatively affected physical health. Blacks and Hispanic had lower health literacy scores than Whites (Baker et al., 2000).

**Summary**

The discussion of health literacy in older adults is pertinent and timely. Within the last decade, the health care environment has experienced significant technological
advances that result in more precise diagnosing and treatment options. Life expectancy has increased, and people are able to live longer with more chronic diseases on a poly-pharmacy regime. It is expected that older adults can experience decline in health and function. However, those with intact cognitive skills and the ability to cope, are likely to have better adherence to medication regime.

**Self-care**

*Overview and Definitions*

Orem (Renpenning & Taylor, 2003) defines self-care as action that involves thoughtful reflection that results in health, well-being and growth in which the action is learned and occurs within a cultural context. From a sickness perspective, self-care is conceptualized as actions taken by an individual to ensure health, aids in the recovery of illnesses or injuries and to manage their effects or complications.

Self-care, according to Renpenning and Taylor (2011), consists of action required by individuals for health, life, growth, and development. It is also considered a proactive, deliberate, purposeful performance that is linked to health and well-being.

Self-care is an interdisciplinary construct in which healthcare providers have a role to play in facilitating self-care in older adults. As life expectancy increases, nurses will continue to collaborate with members of the health team in helping people learn how to care for themselves. The science of self-care is the process that identifies what is essential for a person to do to remain healthy coupled with factors that might have to be adjusted to meet self-care needs. The sequels include the action that the person must perform for health maintenance and the possible limitations one may experience to carry out self-care activities (Hanucharurnkul, 2012; Renpenning & Taylor, 2011). For the
purpose of this study, self-care practices are those deliberate activities that persons perform on their own behalf in order to maintain health, life, and well-being (Orem et al., 2003).

As a multifaceted construct, self-care embodies who is involved, why it is done, what it entails, and how it is done. It is also considered the range of behaviours undertaken by individuals designed to promote health and prevent illness. The World Health Organization (WHO) uses the term to refer to activities performed by individuals, families or communities aimed at health promotion, disease prevention, minimizing complications and health restoration. Another definition regarding self-care is that it comprises voluntary actions done to maintain general well-being (Alspach, 2011; Becker et al., 2004; Hanucharurnkul, 2012; Parissopoulos, 2004; Stearns et al., 2000).

**History of Self-care**

As a complex construct, self-care is considered a human regulatory function that is critical for well-being, health and for the maintenance of personal interest. Historically, self-care was the only source of improving health and empowering people to care for their own health. Its role can be divided into two aspects: (a) prevention – healthy eating, weight management and exercise and (b) active intervention – actions geared towards risk reduction such as smoking cessation and management of minor ailments (Renpenning & Taylor, 2011; Richards, 2012).

Within the latter half of the 20th century, the philosophical view is that the individual is responsible for his/her own health. This view represents a paradigm shift in thinking and health behaviour resulting in the disease patterns that changed from acute communicable diseases to chronic non-communicable illnesses. With this shift came the
economic benefit in which the role of healthcare providers being the experts was then transferred to the consumers of healthcare. The healthcare providers were expected to be the facilitators in empowering clients to self-care. Hence, clients who were the passive recipients of healthcare became active participants. The mantra for self-care was not only situation-specific and culturally influenced. It involved the client’s ability to perform activities based on the decisions driven by the individual’s characteristics that included self-efficacy, knowledge, skills, and values (Richard & Shea, 2011).

Self-care is not a new phenomenon as care of the sick has been done by individuals and families in all societies throughout history. The topic of self-care emerged in the US during the 1970’s but was not conceptualized as a researchable topic until the 1980s based on its link to the feminist movement. This political ideology was known for its stance on control of the body. The book *Our Bodies, Ourselves*, (Phillips & Rakusen, 1980) originally published in 1971 became one of the chief instruments in promoting self-care among women. Self-care in the US was entrenched in the traditional values such as self-reliance, individualism, anti-elitism, and popular democracy. The pull or push factors in self-care include the change in ideology from cure to care, complicated by the increased cost in medical care and the intensification in individualism (Becker, Gates, & Newsom, 2004; Bhuyan, 2004).

In Canada, the Ottawa Charter became the driving force for the self-care movement. Its utility was based on a limited professional health system to facilitate health promotion. Coupled with health promotion strategies, efforts were put in place to increase community participation and self-care among the populace. The emerging themes were involvement and empowerment of people to care for their own health. To
enhance the self-care movement, information technology placed health information within the reach of the people. On the international level, the first symposium on self-care was held in Europe at the WHO headquarters in Copenhagen in 1975. During the symposium, self-care as a concept and activity was examined for its contribution to healthcare; roles and functions were clarified, and priority research areas were discussed (Bhuyan, 2004).

North America and Western Europe experienced growth similar to Canada. Studies regarding self-care over the last decades have been focused on self-care for every-day ailments and care of chronic illnesses. Although the growth has been phenomenal, complemented by better infrastructure and higher literacy rates, developing countries have yet to experience similar outcomes. Sadly, it is these developing countries that could benefit from the promotion of self-care considering that the majority of the people are poor and many do not have access to professional health care. Self-care research in developing countries is limited and lay persons continue in their powerlessness. The healthcare system for many of these countries remain steeped in elitism and the healthcare providers are the dominant figure in healthcare decision-making for the people (Bhuyan, 2004). This scenario is aligned to the existing situation in Jamaica.

**Critique of Research Studies**

**Factors Related to Self-care Activities or Practices**

Self-care as conceptualized by Evangelista and Shinnick (2008) is specific behaviours persons initiate and perform for themselves with the aim of preventing
diseases and improving, and maintaining health. With the concept being used interchangeably with self-management in some articles, it is more than following medical or nursing instructions; but takes into account teaching related activities that the person can use to monitor symptoms, make decisions, and evaluate outcome of actions. The authors pointed to the significant value of health literacy skills in achieving self-care especially in older adults. This is highly dependent on the client’s ability, knowledge, and willingness to carry out self-care tasks.

The studies in this section will discuss various factors that are related to self-care activities such as improved lifestyle practices, better understanding of the disease process and the care that is needed for health maintenance. The role of education and gender is discussed while exploring the value of adherence to a medical regime. The effects of hospitalization on self-care practices are also included.

In a longitudinal study (data taken from the National Survey of Self-care and Aging Medicare beneficiaries) conducted with 3,485 community-dwelling older adults, Stearns et al. (2000) listed three domains that constitute self-care practices: (a) lifestyle patterns- no smoking or alcohol use, adequate sleep, regular exercise and proper nutrition; (b) adaptations to functional limitations such as feeding, grooming, toileting, bathing, mobility and stairs use; and (c) medical self-care including adherence to medication, keeping doctor’s appointment, regular blood pressure and glucose checks (Stearns et al., 2000). Information regarding the study method such as the setting and ethnicity of the sample were not given.

The findings revealed three different age cohorts (65-74, 75-84, and 85 and older) that were located in 38 urban and 12 rural communities. Of the total, 59% consumed no
alcohol, whereas 57% did not smoke with more than 50% achieving their ideal weight. With regard to urine, blood, and pulse testing, 22% reported these activities. The recommendation is that more polices are needed to facilitate and motivate older adults to participate in self-care practices (Stearns et al., 2000).

A study conducted by Callaghan (2005) used a convenience sample of 235 community-dwelling older adults between the ages of 65 and 98 in the greater Philadelphia area. Pender’s health promotion model and Bandura’s self-efficacy theory were used to guide the study. The purpose of the study and research questions was clearly stated. Although the design was not explicit and the ethical issues not adequately addressed, the data were analysed from descriptive and inferential perspectives. With 661 questionnaires distributed, only 247 were completed resulting in a 37% response rate. Females dominated the sample (74%), 90% being White, 41% completed high school education, and 83% were unemployed. Whites reported a higher mean score ($M = 84.61$) than Blacks ($M = 71.8, p = 0.03$) on the self-care self-efficacy scale. The post-hoc Scheffe test revealed that there was significance between those with high school or college education and the practice of healthy behaviour. Factors that facilitated self-care practices were adequate income and having health insurance. According to the author, nurses are in a key position to foster self-care among older adults while incorporating assessment of the social environment and the cultural issues that may be used as facilitators for self-care.

Another factor that plays a role in self-care activities is gender. Gender as a factor affecting self-care practices was examined in some research studies. A study using the exploratory design conducted by Hjelm, Nyberg, & Apelqvist (2002), examined gender
influences on health beliefs. The sample (total of 16 females and 23 males) consisted of ten females and eleven males who were 65 years and younger. Those over 65 years were six females and twelve males. All the participants were diabetic. This study provided adequate explanation regarding the aim, method, and ethical considerations. The focus groups were conducted outside of the clinic setting. The data were audiotaped and transcribed verbatim. The settings were not identified. The collection and analysis of the study data was conducted concurrently until theoretical saturation was achieved. Themes were explored resulting in beliefs about health, illness and care-seeking behaviour. Evidences of trustworthiness were not established.

The study findings showed that men had more fears about health issues. They were more anxious regarding being dependent on others and demonstrated less adaptive skills to self-care. Although the women expressed that they felt more stressed when they had to eat with others due to the dietary restrictions, they played a more active role in self-care and were more observant of disease symptoms. With the prevalence of leg ulcer in these diabetic respondents, men did not connect the ulcers with their blood glucose level. They were also more pessimistic about the future unlike the women who viewed the future with hope. The women also enhanced their care with the use of adaptive devices. In general, the respondents perceived health as their responsibility yet the men had more severe complications. Although a grounded theory approach was used, the process was overshadowed by the inclusion of the health belief and the Bandura self-efficacy models. Hence, the article was potentially biased rather than “grounding” the data in an emerging theory.
In a study of 186 African-Americans, recruited through snowball strategy, factors related to self-care were examined. Self-care practices such as adherence to medications, weight loss and maintenance, adoption of a low-salt diet, regular physical activities, limited use of alcohol, and cessation of tobacco use were examined in relation to hypertension control. This multiple randomized control trial intervention study included the relevant information for the methods including the psychometrics of the tools used. A pilot was completed for assessing the tools resulting in acceptable reliability scores. For example, $\alpha = .91$ for medication adherence and for low-salt diet $\alpha = .71$. The data analysis strategy was outlined but not adequately presented (Warren-Findlow & Seymour, 2011).

The findings revealed that 58.6% adhered to medications, whereas less than 25% followed a low-salt diet and 52.2% engaged in physical activities. Of those who adhered, 55.8% were older and 78.6% were females. The educational level was lower for the non-smokers. Although the article indicated that relationship between educational level and smoking was statistically significant, there were no statistics (no results for $t$-test and chi square) to support this finding. The results showed that diuretic use for Blood Pressure (BP) control interfered with other self-care activities. Although the study indicated that self-care behaviours contributed to the BP control, only descriptive statistics were included (Warren-Findlow & Seymour, 2011).

A prospective observational study conducted by Covinsky et al. (2003), investigated the ability of older adults to self-care after hospitalization. The sample of 2,293 persons who were 70 years and older was used. The University Hospitals of Cleveland and Akron City Hospital in Ohio were the setting. The mean age was 80 years with 64% females and 24% African-Americans. The goal of the study was to better
understand the effects of hospitalization and aging on functional abilities. Results comparing baseline admission data with two weeks post discharge information revealed that 35% of the sample had experienced a decline in their ability to do ADLs. This decline in ability to perform ADLs was significantly related to aging (23% in the 70-74 years age group; 50% in the 85-89 years age group and 63% > 90 years). No rationale was given as to why age was strongly and independently associated with adverse functional decline. The authors suggested that possible causes may include prolonged bed rest, poly-pharmacy and sleep deprivation. The effects of aging are also plausible contributors.

From the studies discussed in this section, the main factors that facilitate self-care involvement include adequate income, access to health insurance and being female. These factors contributed to adherence to medication regime, consumption of proper diet and weight control. It was also shown that control of chronic illnesses such as blood pressure can affect one’s ability to be able to participate in self-care activities.

**Benefits of Self-care Practices**

The studies in this section discuss the benefit of church attendance and access to healthcare on one’s ability to self-care. Literacy is highlighted as playing a key role in health literacy skills that can contribute to self-care involvement. Benefits of self-care include reduced medical cost and better health outcomes.

In a study with 129 Appalachian women, Slusher, Withrow-Fletcher, and Whitaker (2010) used a sample drawn from seven of the thirteen Appalachian states. The purpose of the study was to describe the relationship between health beliefs, self-care and basic conditioning factors (age, gender, developmental status, and personal resources).
The design was a mixed method. Orem self-care theory was used to guide the study. Mean self-care score was 82.6% (range 40.0-100.0). Stepwise multiple regressions were used to examine the predictive value of conditioning factors (such as age, health status, health access, developmental stage, and church attendance) on self-care. Significant positive correlations were found between two conditioning factors and self-care, namely, access to healthcare \((r = .23, p = .0085)\) and church attendance \((r = .21, p = 0.18)\). Church attendance and access to healthcare accounted for 10.3% of the variance seen in self-care. There was no significant correlation between health belief and self-care. The authors indicated that these women took deliberate action in caring for themselves. This active involvement in self-care activities can result in empowerment, cost containment, expanded options, freedom, and locus of control for the client and improved quality of life. These positive outcomes also help to facilitate the achievement of national health goals (Slusher, Withrow-Fletcher, & Hauser-Whitaker, 2010).

In contrast, Shultz and Nakamoto (2012) from a conceptual perspective argued that empowerment can have a negative backlash. They posited that clients who are empowered but lack health literacy skills may not have the requisite knowledge to make informed decisions as they care for themselves. Similarly, clients who possess adequate health literacy skills but lack empowerment may transfer the locus of control to the health care provider. This may result in clients becoming passive recipients of care.

DeWalt, Boone, and Pignome (2007) added their contribution to the discussion. With a sample of 250, the researchers used a cross-sectional study. Institutional Review Board (IRB) approval was secured from the University of North Carolina. Details regarding the actual site were missing from the article.
The sample consisted of 48% African-American and 49% White. The findings revealed that a significant relationship exist between literacy and decision making for self-care when respondents were given reading materials. There was a difference between those with good and poor literacy skills ($p < .001$). The researchers argued that the ability to acquire health knowledge was only part of the problem. They included trust, self-efficacy, and self-care participation. The benefits of self-care are fuelled by health literacy skills complemented by the belief that one has the ability to self-care.

Sousa and Zauszniewski (2005) explored self-care as a benefit to positive health outcomes. They emphasized that lack of self-care can be costly for the client with diabetes. The cross-sectional study examined diabetes self-care on glycemic control. The researchers use secondary data from a convenience sample of 141 participants who required insulin based on their diagnosis of diabetes.

Orem’s self-care theory and Bandura self-efficacy theory guided the study, and appropriate tools were used to collect the data. The Appraisal of Self-Care Agency was used to measure self-care. The sample was 74% White, 59.6% were married and 52.2% were females with a mean age of 48.38 years. Performance of self-care, belief in self-care capabilities and actual diabetes self-care were strongly correlated. Diabetes self-care capability and self-care management shared 56% of the variance showing that clients who knew (health literate) how to self-care, made constructive efforts to do so. Self-efficacy ($r = .19, p = < .05$) and self-care agency ($r = -.24, p = .01$) did not support glycemic control. After controlling for age, race and self-rated health, the adjusted $R^2 = .137, p = < .05$. Diabetes self-care was a significant predictor of glycemic control as those who were knowledgeable about diabetes were able to care for themselves better.
Other benefits of self-care involvement were reported by Stearns et al. (2000). In this longitudinal study of 2,921 people 65 years and older, data were used from the US Medicare Beneficiary files. There were 6% African American and 52% males in the sample. There were significant health benefits for those clients who did swimming or walking (psychological and physical fitness), whereas others experienced a reduction in their medical expenses. Another economic benefit of self-care was a decrease in Medicare expenses ($27.00 per person in the first 12 months), which were associated with lifestyle practices. These lifestyle changes included no alcohol consumption, sleeping for 6 to 8 hours per night, being involved in active sports and adherence to medical self-care regime Stearns et al. (2000).

Those who participate in their care can experience physical, psychological and economic benefits. These benefits include better health outcomes, tighter glycemic control and positive lifestyle changes. Self-efficacy and empowerment were identified as two of the psychological benefits of self-care. Being involved in one’s care can have individual (decreased medical expenses) as well as national benefits (cost containment, decreased Medicare expenses and achievement of national goals.

**Barriers to Self-care Practices**

Based on the benefits that can be obtained or experienced when persons are involved in self-care activities, sometimes it is difficult to understand the flipside. This would constitute the seeming lack of one’s participation in self-care activities, or practices and beliefs related to self-care that may be unconventional. There can also be willingness to self-care but the person may lack the energy and resources to perform the necessary activities.
Studies in this section discuss barriers to self-care such as lack of access to healthcare, the influence of culture and health beliefs compounded by motor and sensory limitations. Self-neglect was explored while from a healthcare provider perspective, there might be cultural insensitivity, incompetence and the use of inappropriate health policies. Other external factors included lack of health insurance and cost related to self-care.

A study was conducted (Becker et al., 2004) to examine the social, cultural, and historical roots of African-Americans’ approaches to self-care. The background revealed that although self-care plays a major role in the management of chronic illnesses, there was a lack of information regarding this ethnic group. According to the researchers, African-Americans tend to have disproportionate rates of disease, high unemployment, poverty and premature death. The qualitative study had a cultural focus. The aim was to capture people’s retrospective experiences regarding self-care.

Although the title of the article (Becker et al., 2004) indicted that it was about African-Americans, Latinos and Filipinos were also included in the study. Ethical considerations were not mentioned. A case study approach was used. The results showed that African-Americans’ self-care approach was culturally driven as illustrated in the themes spirituality, social support from family, and non-biomedical healing traditions. Differences between the stated themes and the traditional self-care mechanisms, resulted in self-care differing in this cultural group. Access to healthcare, which may be related to several factors, could be complicated by cultural beliefs, health practices, and past experiences. These factors may pose a challenge to the healthcare providers’ understanding of self-care among African-Americans.
Self-care barriers have been also discussed from a non-empirical standpoint. According to Alspach (2011), barriers to self-care may include motor and sensory inability to perform the self-care tasks; or inadequate or improper self-care activities based on knowledge deficit or misconceptions; daytime sleepiness, depression, poor family dynamics or impaired cognition.

However, there are others (Naik, Teal, Pavlik, Dyer, & McCullough, 2008) who consider the lack of self-care involvement as self-neglect. This is demonstrated by the failure to perform activities to prevent a decline in health or to avert complications. This self-care neglect can include poor personal hygiene, poor nutrition, and living in squalor. There may also be situations in which older adults may refuse assistance or do not welcome interventions. This matter of refusal raises an ethical dilemma related to consent and who should make the decision regarding self-care involvement. Other barriers to self-care may include physical limitations, lack of knowledge, financial constraints, logistics of obtaining care, need for support, multiple diagnoses, and the devastating effects of disease complications (Richard & Shea, 2011).

In the study (previously discussed) by Slusher, Withrow- Fletcher and Hauser- Whitaker (2010), the barriers to self-care identified from the literature were lack of access to healthcare, cultural insensitivity, and incompetence on the part of the healthcare provider. There were also health policies that did not address the issues related to poverty and lack of education. However, for the Appalachian women in the study, the barriers were lack of health insurance, lack of needed services, ethnocentric healthcare workers, and cost.
A descriptive exploratory study was conducted in Southwest Finland (Stolt, Suhonen, Puukka, Viitanen, Voutilainen, & Leino-Kilpi, 2012) to assess foot health and self-care activities. The background to the study included barriers to foot care such as inability to bend related to breathing problems, dizziness, weakness in hands related to arthritis and poor vision. The sample size was 309 and there was a 47% response rate. Tools to measure foot health and foot-care self-activities were included and the ethical issues were addressed.

The mean age was 83.4 years (SD 6.82) and 85% of the sample was female. The chronic diseases reported were 70% for heart and circulatory diseases, 29% for diabetes and 9% for rheumatoid arthritis. Findings reveal that foot problems were barriers to self-care. The main foot problem was oedema while those who were older had greater hallux valgus ($p = 0.043$). Persons with rheumatoid arthritis had poor foot health ($p = 0.038$). The study indicated that persons with diabetes cared better for their feet ($p = 0.028$) than healthy people. No explanation was given for this finding (Stolt et al., 2012).

A mixed method study was conducted (Burdette, 2012) to examine the relationship between person’s self-care agency and self-care practices while dealing with being obese. With sample size of 224, 98.7% were Whites. Hypertension was the most common condition (27.8%). Mean body index was 26.165 (SD = 6.6). Self-care capacity and self-care practices were moderately correlated ($r = .693$, $p = .000$). Smoking was considered a barrier to self-care capacity ($r = -.135$, $p = .043$) in which a negative yet weak relationship was seen. It would seem that those who smoked were less likely to do self-care. Having a chronic illness was also reported as a barrier to self-care ($r = .194$, $p = .004$).
Studies that discussed the barriers of self-care captured issues such as cultural beliefs, refusal to accept help that can facilitate self-care and lacking social support. Persons with physical limitations including foot problems, cognitive deficits, depression and lack of knowledge may experience low involvement in their care. Other barriers include multiple diagnoses, behaviours from insensitive healthcare providers and irrelevant healthcare policies.

Summary

As the population continues to age, the older adult’s involvement in self-care is critical in health maintenance. Self-care in conjunction with health literacy and knowledge about self-care activities was mentioned by many studies. This present study adds to the body of knowledge regarding the relationship between health literacy and self-care. Not many studies in the literature reviewed included Blacks or when included, the percentage was low. This study provides preliminary data on self-care activities within the Jamaican setting from a population that is predominately Black.

It was noted that some studies do not include the a self-care tool to measure self-care. In the current study, the Appraisal of Self-care Agency Scale - Revised (ASA- R) is used and is adequately described and referenced. This information can inform nurses of the availability of a relevant tool that was piloted in Jamaica with an adequate reliability score that can be used in their practice. The inclusion of a theory to guide research studies is lacking in most articles. This study used Orem’s self-care theory. This can inform nursing practice as to the relevance of a theory that has a role in the knowledge development in nursing.
Theoretical Framework

Overview

In acquiring self-care skills, Levin-Zamir and Peterburg (2001) believed that health can be conceptualized as a resource while self-care is empowering for the client. This empowerment aids the client in making decisions that can promote health and encourage active participation. To better understand these concepts and their relationship to the topic, this section of the paper will explore the theoretical underpinnings used in the literature that could be used to explain, describe or predict the relationship between health literacy and self-care. Although there are other useful theories that could be considered such as the health belief model, the health promotion model and the Meleis’ transitional model, Orem self-care model will be used as the conceptual framework for this paper.

Conceptual Model for Study: Orem’s Self-Care Model

Overview

Self-care practices are those deliberate activities that persons perform on their own behalf in order to maintain health, life and well-being (Orem, et al. 2003). These activities are relevant to people of a variety of socioeconomic and cultural backgrounds. Since self-care is an approach rather than a specific intervention, nursing professionals should understand the client’s perception and beliefs regarding self-care practices. Although self-care is conceptualized as the action for one’s self and the environment, it also represents the image of the nurse as “the other self”. This situation depicts the reality of the human condition of social dependency in which a person is in need of help from another (Lipson & Steiger, 1996; Meleis, 2011; Orem et al., 2003).
According to Meleis (2011), the Orem self-care theory has been one of the most widely discussed theories in nursing. Its usefulness is seen in contributing to the development, integrity and functioning of humans. In support of the Orem self-care theory, Renpenning and Taylor (2011) indicated that the theory has three conceptual formulations: (a) theory of self-care, which is a form of human activity that is essential for human functioning and well-being; (b) self-care deficit theory, which operates as a predictive component for nursing in which care is offered to a client who is unable to self-care; and (c) theory of nursing system, which is the end product of nursing. Although the key generic concepts of the three conceptual formulations will be discussed in this section of the paper, the main focus will be on the theory of self-care. This section will begin with the historical perspectives, followed by the philosophical underpinnings. The following sections will deal with the conceptual basis and rationale for inclusion in this paper capped by the implications for practice.

**History of Dorothea Orem**

According to Hartweg (1991), Dorothea Orem is the originator of the Orem self-care theory. She was born in Baltimore, Maryland in the USA in 1914. Her education provided her with the preparation to create a model that links the client to the nursing process, quality assurance and clinical research. In 1956, Orem’s first expression of a general theory was formulated. This theory was reformulated in 1958 expanding the work in the domains and boundaries of nursing practice and its connection to the field of knowledge. Her first publication in 1959 was a curriculum design for a practical nursing program. By the 1980s Orem published a second book and further refined the components of the science of self-care. The future development of this theory is to
continue testing within different settings with varied population. (Hartweg, 1991; Meleis, 2011; Orem et al., 2003)

Philosophically, Orem couched the self-care theory in the study of logic and metaphysics. The search brought her in contact with Aristotle and Aquinas complemented by the works of Bernard, Kotarbinski, Macmurray and Parsons to name a few (Hartweg, 1991). She identifies the deliberate, goal directed action performed by a person either in the interest of self or in response to the environment. These are discussed in three steps. The steps are: (a) universal (air, water etc.), (b) developmental (related to life’s events, and (c) health deviation (illness component). This approach involves the process of a realistic self-care concept fostering growth and development; maintaining and promoting physical health and intervening when there is a deviation from the norm (Hill & Smith, 1985).

**Theoretical Assumptions**

The basis of the self-care concept is grounded in the following assumptions:

- People are ultimately responsible for their own health.
- People have a right and the ability to make choices about their health and health care.
- Self-care knowledge and skills decrease an individual’s or family’s dependence on professional care intervention and increases their ability to assess health status and need for intervention.
- The relationship between the individual, family or community and the health care professional should be a partnership.
• Health care professionals should be aware of their own health beliefs and practices.

• A client’s beliefs may counteract professional beliefs and practices, hence modifications may be necessary (Lipson & Steiger, 1996, pp.18-19).

According to Hartweg (1991), self-care is a learned behaviour that is based on social and cultural experiences and perspectives. The performance of self-care is not innate but is done in response to a known need. The belief is that persons have the potential, capacity and the drive to care for themselves and others. Not only is self-care learned but is considered a result-seeking action (Denyes, Orem, & Bekel, 2001; Söderhamn, 2000) in which people use essential powers to engage in activities. Self-care, in this context, is goal centered to facilitate health maintenance. Understanding the concepts related to self-care is fruitful to this study as it allows for questions to be asked as to the reasons people engage in self-care activities, the nature of the activity, power and capabilities needed to carry out these actions and what the possible triggers are that stimulate these actions.

Self-Care- Key Concepts

The concepts related to self-care indicate that the deliberate action performed is done by a self-care agent who has the human capability to self-care, known as self-care agency (Burdette, 2012; Gast et al., 1989; Hartweg, 1990; Kumar, 2007; Orem et al., 2003; Söderhamn, 2000). The self-care agent uses power and ability to perform acts of self-care. The actions of the self-care agent are developed through spontaneous learning, from intellectual interest and by instruction and supervision of others (Söderhamn, 2000). Kumar (2007) discusses three therapeutic self-care demands, namely, universal (need for
water and food), development (aging) and health-deviation (applies when a person has a chronic disease).

The elements of self-care used by the self-care agent, according to the Orem Self-Care Model (See Figure 1) involve the estimative, transitional and productive operations (Hartweg, 1991; Meleis, 2011). Gast (1991) and Söderhamn, (2000) define estimative operations as a process in which the self-care agent investigates the conditions or factors within self and the environment that are relevant to the self-care process. The second element in which the self-care agent engages is called transitional operation. This is the process in which the person evaluates and makes judgments and decisions regarding what one can, should and will do to meet self-care needs. The third element involves performing self-care actions to meet self-care demands.

Renpenning & Taylor (2003) advance the discussion as they consider self-care as an activity that is performed by an individual in time and over time. The performance of the activity can also be influenced by conditioning factors (see Figure 1) such as age, health status or developmental stage (Söderhamn, 2000). Depending on the conditioning factors, self-care can be a resource (Høy, Wagner, & Hall, 2007) that can help older adults to remain active, autonomous and competent. The goal of self-care is to facilitate the older adult’s ability to promote, maintain or improve their own health. Although this is an excellent outcome to be achieved, Söderhamn, (2000) cautions that self-care ability in itself should not be a means for health only. Writing from a phenomenological perspective, the author posits that it is the potential for self-care ability that is part of the lived body experience. It is the belief that when self-care is done properly it can contribute to the human structure, integrity, and development.
The fundamental science of self-care includes knowledge regarding the capabilities and disposition crucial for deliberate action. Secondly, there is the power components needed for general self-care. This involves motivation to carry out the deliberate action. Thirdly, although the person may have the knowledge of what to do and may feel motivated, one must possess the capability to actually perform the action. Persons who are totally dependent on the nursing system to meet self-care needs are considered to be “wholly compensatory” (see Figure 1).

This is based on demands of the activities and the requirements to prevent illness, disability or death. In the event that the person is unable to self-care, the nursing agency (human capacity) will provide and manage the system in need. This need, defined as a deficit, is the imbalance between the self-care agent and the care demands. Integral in this process, are the conditioning factors that modulate the various “players” at different points in time (Hartweg, 1991; Meleis, 2011; Orem et al., 2003).

“Partially compensatory” describes a person’s status that can assist themselves but may require input from the nursing system. There is a third group that is fully able to meet their self-care needs but could benefit from support for health maintenance. These persons fall into the “supportive – educative” system (see Figure 1) (Gast et al., 1989; Hartweg, 1991; Meleis, 2011; Orem et al., 2003; Renpenning & Taylor, 2003).

Self-care measures and practices are required to meet the client’s needs. This concept is equally important in disease prevention and all health promotion programs. Self-care plays a key role in clinical intervention and client education. Use of the Orem self-care theory can be accomplished in the presence or absence of a medical personnel (Meetoo & Temple, 2003).
Theoretical Rationale for Model

The self-care model is a useful theory in understanding the association between health literacy and self-care. Without the knowledge of what actions to take, the client will not be able to adequately self-care. This model is the most widely used in research, education and practice to explain, describe and predict self-care and related issues (Hartweg, 1991; Meleis, 2011). This model also provides a sociocultural orientation that outlines the factors that can influence a person to self-care. These factors include knowledge of which literacy (a pre-requisite for health literacy skills). The person not only obtains the knowledge but the ability to process and use the information to self-care. “Self-care is accepted as a practical endeavour because it is directed toward bringing about specific regulations of human functioning and development through deliberate result-seeking action under existent or changing environmental conditions” (Denyes, Orem & Baker, 2007, p. 49).

Although the coined words ‘health literacy’ were not in existence during Orem’s lifetime, the conceptualization, though seemingly indiscernible at the time existed. This could be seen in people’s ability to secure, comprehend and use health information to care for themselves.
Figure 1: Theoretical Framework – Orem’s Self-Care Model
According to Orem (2003), regarding the estimative element, the person will assess self and environment with regards to self-care activities. This assessment requires an understanding of the one’s demographics and external variables and their influence on health outcomes (Squiers, Peinado, Berkman, Boudewyns, & McCormack, 2012). It can be argued that the individual’s ability to assess self and the environment depends on their health-learning capacity (Wolf et al., 2009). This health-learning capacity facilitates the seeking of health knowledge which can result in change in health behaviour and subsequently affect health outcomes.

The transitional element includes judgement and decision making for self-care activities. Nutbeam (2000) identified three types of literacy that are important for the transitional element. The belief is that accessing health information and building the capacity to use it can empower people to make better decisions to care for themselves. Firstly, there is the need for basic or functional literacy (reading and writing) to be able to understand health information. Secondly, communicative or interactive literacy requires advanced skills coupled with social ability to make judgement on how to apply the health information. Thirdly, a more advanced cognitive skill set is required to make critical appraisal for use of the health information. This is called critical literacy.

The involvement in self-care activities is called productive element (Orem, 2003). This involvement is based on time, energy, ability etc. These factors depend on the context and setting which are related to the multidimensionality of health literacy. Hence, the same person may be health literate in one context but not in another (Mårtensson & Hensing, 2011), resulting in either limited or improved involvement in self-care. When there is limited or deficient self-care involvement, the nurse and the family can assist the
client through partial compensatory activity (Orem, 2003). This can also be done as a shared responsibility (Mårtensson & Hensing, 2011) or the client can be cared for by others (Godfrey et al., 2011) to facilitate the productive element. Educating persons through the provision of useful health information can influence decision making and facilitate self-care. This is a critical role for the nurse (Wilson, Mood, Risk, & Kershaw, 2003).

The model is versatile. It applies to health and wellness as well as illness. This can facilitate the nurse assisting the client who may be ill (whether wholly or partially compensatory) to a stage of needing only support. For those who are well, the self-care model supports health maintenance (Meleis, 2011).

Motivation is a unique feature of this model. When the foundational traits are in place, such as perception and memory, the client could be aware of self-care needs. This aspect of the model facilitates the use of a tool such as the Mini-Mental Status Examination (Tombaugh & McIntyre, 1992) for cognitive assessment. From the operational trait perspective, the client will make judgements or decisions regarding self-care activities. Even if the client is aware and decides that self-care is to be done, without motivation, it may not be achieved. Consequently, the enabling trait provides the motivation that empowers the client to carry out the actual performance (productive operation). At this level, the Appraisal of Self-Care Agency Scale (ASAS-R) tool is useful to measure this action of the client from an estimative, transitional or productive level.

Finally, in order to assess the knowledge needed for self-care, the model can facilitate the use of the Health Literacy Questionnaire (HLQ). Within the power component, the measurable elements include client’s attributes of having a repertoire of
self-care skills, valuing health, having the energy to actively manage health, and possessing sufficient knowledge to find good information and understand it can be measured.

The Orem self-care theory remains a useful fit in research on self-care and health literacy as it provides the opportunity to conceptualize and operationalize the variables. As people age, they are more prone to health deficits. Facilitating self-care can add quality to life, moving the client from a passive recipient to an active participant in health care while possessing health literacy skills.

**Chapter Summary**

As the population in Jamaica continues to increase, the health and maintenance of older adults must be guided by evidence-based practice. From the literature review, it was noted that no study of this nature has been done in Jamaica or in the Caribbean. Hence, this study is poised to contribute to the body of knowledge while exploring varying aspects of the Orem self-care model.

Older adults have had moderate representation in many health literacy and self-care studies. Most of the studies reviewed were done in developed countries (e.g., US). Hence, generalizability to developing countries (e.g., Jamaica) may be problematic. Older adults in developing countries do face different challenges based on scarce resources, cultural and socio-political issues that render healthcare access difficult. This study provides an understanding of how access, navigation and use of health information is not only conceptualized but practiced with the use of the Health Literacy Questionnaire. With older adults at risk for sensory deficits and the vulnerabilities this population face during their involvement in research studies was rarely mentioned.
Although many studies have included Blacks, there is underrepresentation of this ethnic group. Jamaica is a population of mostly Blacks. Also, Blacks in Jamaica differ from those in the US (as depicted in the literature) based on culture and lived experiences. The study adds to the knowledge found in the research articles that have featured Blacks. This ethnic group also has disparities in health and are predisposed to mitigating factors which place them at increased risk for limited involvement in self-care based on their level of health literacy. This study evaluates their ability to access, understand, process, and use health information. Also, more studies need to address gender and the role it plays in health literacy and self-care. Gender is a key covariate in this study in examining its effect on the relationship between health literacy and self-care behaviours.

The Orem self-care theory, although widely used in the literature, has few studies in which the concepts - health literacy and self-care are examined together. This study will highlight the applicability of this theory and its usefulness to nursing practice. While health literacy as a concept has been extensively researched by the disciplines of medicine and public health, the contribution of nursing is still sparse. This study examines the phenomenon from a nursing perspective which can add to existing literature.

The Health Literacy Questionnaire that was developed (2012) in Australia was piloted in Jamaica. The use of the tool in this study contributes to the HLQ further development. Consequently, this study adds to the body of knowledge in health literacy measurement.
CHAPTER THREE

METHODOLOGY

Research Design

This section will present the strategies that were employed to achieve the study outcomes. It will address the research design, the assumptions that were pertinent to the study, research questions, the methods used, and the data analysis plan.

To ascertain what role health literacy plays in self-care behaviour, a sample of older adults living at home in Manchester, Jamaica, was interviewed using a survey. The study examined the level of health literacy, documented self-care performance and ability, and investigated the relationship between health literacy and the achievement of self-care. A correlational research design with cross-sectional data collection used a multistage sampling strategy (Polit & Beck, 2010). The Health Literacy Questionnaire and the Appraisal of Self-care Agency Scale (ASA-S-Revised version) were used to measure the variables. The Mini-Cog was used for all participants to collect data to assess cognitive impairment. Health status was measured using the Self-Rated Health Questionnaire.

Philosophical Assumptions Supporting Research Design

Based on the research approach, the post-positivist worldview was use. According to Creswell (2009), this philosophical thinking is credited to writers of the 19th century such as Comte and Mill then Phillips and others in later years. The post-positivists’ approach indicate that when a phenomenon is to be studied, it should reflect the rigor necessary to identify the factors that influenced the outcome. Post-positivism suggests that there are existing theories that influence the way the world operates. These theories,
according to the post-positivists, must be tested and verified and refined. Since this philosophy embraces an objective reality, information gleaned should be through careful observation and measurement. Hence, a numeric approach is used as opposed to a multiple participant meanings (qualitative). Consequently, the study used tools that measured and tested quantitative data (Angers, 2011; Creswell; Hamati-Ataya, 2012).

Although Orem’s self-care theory was not tested, the issue of self-care fit with Orem’s theoretical framework. Although the theory is widely used there are few research studies that combine health literacy and self-care together. Because theory drives research, and research can be the vehicle for theory development, this theory delineated the key concepts and the presumed relationship that could be explored in this study (Roberts, 2010).

The choice of the research design was based on the questions being asked and the state of the science, as understood from the various readings. The variables being studied have been adequately described in the literature. However, the relationship between health literacy and self-care in older Jamaican adults had not been studied. Hence, a correlational design was used. According to Polit and Beck (2010), a descriptive correlational design allows one to examine the relationships between variables without inferring causal connections. A cross-sectional approach was taken (one time data collection). Multi-stage sampling was employed in which the parish of Manchester was chosen for convenience, and then the Electoral Districts (ED) within all the regions were selected by simple random sampling while quota sampling was used to secure 25 respondents from each ED. The survey was interviewer-administered. An interviewer-administered approach has been supported by Fowler (2009) who states, in general,
“Surveys are fundamentally a matter of asking a sample of people from a population a set of questions and using the answers to describe that population” (p. ix). For this study, a sample of older adults was surveyed about their health literacy skills, self-care activities and selected demographic variables. Also, Fowler (2009) proposes that interviewer-administered surveys are relevant to respondents who are not well educated, whose reading and writing skills may be deficient (e.g., Jamaicans who speak Creole), have sensory deficits or who are vulnerable to fatigue (due to aging or chronic diseases). Hence, the researcher found that incorporating this approach was reliable and feasible.

Because statistical tests allow the researcher to detect significant findings and avoid committing Type 1 or 2 errors, the assumptions used to ensure validity of the study were important. Of concern, according to Polit and Beck (2010), was statistical power. The authors define statistical power as “the ability of the design to detect a true relationship among variables” (p.245). To conduct a statistically relevant study, guidelines supported by Fowler (2009) were used to determine a representative sample size. A sample size of 150-200 was thought to be adequate based on the number of independent variables needed for the statistical tests as well as the socio-demographic subgroups. The authors (Polit & Beck, 2010) theorise that small sample sizes threaten the statistical validity of a study.

**Research Questions**

This study sought answers to the following questions:

1. What is the average score for each of the nine health literacy scales
2. What is the association between each of the nine scales of the HLQ and selected sample characteristics (e.g., education, sex, region)?
3. What is the association between the self-care scale total score and selected sample characteristics (e.g., education, sex, region)?

4. What is the relationship between the individual health literacy scores and the composite self-care score?

5. Does health literacy predict self-care agency after adjusting for education, region, health status, age, and sex?

**Methods**

**Sample**

With a population of 189,797 persons living in Manchester, older adults constitute 13% (24,751) of the total population (STATIN Census, 2011). The sample size was determined by using guidelines stipulated by Fowler (2009). To secure a representative sample, a multi-stage selection process was used to recruit 200 persons. This method facilitated having 5-10 subjects per independent variable.

The sample of recruited Black older adults was required to satisfy the following criteria to be enrolled as participants in this study. Geographically, they must live in a domestic setting in the parish of Manchester within the designated regions and Electoral Districts (EDs). They must be 60 years or older. Persons should be mentally alert, cognitively competent, and able to understand spoken English when addressed. Older adults who were physically fragile or emaciated from illness were not enrolled.

Based on the randomly selected EDs, suitable respondents were targeted from each of the four regions (North West, North East, South and Central) of Manchester (See Figure 2). A multistage quota sampling strategy was adopted.
Figure 2: Map of Manchester

The researcher followed the geographical markings as outlined on Statistical Institute of Jamaica (STATIN) maps within each ED. Starting from a significant milestone of the ED, for example, township or square, data was collected in a westerly
direction targeting every house, until a sample size of 25 per ED was achieved. On reaching a home, enquiry was made to ascertain whether an older adult lived at that location. If the older adult was present, full explanation about the study was given to secure consent. If consent was obtained, then the tools were administered by the researcher and the trained research assistant. Data was collected in a convenient area to ensure privacy. (see Appendix G for training protocol for research assistant).

Protection of Human Subjects

The proposal was submitted to the Loma Linda University and the Northern Caribbean University Ethic Committees for approval.

To protect the rights of the older adults, full explanation about the study was given to potential subjects. Participation in the study was voluntary, and subjects were given the option to refuse to participate or to withdraw at any time. After the explanation, verbal consent was elicited.

No personal identifying information was included in the survey; however, each set of tools was given a number that corresponded to the computer entry. The completed survey was collected by the researcher and stored in a locked filing cabinet that was accessible by the researcher only. When the data had been entered in a computer, it was stored in an encrypted file. One year after the study has been written up; the master list will be destroyed.

The risks to the older adult during the study were minimal. Some may have experienced discomfort based on the information to be shared regarding their health literacy skills and the level of self-care involvement. Although persons were not directly told that their health literacy skills would be measured, information about reading ability
for some persons may have been uncomfortable. Demonstration of sensitivity and care to avoid embarrassment or shame was shown. If a person showed signs of unwillingness during the process, the procedure was either aborted, or the researcher offered to return at a future time or date. Due to age-related issues such as fatigue and daytime sleepiness, the researcher was sensitive to these issues. Hence, data were collected based on willingness, energy, and wellbeing of the participants.

No direct benefits were derived by the older adults for participating. However, the older adult may have enjoyed the opportunity to talk to a nurse or persons about the health information that can help them to self-care. Some might also have been grateful to have been considered as a contributor in the improvement of care to be given to older adults.

Procedure

Eligible participants were recruited from the designated Electoral Districts. During the recruitment, after the subject agreed to participate, consent was secured. Once the potential subjects had been determined by the researcher to meet the inclusion criteria, the verbal script (see Appendix C – Informed Consent Form) was read and any questions regarding the study were answered. If the subject agreed to complete the survey, the Mini-Cog was then administered to ascertain level of cognitive status. The rationale for use of this tool is that one’s cognitive status can affect a person’s ability to obtain, understand, process, and use health information to care for self.

The tools, that is, Health Literacy Questionnaire (HLQ) and the Appraisal of Self-Care Agency Scale (ASAS-R) were administered by the researcher or assistant based on the indication by the participant or observation (visual, reading and writing
inability) by the researcher. The data collection process took 30-45 minutes. Demographic data was also collected. The completed forms were collected on the spot.

The data were collected while ensuring minimal interruption of self-care activities. Data collection was done at a time and place that was convenient for the older adult. The Mini-Cog was administered first to assess cognitive functioning. The Health Literacy Questionnaire (HLQ) was next. This was used to measure health literacy. The Appraisal of Self-care Agency (ASAS-R) was used to measure enabling traits of self-care. This was followed by the Demographic Form (see Figure 3).

**Measurement of Concepts**

Included in this section are the tools (see Appendix A) that were used to measure the variables - health literacy, self-care, cognition and socio-demographic factors. The measures were selected based on their reliability and validity. Piloting of tools was done (April 2012 and May 2013) to ascertain the level of usability and cultural sensitivity within the Jamaican context. Tools requiring permission were obtained prior to use. No adjustments were made to standardized tools without the permission of the person(s) or organization(s) that has copyright of the tools (see Figure 3).
Figure 3. Health Literacy Self-Care Research Model - Fletcher, 2014

- **Socio-demographics**
  Measured by socio-demographic profile

- **Health Literacy**
  Measured by Health Literacy Questionnaire

- **Self-care Agency**
  Measured by Appraisal of Self-care Agency Scale
**Pilot Studies**

For the first pilot study, 45 eligible persons were contacted with a final sample of $N = 30$. The purpose of the pilot study was to determine the feasibility of conducting a larger study of health literacy and self-care among Jamaican older adults. Additionally, the goal was to assess the reliability and usability of measures of health literacy and self-care with the target population. Three measures were tested in the pilot phase. Two measures of health literacy were used, the Single Item Literacy Scale (SILS), which ask, “How often do you need to have someone help you when you read instructions, pamphlets, or other written materials from your doctor or pharmacy” (Jeppesen, Coyle, & Miser, 2009) and the Brief s-TOFHLA (Baker, Williams, Parker, Gazmararian, & Nurss, 1999). The third measure tested was the Appraisal of Self-care Agency Scale Revised (ASAS-R) (Sousa et al., 2010). Bivariate correlation of SILS with the (ASAS-R showed a significant inverse relationship ($r = -.385, p = .032$). Those with higher SILS score are more likely to have low literacy skills and are in greater need of assistance from others which correlates to lower levels of self-care involvement. The Appraisal of Self-care Agency Scale (ASAS-R) had a reliability estimate .97 (Cronbach’s $\alpha$) in this sample, and 64% scored in the high self-care category. The ASAS-R correlation with education ($r = .497, p = .01$) indicated that elders with more education had better self-care skills. Additionally, the respondents had difficulty with the culturally specific content of the s-TOFHLA. Consequently a replacement for the s-TOFHLA, the Health Literacy Questionnaire (Osborne, et al., 2013), was used for the larger study reported in this manuscript.
The second pilot study was conducted in May 2013. The purpose was to ascertain usability of the Health Literacy Questionnaire. Thirty-four eligible older adults were contacted. The final sample size was 30 persons from Central, North West and South Manchester. The tool covered areas such as the person’s ability to access health information, support from health professional, ability to understand health-related instructions and assessed capacity to use knowledge about health to navigate the medical settings. The participants were able to read and understand the items very well.

**The Mini-Cog**

This brief and simple tool was developed (Borson, Scanlan, Brush, Vitaliano, & Dokmak, 2000) primarily to detect dementia. The tool has been validated in mainstream epidemiology and multi-ethnic community samples. The specificity of the tool is 89%. The Mini-Cog was easy to administer (see Appendix A). During the administration of the tool, the person was told three words, and then asked to repeat them. If the person was unable to repeat the words within three minutes, the next instruction was given. The person was provided with a pre-drawn circle and writing tool to draw the face of a clock. They were told the time to indicate on the clock. No visible clock should be available. If the clock drawing process was not accomplished within three minutes, the person was again asked to recall the three words previously given. For each spontaneously recalled word, 1 point was given. The clock drawing was allotted 2 points if properly done. The total score was between 0 and 5. A score of 0 to 3 was a positive indication for cognitive impairment and 4 to 5 was considered negative (Borson, et al, 2000; Borson, Scanlan, Watanabe, Tu & Lessig, 2006).
The Health Literacy Questionnaire

The Health Literacy Questionnaire (see Appendix A) is a new tool that has been developed in Australia (2012) by Richard Osborne and colleagues. This was in response to conceptual and empirical gaps in existing tools that showed varied conclusions when used. The extant tools also failed to capture the concept of health literacy in its entirety. Additionally, there were also psychometric weaknesses in existing health literacy tools such as REALM, TOFHLA and the Newest Vital Signs. Finally, the items and scoring information were not in the public domain (Osborne et al., 2013).

An example of a tool that is widely used but does not bring into focus the individual’s ability to seek, understand and utilize health information across different settings is the short version Test of Functional Health Literacy in Adults (TOFHLA). The s-TOFHLA has features that assess reading comprehension (36 items) and numeracy (4 items). The Cloze format is written above the Grade 5 recommended level for health literacy tools. The tool has construct validity with the Rapid Estimate of Adult Literacy in Medicine (REALM) of 0.85 for reading comprehension and 0.61 for numeracy (Jordan, Osborne, & Buchbinder, 2011). With the trend of patient-centered care gaining momentum, there is an even greater need to have tools that can assess the patients’ ability to be involved in their care. According to Osborne et al. (2013), the existing tools were designed with poorly arranged discriminate categories and did not provide critical information as to the actions needed to improve the patients’ health.

Another reason the HLQ was developed was based on the failure of the Health Literacy Management Scale (HeLMS) (Osborne et al., 2013). For example, it had a high variance as it relates to an item that asks about ‘economic barriers to care’. This tool was
deemed to be comprehensive but had serious limitations such as it lacked the sensitivity to identify mild health literacy deficit. Hence, the HLQ was developed to fill the gap of capturing a wide range of health literacy needs for a variety of purposes even at the community level (Osborne et al., 2013).

There were four main steps involved in the development of the HLQ tool as delineated by Osborne et al. (2013). Initially, there was a brainstorming process in which the concept was grounded in the real world involving ideas from citizens, practitioners and policymakers. The ideas were sorted and rated as part of the conceptualization. Secondly, there was a draft of the items that were developed. Using Bloom’s Taxonomy to guide the process, strict item writing rules were developed and cognitive interviews conducted. After the items were generated, the tool was then administered to a ‘construction’ sample of 634 from different settings such as a private specialist rheumatology clinic at Cabrini Health Community Hospital (63), people who attended the emergency department at Barwon (160) and metropolitan organizations focusing on home and community care (411). The mean sample age was 65, mostly females (69%), and 55% has a high school level education.

The fourth stage was the psychometric analysis and refinement. The descriptive statistics for each item was to determine the extent of missing values and the floor and ceiling effects across domains. With the hypothesised constructs specified, an a priori confirmatory factor analysis (CFA) was used. After the restricted CFA, the numbers of items were reduced and the tool re-administered to 3,000 persons including younger age groups who were unlikely to have chronic illnesses and would have little contact with the
health care system. The analysis was done using Mplus version 6. The results are reported in Table 2.

Table 2

\textit{Psychometric Analysis – Health Literacy Questionnaire}

<table>
<thead>
<tr>
<th>Psychometric Indicators- Weighted least square mean and variance (WSCLMV)</th>
<th>Values</th>
<th>HQL Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>&gt;0.95</td>
<td>0.936</td>
</tr>
<tr>
<td>Tucker-Lewis Index (TLI)</td>
<td>&gt;0.95</td>
<td>0.930</td>
</tr>
<tr>
<td>Root Mean Square Error of Approximation (RMSEA)</td>
<td>&gt;0.66</td>
<td>0.076</td>
</tr>
<tr>
<td>Weighted Root Mean Square Residual (WRMS)</td>
<td>&gt;1.0</td>
<td>1.698</td>
</tr>
<tr>
<td>‘Reasonable Fit’ RMSEA</td>
<td>&gt;0.08</td>
<td>Other- $X^2$ WLSMV (866 d.f.) = 2927, p&lt;0.000</td>
</tr>
</tbody>
</table>

(Osborne et al., 2013, p. 6)

In addition, the composite reliability for all the unrefined scales was acceptable at this stage of the tool development. The findings from the CFA revealed that the subscale ‘Critical Appraisal’ had the lowest estimate (0.77) with a positive cross-loading from ‘Social Support’ (0.54) and ‘Actively Managing my Health’ (0.56). According to the authors, although the items have been retained, they are flagged for possible removal in the future (Osborne et al., 2013).

The tool is a Likert type scale (see Appendix A) that has two sections (Part A and B) with nine subscales and 44 items total. The subscales are: \textit{healthcare provider support}; \textit{having sufficient information to manage health}; \textit{actively managing health}; \textit{social support}; \textit{critical appraisal}; \textit{ability to actively engage healthcare providers};
navigating the healthcare system; ability to find good health information; and reading and understanding health information.

For Part A, there are four response options; ‘strongly disagree’ = 1,’disagree’ = 2, ‘agree = 3 and ‘strongly agree’ = 4. The stem of the questionnaire asks whether the person agrees or disagrees with the statements. Part B asks the person to indicate how ‘easy’ or ‘difficult’ a task is with regards to accessing, understanding, processing, and using health information. The five response options are: ‘cannot do’ = 1, ‘very difficult’ = 2, ‘quite easy’ = 3, ‘quite easy’ = 4 and ‘very easy’ = 5. The higher the score, the better the person’s ability to access, understand, process, and use health information (Osborne, et al., 2013)

Overall, the HLQ has good psychometric properties and provides stakeholders such as the general population, practitioners, health care organization and policymakers with useful information regarding patients’ health literacy needs and possible recommendations and interventions. The tool was considered robust and its use can help to clarify our understanding regarding health outcomes.

**Appraisal of Self-care Agency Scale Revised (ASAS-R)**

The ASAS-R was originally formulated by Evers et al. in 1986 but was further developed by the collaboration of researchers at Wayne State University, the University of Limburger and the Netherlands. The theoretical and empirical foundations for this tool are to evaluate capacity to self-care which is likely to influence levels of performance and self-efficacy. The original format has 24 items, whereas the revised tool has 15 items (see Appendix A for tool). The tool is designed to capture the enabling (power component) of
self-care agency. There are three factors, namely, power for self-care, developing power for self-care and lacking self-care. It has a Likert scale format of 15 items with nine items worded in a positive manner and four items are worded negatively. These four items must be recoded prior to data analysis (Sousa et al., 2010; Sousa, Zauszniewski, Zeller, & Neese, 2008).

An Exploratory (EFA) and Confirmatory Factor Analyses (CFA) were done. The overall Cronbach’s α coefficient was 0.89. The inter-item and item-to-total correlations met recommended criteria of $r = 0.30$ to $r = 0.70$. The three factors had Cronbach’s alphas of 0.86, 0.83 and 0.79, respectively. The factors explained 61.7% of the scale item variance. Each item of the scale had a strong factor loading ranging from 0.52 to 0.81. The ASAS-R had a very good fit ($X^2/d.f. = 1.97$, GFI = 0.94, AGFI = 0.92, CFI = 0.96, TLI = 0.95, RMSEA = 0.05, RMR = 0.05 and the PCLOSE = 0.48). The Cronbach’s α coefficient established for this study is .97.

The structure of the tool is a five point Likert scale ranging from 1 (‘totally disagree’) to 5 (‘totally agree’). The score ranged from 15 to 75 with the higher scores indicating greater capacity to self-care. The score range is divided into two sections: those lacking perceived self-care capacity (15 - 45) and those with high perceived self-care capacity (46 -75) (Halfens, van Alphen, Hasman, & Philipsen, 1999; Sousa et al., 2010).

**Demographic Profile**

The demographic profile is designed to collect data regarding the older adults’ age (in years), gender, education, work (if still actively engaged), marital status, home ownership, whether receiving medical care or assistance at home and income. The
respondents’ self-reported health status was measured by the Stanford Self-rated Health tool (see Appendix A). This single item tool has five levels of responses – ‘Excellent’ = 1, ‘Very good’ = 2, ‘Good’ = 3, ‘Fair’ = 2 and ‘Poor’ = 5. The respondents were asked to indicate the number that represents their health status. The higher the score the worse is the health status. The information collected helped in interpreting the results and in understanding the population to whom the findings can be generalized. The first section of the tool was intended for data collection regarding the Electoral District (ED), regions and area in which the data was being collected. A space was provided for code to identify each completed questionnaire. The survey was completed by either the researcher or assistant. Completion of the survey took approximately 30 to 45 minutes.

**Data Analysis**

**Data Preparation**

Prior to data analysis, the data set was cleaned to identify missing data, checked for outliers and to establish normalcy. The number ‘9’ was used to represent missing data. This number was chosen as it was not used in the responses to the Likert scale format. The data was checked for outliers. After the data had been cleaned and checked for accuracy, normality of data was established. Based on type of data in final phase, adjustments were made as it regarded the use of parametric or non-parametric statistics (Field, 2013).

**Data Management**

A backup storage strategy was put in place in the event of computer technical issues. Data was managed and analysed using the Predictive Analytic Software (PASW, IBM SPSS Inc., Chicago, IL) software programme version 20.0 for Windows.
Research Aim I

Determine levels of the nine aspects of health literacy for the entire sample (Jamaican adults 60 years and older) as well as by selected sample characteristics (e.g., gender and region); determine associations with selected sample characteristics such as age and health status.

Question One

What is the average score for each of the nine health literacy scales?

Analysis Strategy

Analyses involved calculation of means and standard deviations and 95% confidence intervals for each of the nine HLQ scales. This is displayed in a graph (point estimates and 95% confidence intervals) and tables and explained in a narrative.

Question Two

What is the association between each of the nine scales of the HLQ and selected sample characteristics (e.g., education, sex, region)?

Analysis Strategy

Analysis of continuous variables (e.g., age and health status) involved Pearson’s $r$ correlations with the nine HLQ scales. Analysis of binary variables (e.g., gender) involved independent sample t-tests for the nine scales. Analysis of multi-category variables involved use of ANOVA tests (with post hoc tests where appropriate) for the nine scales. This is displayed in tables with a narrative explanation.

Research Aim II

Determine levels of self-care using a single ASAS-R composite score for the entire sample as well as by selected sample characteristics (e.g., gender and region);
determine associations with selected sample characteristics such as age and health status.

**Question Three**

What is the association between the self-care scale total score and selected sample characteristics (e.g., education, sex, region)?

**Analysis Strategy**

Analysis of continuous variables (e.g., age and health status) involved Pearson’s $r$ correlations with the self-care composite score. Analysis of binary variables (e.g., gender) involved independent sample t-tests for the composite score. Analysis of multi-category variables involved use of ANOVA tests (with post hoc tests where appropriate) for the composite score scales. This is displayed in tables with a narrative explanation.

**Research Aim III**

Determine whether individual aspects of health literacy predict self-care.

**Question Four**

What is the relationship between the individual health literacy scores and the composite self-care score?

**Analysis Strategy**

Analysis included Pearson’s $r$ correlations between each of the nine health literacy and the self-care composite score. This is displayed in tables with narrative explanation.

**Question Five**

Does health literacy predict self-care agency after adjusting for education level, region, health status, age, and sex?
**Analysis Strategy**

Analyses involved using multiple linear regression (staged/hierarchical; dependent variable = ASAS-R composite score). Education level, region, health status, age, and sex were entered in block 1. HLQ scales subsequently were entered one by one (each in its own block). The findings are displayed in a residual scatterplot and tables with narrative explanation.

**Summary**

This section presented the strategies employed, the procedure and the rationales designed to achieve the study outcomes. A description of the research design, the assumptions that are relevant to the study, and research questions were detailed, as well as the data analysis plan.

With the Health Literacy Questionnaire (HLQ) being a new tool, development and psychometric analysis information was delineated. The HLQ has not been used in research studies; hence there are no benchmark data as to the expectations of the tools outcome to compare with the proposed sample. The Appraisal of Self-care Agency Scale (ASAS-R) has been used in research studies, however, the cut-offs for the scores have not been used consistently.

With regards to the conceptual definition being used for the current study, the HLQ tool is built on the same definition. Hence, it is hoped that the tool should be able to make a meaningful contribution to the understanding of health literacy while providing possible interventions. The tool was tested with younger and older adults who were both well and sick. This was useful for this study as older adults who were either well or sick
were surveyed. The tool was designed at the Grade 5 level which was appropriate for the population being studied. No bias was detected as the tool was piloted in Jamaica.

The limitations of such a research plan were that the cross-sectional design had an inherent weakness that does not allow the results to infer causality or identify trends. However, with the non-probability multistage sampling strategy, the rigor of the study was maximized. The multistage sample strategy tends to be less accurate than stratified, but given the sample of older adults to be used and the geographical issues (widely dispersed homes); it was deemed to be more economical and practical. As with any self-reported data collection, the full accuracy cannot be ascertained.
CHAPTER FOUR

RESULTS

Introduction

This chapter is divided into four subsections: (a) the data management process, (b) the geographical sampling sites and the sample demographics, (c) results of descriptive analyses and (d) results of inferential analyses, which correspond to the research aims. The research questions, which are the sub-sections of each aim, will be used to provide structure for the descriptive and inferential results sections.

Data Management

Data Preparation

Prior to data entry, the closed-ended variables were pre-coded, and the data dictionary was established. Included also were a missing data code and a category for ‘other’, which allows for re-coding, if necessary. To facilitate comparison with other studies, standardized classification or names were used; for example, HTN for hypertension.

Data Collection and Entry

The data were collected over a four-month period. During the data collection process, the data were entered directly into the SPSS software periodically to both evaluate preliminary findings and check for data entry errors. The data were entered by both the researcher and a research assistant. One person entered the data, and the other person visually checked the data for errors. Identified errors due to omissions, incorrect data entry or incorrect reading of codes were rectified. Frequency tables were generated to verify accuracy.
Data Cleaning

At the completion of data entry and initial inspection, the data cleaning process proceeded based on established guidelines (Field, 2009; Green & Salkind, 2008). Sources of error were visually assessed based on omissions, data entry, or incorrect code information. The data dictionary was checked for consistency in coding scheme. Frequency distributions were generated for all variables. Missing data were assessed for true value or whether they were due to data entry error. The questionnaires were rechecked and errors corrected. Outliers were examined and deleted, collapsed with data within a similar range, or kept as valid observations, as appropriate.

Data Checking for Normality

Another aspect of the data management included using the ‘Explore’ function in SPSS. This helped to determine normality of the data in preparation for statistical decision making and testing (Field, 2009; Green & Salkind, 2008). Various aspects of the quantitative data were assessed: means and medians, standard deviations (SD), 95% Confidence Intervals (upper and lower limits), variance, skewness, and kurtosis. Further evaluation of the data included use of the Kolmogorov-Sminov or the Shapiro-Wilk tests, the P-P and Q-Q plots, the Box Plots and histograms.

Preparation of Health Literacy Data for Analysis

The Health Literacy Questionnaire (HLQ) developed by Osborne et al., (2013) has an accompanying syntax that was used to calculate HLQ scores. The syntax checks for (and imputes) missing data, and provides formulas to form the nine scales (no data points were missing; thus, imputation commands were skipped). Descriptive data were also generated for these scales. Cronbach’s α reliability (SPSS scale program) across the
nine scales ranged from a low of .82 to a high of .94. According to Field (2009) and Green and Salkind (2008), these reliability estimates are considered ‘acceptable’ by conventional standards (modern reliability estimates – such as those used in the development of the HLQ – are beyond the scope of the present study).

**Preparation of the Appraisal of Self-care Agency Scale for Analysis**

The Appraisal of the Self-care Agency Scale (ASAS-R) is a 15-item tool with four reverse-scored items, which were reversed before calculating a total score (sum of all 15 items). Normality was verified after summation. The next step was to assess the reliability of the tool by using the SPSS scale program. The Cronbach’s α in this sample was 0.76, which is an acceptable value according to Field (2009) and Green and Salkind (2008). Reliability testing for the 15-item ASAS-R tool in another sample had an overall Cronbach’s α of 0.89 (Sousa et al., 2010).

**Geographical Sampling Sites**

Data were collected in the four electoral regions of Manchester, namely: North East, North West, Central, and South. Sites were chosen randomly by using the Electoral Districts (ED) provided by the Statistical Institute of Jamaica (STATIN). Of the eight EDs, there were five rural settings (See Appendix E for maps). The total number of older adults for the eight EDs were 697, with more females than males (see Table 3).
Table 3

*Sampling Sites and Expected Population in Manchester*

<table>
<thead>
<tr>
<th>Regions</th>
<th>EDs</th>
<th>Locations</th>
<th>Settings</th>
<th>Total Males</th>
<th>Total Females</th>
<th>Males 60 years &amp; older</th>
<th>Females 60 years &amp; older</th>
<th>Total Population 60 years &amp; older</th>
</tr>
</thead>
<tbody>
<tr>
<td>North East</td>
<td>19</td>
<td>Colleyville</td>
<td>Rural</td>
<td>421</td>
<td>424</td>
<td>43</td>
<td>64</td>
<td>107</td>
</tr>
<tr>
<td></td>
<td>53</td>
<td>Christina</td>
<td>Urban</td>
<td>352</td>
<td>334</td>
<td>37</td>
<td>49</td>
<td>86</td>
</tr>
<tr>
<td>North West</td>
<td>64</td>
<td>Greenvale</td>
<td>Urban</td>
<td>260</td>
<td>259</td>
<td>26</td>
<td>23</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>Johns Hall</td>
<td>Rural</td>
<td>310</td>
<td>294</td>
<td>50</td>
<td>44</td>
<td>94</td>
</tr>
<tr>
<td>Central</td>
<td>45</td>
<td>Confidence</td>
<td>Urban</td>
<td>235</td>
<td>241</td>
<td>63</td>
<td>29</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>Knockpatrick</td>
<td>Rural</td>
<td>488</td>
<td>558</td>
<td>57</td>
<td>60</td>
<td>117</td>
</tr>
<tr>
<td>South</td>
<td>21</td>
<td>Downs</td>
<td>Rural</td>
<td>165</td>
<td>193</td>
<td>27</td>
<td>36</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>65</td>
<td>Cross Keys</td>
<td>Rural</td>
<td>300</td>
<td>300</td>
<td>28</td>
<td>61</td>
<td>89</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>2431</td>
<td>2603</td>
<td>331</td>
<td>366</td>
<td>697</td>
</tr>
</tbody>
</table>

*Note.* STATIN, 2011
Within each ED, the following approach was used to secure the sample. Starting at the township, a check was made at the first house, and the process continued from house to house to ascertain the presence of older adults. Twenty-five persons per ED or 50 persons per region was the goal based on the methodology and the existing sampling frame from STATIN. Whenever elders were present, the researcher established contact and explained the purpose of the visit. Those who were unable to understand the purpose of the visit or could not comprehend the instructions of the Mini-Cog test or did not meet the eligibility criteria were excluded. Older adults who consented to participate in the data collection were handed the questionnaire. All the respondents expressed the need for the researcher to complete the questionnaire as they provided their answers. Some persons believed that it would take too long for them to complete the questionnaire based on their vision or arthritic hands. Others were not sure that they could correctly complete it by themselves. A private place was identified for survey administration. The Mini-Cog tool was administered first to establish whether the persons were able to understand, repeat words, and remember information. This was necessary for the interview process. The ASAS-R tool was done next, then the HLQ, followed by the Demographic data. Two hundred and sixty-two (262) homes were visited with eligible persons (i.e., age 60 years and older). Fifty-two persons refused to participate in the research study for different reasons (e.g., lack of interest, no tangible benefits), whereas ten elders did not meet the eligibility criteria of which only cognitive data was collected. The resulting 200 elderly residents consented to be interviewed. The overall response rate within the regions ranged from 58% to 92%. The total number of selected EDs and persons approached for data collection are shown in Table 4.
Table 4

_Elder Visitations and Response Rate_

<table>
<thead>
<tr>
<th>Regions</th>
<th>Total Eligible</th>
<th>Total Interviewed</th>
<th>Response Rate %</th>
</tr>
</thead>
<tbody>
<tr>
<td>North East</td>
<td>69</td>
<td>55</td>
<td>80</td>
</tr>
<tr>
<td>North West</td>
<td>60</td>
<td>55</td>
<td>92</td>
</tr>
<tr>
<td>Central</td>
<td>83</td>
<td>48</td>
<td>58</td>
</tr>
<tr>
<td>South</td>
<td>50</td>
<td>42</td>
<td>84</td>
</tr>
<tr>
<td>Totals</td>
<td>262</td>
<td>200</td>
<td>76</td>
</tr>
</tbody>
</table>

Within the North East region, the homes were moderately dispersed but accessible. Many older adults were seen in the communities involved in income generating activities (especially farming or shop keeping), yet some were unwilling to be engaged in research-related process. Others found the term ‘elderly’ or ‘older adult’ mildly unpleasant. Consequently, they respectfully requested that the researcher visit those persons who were frail or bed-bound. This resulted in an 80% response rate.

In the North West region, the homes were readily accessible and were built in close proximity. There were also areas within the chosen EDs that were vastly woodland. The level of interest and participation was high; hence the response rate was 92%. In communities where many persons occupied the same yard space, a large number of persons of varied ages could be seen congregating in small and large groups at different times of the day. This facilitated ease of finding older adults but made privacy required for data collecting challenging especially in homes where many extended family members shared the same house. The cultural connotation of the word ‘elderly,’ ‘aged,’ or ‘old person’ was more readily accepted. Interestingly, although this region had people
engaged in farming, a considerable number of elderly persons were involved in domestic-type of work, shop keeping or baby-sitting.

For the Central region, most homes were visible, but some occupants were either unavailable or unwilling to participate resulting in a response rate of 58%. The presence of ferocious dogs prevented access, whereas other houses were built a long distance from the road with a gate intercom system. When contacted, some older adults said they were scared to speak to strangers and remained within the confines of their homes. Within this region, a number of returning residents (Jamaicans who lived and worked outside of the country but returned for retirement) were encountered. Although a few thought it was offensive to think of them as being ‘elderly’ or an ‘older adult’, others were happy to share their information, despite this label.

Houses in the Southern region were widely dispersed and sometimes inaccessible either due to the location of the houses or the fact that areas were considered lonely and unsafe. There were also areas that were woodland. Most of the persons visited were willing to participate resulting in the interest rate being relatively high (84%).

**Results of Descriptive Analyses**

**Demographic Profile of the Sample**

The sample of 200 older persons who were interviewed ranged from 60 to 100 years, with a mean ($\bar{X}$) age of 74.71 and $SD$ 8.51 and with more females (53%) than males (47%). Based on national data, this is an expected finding because females tend to live 5 to 6 years longer than males. However, the national data for males is 48% and 52% for females. Data for the parish of Manchester revealed 47% and 53% for males and females, respectively (STATIN, 2011). The sample mirrored the parish population data
for males and females 60 and older. Large proportions (73%) of the older adults own their homes, yet 84% of them live with others. According to STATIN (2011), the national data for home ownership is 60.3%. Regarding marital status, 40% \( (n = 79) \) were married, whereas 27% \( (n = 54) \) were widowed (most widows were female which also is the case in Jamaica). Seventy-six percent \( (n = 155) \) of the sample had primary school education or less. More females were able to attain educational levels higher than males with 54% and 63% for primary and high school respectively. Males, however, had higher training attainment for trade (52%) and for university level education (83%) (see Table 5 for national data comparisons).

Health was measured by a single item question, ‘In general, would you say your health is… ’ with five response possibilities ranging from ‘Excellent = 1’ to ‘Poor = 5.’ As it relates to the health status, 80% of the older adults perceived their health to be excellent or good. There were only 17% of older adults who had private health insurance, whereas 53% had health cards (government health insurance), representing either or both the National Health Fund (NHF) or the Jamaica Drug for the Elderly Program (JADEP). It was interesting to note that 62% of those in excellent health had no health card. Comparatively, 75% of those with health cards were in poor health. Private insurance was obtained by 24% of those with an income of J$20,000.00 (Jamaican currency) or more.

The question “Do you have a long standing illness or disability?” revealed that the majority (73%) of the older adults claimed that they were receiving medical care, with 62% reporting at least one chronic disease. For this study, cardiovascular disorders (e.g. heart, hypertension) were noted by 61% \( (n = 121) \), arthritis by 50% \( (n = 99) \), whereas
diabetes by 26% \((n = 51)\). This is supported in part by World Health Organization (WHO, 2011) statistics for Jamaica; cardiovascular conditions, for example, are associated with the highest morbidity rate. Other chronic conditions reported in this study included high cholesterol, eye conditions (cataract, glaucoma or ‘dark eyes’), and peripheral vascular disease. It was noteworthy that females had a higher prevalence of the three common chronic diseases than males. For example, cardiovascular disease was 59%, diabetes 61%, and arthritis 67%. National data revealed that of the chronic diseases treated in public healthcare facilities, females had 3 to 4 times more chronic diseases than males. Females, for example, recorded a prevalence rate of 59% for diabetes (ESSJ, 2013).

Only 38% of those interviewed believed that they could benefit from help to care for themselves. Of those receiving care, 29% received care ‘as needed,’ whereas 8% received ‘scheduled’ care. A total of 133 (67%) considered themselves independent with ADLs. With 33% still in active labour (working), the majority (38%) had an income of J$4,000.00-7,999.00 most of whom were beneficiaries of the Program for Advancement through Health and Education (PATH) – an alternative government financial program for the poor and vulnerable. This safety net is supported by the Ministry of Social Security with 5,128 (16% of total Manchester population) of older adults as beneficiaries (ESSJ, 2013). Thirty-six percent reported an income > J$20,000.00, whereas 31% indicated that they had no steady income, and 27% claimed that they receive proceeds of J$10,000.00 or more.

**Summary of Findings with National Data**

When an overall comparison was made of the study data with that of Jamaican adults 60 years and older, there were only two similarities noted. They were the male to
female ratio and the level of primary level education. The data varied for secondary level education and trade. Although there is national data for the Jamaican population to match marital status, home ownership and disease prevalence, specific information was unavailable for the 60 years and older category. Of note is the ability to self-care. In this present study, the age used was 60 years and older while for the national data, STATIN used 65 years and older. (See Table 5 for socio-demographic profile of the sample).
Table 5

Socio-demographic Profile of Older Adult Sample Compared to National Data

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>%</th>
<th>National Data %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>94</td>
<td>47</td>
<td>48.0</td>
</tr>
<tr>
<td>Females</td>
<td>106</td>
<td>53</td>
<td>52.0</td>
</tr>
<tr>
<td>Primary or less</td>
<td>155</td>
<td>76</td>
<td>78.6</td>
</tr>
<tr>
<td>High school - incomplete</td>
<td>8</td>
<td>4</td>
<td>10.7</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High school – completed</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Trade</td>
<td>23</td>
<td>12</td>
<td>3.0</td>
</tr>
<tr>
<td>University</td>
<td>6</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>Married</td>
<td>79</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Never Married</td>
<td>51</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>54</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Separated</td>
<td>11</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>11</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Owned</td>
<td>146</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>Home</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rented</td>
<td>4</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>50</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Living Alone</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>167</td>
<td>84</td>
<td></td>
</tr>
<tr>
<td>Health Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>75</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>34</td>
<td>16</td>
<td></td>
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<tr>
<td>Poor</td>
<td>8</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Receiving Medical Care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>146</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>54</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Health Conditions</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>-------------------------</td>
<td>----------------</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td>Arthritis</td>
<td>99</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Back Pain</td>
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<td>20</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>12</td>
<td>6</td>
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<tr>
<td>Cardiovascular diseases</td>
<td>121</td>
<td>61</td>
<td></td>
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<tr>
<td>Diabetes</td>
<td>51</td>
<td>26</td>
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<table>
<thead>
<tr>
<th>Private Health Insurance</th>
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<tr>
<td>Yes</td>
<td>34</td>
<td>17</td>
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<tr>
<td>No</td>
<td>166</td>
<td>83</td>
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<table>
<thead>
<tr>
<th>Health Card – Government</th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>105</td>
<td>53</td>
</tr>
<tr>
<td>No</td>
<td>94</td>
<td>47</td>
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<table>
<thead>
<tr>
<th>Benefit from Care</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>75</td>
<td>38</td>
</tr>
<tr>
<td>No</td>
<td>125</td>
<td>62</td>
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</table>

<table>
<thead>
<tr>
<th>Help to Self-care</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>133</td>
<td>67</td>
</tr>
<tr>
<td>Partially Independent</td>
<td>62</td>
<td>31</td>
</tr>
<tr>
<td>Completely Dependent</td>
<td>5</td>
<td>2</td>
</tr>
</tbody>
</table>

**Cognitive Assessment**

Since cognitive status can affect the older adults’ ability to apply health literacy skills to self-care, the Mini-Cog was used as an assessment tool. Although the tool was easy to administer, the older adults’ responses were unexpected. Following the instructions regarding the purpose and administration of the tool, persons were willing to do the word recall, whereas most (60%) appeared uncomfortable when asked to draw the clock. When asked if able to do the clock drawing, many answered in the affirmative. However, some expressed disbelief that older adults would be asked to do such a simple task, whereas others expressed concern that they were not sure they remembered how to draw a clock; a task learned in childhood. Others indicated that they did not want to risk drawing the clock incorrectly. Most persons (57%) were able to recall three words, but
60% refused to draw the clock. Of those who drew the clock, 68% produced an abnormal figure. However, due to the incompleteness of the data and respondent refusals, the Mini-Cog was not used in subsequent analysis (see Table 6 for details).
Table 6

*Mini-Cog Result*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Scoring</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Recall</td>
<td>0</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>21</td>
<td>11</td>
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<td></td>
<td>2</td>
<td>35</td>
<td>18</td>
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<tr>
<td></td>
<td>3</td>
<td>113</td>
<td>57</td>
</tr>
<tr>
<td>Word Recall – Refusal</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
<tr>
<td>Clock Draw</td>
<td>Normal</td>
<td>26</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Abnormal</td>
<td>55</td>
<td>27</td>
</tr>
<tr>
<td>Clock Draw – Refusal</td>
<td></td>
<td>119</td>
<td>60</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>200</strong></td>
<td><strong>100</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Results of Inferential Analyses**

*Research Aim I*

Determine levels of the nine aspects of health literacy for the entire sample (Jamaican adults 60 years and older) as well as by selected sample characteristics (e.g., gender and region); determine associations with selected sample characteristics such as age and health status.

**Question One**

What is the average score for each of the nine health literacy scales?
The Health Literacy Questionnaire (HLQ) has 23 items in Part A and 21 items in Part B with a total of 44 items. When the scoring syntax is applied to the data set, the data are grouped in nine scales. The mean values, standard deviations, 95% Confidence Intervals, and Cronbach’s alphas across the scales are displayed in Table 7.

Table 7

*Health Literacy Questionnaire (HLQ) Scales Scores*

<table>
<thead>
<tr>
<th>HLQ Scales</th>
<th>Items per scale</th>
<th>$M$</th>
<th>$SD$</th>
<th>$CI$</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 - 4 rated scales</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Healthcare provider support</td>
<td>4</td>
<td>3.04</td>
<td>.96</td>
<td>2.90-3.17</td>
<td>.92</td>
</tr>
<tr>
<td>2. Having sufficient information</td>
<td>4</td>
<td>2.54</td>
<td>.81</td>
<td>2.42-2.65</td>
<td>.84</td>
</tr>
<tr>
<td>3. Actively managing health</td>
<td>5</td>
<td>2.84</td>
<td>.73</td>
<td>2.74-2.94</td>
<td>.82</td>
</tr>
<tr>
<td>4. Social support</td>
<td>5</td>
<td>3.50</td>
<td>.58</td>
<td>3.41-3.58</td>
<td>.93</td>
</tr>
<tr>
<td>5. Critical appraisal</td>
<td>5</td>
<td>2.14</td>
<td>.91</td>
<td>2.01-2.27</td>
<td>.90</td>
</tr>
<tr>
<td><strong>1 - 5 rated scales</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Active engagement with healthcare providers</td>
<td>5</td>
<td>4.34</td>
<td>.87</td>
<td>4.22-4.47</td>
<td>.94</td>
</tr>
<tr>
<td>7. Navigating the healthcare system</td>
<td>6</td>
<td>3.54</td>
<td>1.17</td>
<td>3.37-3.70</td>
<td>.86</td>
</tr>
<tr>
<td>8. Ability to find good health information</td>
<td>5</td>
<td>3.13</td>
<td>1.16</td>
<td>2.97-3.29</td>
<td>.88</td>
</tr>
<tr>
<td>9. Reading and understanding health information</td>
<td>5</td>
<td>3.83</td>
<td>1.20</td>
<td>3.66-3.91</td>
<td>.89</td>
</tr>
</tbody>
</table>

The first five scales used a response scale of 1 to 4 with 1 being ‘strongly disagree’ and 4 being ‘strongly agree.’ Scale one represents *Healthcare provider support*. The items that form this scale had high percentages for ‘agree’ to ‘strongly agree’
responses indicating that generally respondents have healthcare provider support (see Table F in Appendix for frequencies of responses). *Having sufficient information to manage my health* is scale two. The mean value for the sample fell between subjects ‘disagree’= 2 and ‘agree’ = 3 that they have sufficient information to manage their health. The perception that the older adults have the *ability to actively manage health* was measured with a 5-item scale. This mean value approached ‘agree = 3’ that they have the ability to manage their health. *Social support* is scale number four. The mean value for social support, suggests that there is a strong support system available to the older adult to help with their health needs. The fifth scale is *critical appraisal*. This had the lowest mean value of all the scales. Overall, the respondents perceived an inability to analyse health information that is important to make health decisions.

The second set of scales (6 to 9) used a response system of 1 to 5 with 1 being ‘cannot’ and 5 being ‘very easy.’ Scale six focused on the older adults’ ability to *actively engage with healthcare provider*. The average respondent found that it was quite easy to very easy to actively engage with healthcare providers. *Being able to navigate the healthcare system* is the seventh scale. The generated mean, fell between being quite difficult to quite easy to use the healthcare system. *Ability to find good health information* is another generated scale. On average, respondents found it somewhat difficult to gather relevant health information.

The final (9th) scale is that of *reading and understanding health information*. This scale had a high mean which indicates that it is ‘quite easy’ to understand health information. The overall frequencies showed that, generally, the respondents had the ability to obtain, understand and process health information.
Figure 4 displays the nine scales point estimates (means) and 95% confidence intervals. In summary, this sample of older adults demonstrated ability in obtaining health information. Receiving health information from the healthcare providers was satisfactory; however, some had difficulty in securing the information by themselves. With regard to processing information, this was the most difficult area for the older adults. The ability to understand the information was good, whereas using health information was the best overall.
Figure 4 Error Bars Point Estimates and 95% Confidence Intervals for the Nine Health Literacy Questionnaire Scales ($N = 200$). Beginning from the left of the figure, the first five scales have 4 response categories rated as 1 = ‘strongly disagree’ and 4 = ‘strongly agree.’ Scales six through nine have 5 response categories rated as 1 = ‘cannot’ and 5 = ‘very easy.’
**Question Two**

What is the association between each of the nine scales of the HLQ and selected sample characteristics (e.g., education, sex, region)?

To evaluate the mean scores between the nine HLQ domains and selected sample characteristics different statistical tests were performed. These included Independent Samples t-test tests, Pearson’s correlations ($r$), and one-way ANOVA (with post hoc tests LSD and Dunnett C).

An independent t-test was conducted to evaluate the mean scores of the nine HLQ domains across the education levels. There were five levels of education, namely (a) primary school or less, (b) incomplete high school, (c) completed high school, (d) trade training and (e) university standard. However, the levels were collapsed into high school and below and trade with university level. The tests were significant ($p = .01$) across all nine HLQ domains with the education levels. Older adults with higher levels of education are more likely to obtain, process, and use health information than are those with less education (see Appendix F for details).

As it relates to age, a correlation was done with the HLQ nine domains. The resulting correlations were not significant in any instance. However, a comparison between age and health status yielded a small, positive correlation ($r = .185$, $p = .009$). Increases in age are associated with declines in health (‘excellent’ = 1; ‘poor’ = 5).

Marital status (five categories) used in this study were collapsed (for analysis) into three categories, namely (a) married, (b) never married, and (c) other representing divorce, separated and widowhood. A one-way ANOVA was used to evaluate marital status across the nine HLQ scales. The ‘married’ category had the highest mean across all
scales. With $df = 2,197$ the test was significant across five of the nine scales (see Table 8). Married respondents were more likely to have better support from healthcare providers, demonstrate mastery of the healthcare system and possess more health knowledge. Additionally, they also showed better reading and comprehension skills and an increased ability to secure health information than their unmarried or ‘other’ counterparts. The Dunnett $C$ for post hoc evaluation was used.

Table 8

*HLQ Scales & Marital Status (one-way ANOVA)*

<table>
<thead>
<tr>
<th>HLQ Scales</th>
<th>$F$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare provider support</td>
<td>4.20</td>
<td>.01</td>
</tr>
<tr>
<td>Having sufficient information</td>
<td>3.99</td>
<td>.02</td>
</tr>
<tr>
<td>Actively managing health</td>
<td>2.39</td>
<td>.09</td>
</tr>
<tr>
<td>Social support</td>
<td>1.49</td>
<td>.22</td>
</tr>
<tr>
<td>Critical appraisal</td>
<td>1.01</td>
<td>.35</td>
</tr>
<tr>
<td>Active engagement with healthcare provider</td>
<td>2.26</td>
<td>.10</td>
</tr>
<tr>
<td>Navigating the healthcare system</td>
<td>3.98</td>
<td>.02</td>
</tr>
<tr>
<td>Ability to find good health information</td>
<td>3.76</td>
<td>.02</td>
</tr>
<tr>
<td>Reading and understanding health information</td>
<td>3.34</td>
<td>.03</td>
</tr>
</tbody>
</table>

*Note** $p < .05$

Health (excellent = 1, poor = 5) was evaluated by use of correlation across the nine HLQ scales. The tests were significant across six of the nine scales yielding small but negative correlations (see Appendix F). Hence, persons who were able to find
adequate and relevant information, effectively use the healthcare system and were involved in their health care were less likely to have poor health status. Additionally, the ability to read and compare health information were negatively correlated with poor health respectively \((r = -.172, -.197, p < .05)\).

For the item “are you receiving health care” (response options = yes or no), the highest mean was seen for those who answered ‘yes’. When independent \(t\)-tests were used to compare HLQs scales with the same variable (receiving medical care), only the healthcare provider support scale was significant \((t = 3.80, df =198, p = .01)\). There is a difference in healthcare provider support between those who are receiving medical care and those who are not. For the single item “would you benefit from care from others?” (response options = ‘yes’ or ‘no’), four HLQ scales were significant. There were differences in the respondents’ ability to have sufficient information \((t = -2.55, p =.01)\), social support \((t = 2.18, p =.03)\), critical appraisal \((t = -2.57, p = .01)\), and ability to find good information \((t = -3.49, p =.01)\). There was a difference in social support and the ability in obtaining and processing information between those who could benefit from help from others and those who required none. For those respondents who were presently “receiving help from others” (response option = ‘yes’ or ‘no’), there was a significant difference in social support \((t = 2.80, p = .01)\) between those who were receiving help and those who were independent.

Regarding geographical locations, a one-way ANOVA was conducted to compare the regions (spatial boundaries that divide the parish geographically in Central, North West, North East and South comprising of electoral districts) within which the respondents lived with the nine HLQ scales. The tests were significant across all HLQ
scales. Using the Dunnett C for post hoc evaluation, there was a consistent difference
between the Central (highest) and the North West (lowest) regions (see Appendix F).
Those living in the Central region (combination of EDs) of Manchester are more likely to
have higher HLQ scores than those residing in North West.

“Do you live alone?” (response = ‘yes’ or ‘no’) was evaluated using independent
t-test with each HLQ scale. Most of the higher means for the HLQ scales were for those
who lived with others. For the t-test, only social support was significant ($t = -2.53, p =
.01$) indicating that those living with others are more likely to have better social support.

Living in rural areas yielded higher means for six of the nine scales. Critical appraisal ($t
= 2.37, p = .01$) and navigating the healthcare system ($t = 2.37, p = .01$) showed a
significant difference between those living in rural and urban and their ability to
understand health information and being able to use medical facilities for health reasons.
This result was surprising. Given the education level of persons in the rural areas, the
opposite was expected.

Overall, there were differences seen in most socio-demographic variables across
some of the HLQ scales. There were significant differences in the respondents’ ability to
secure, analyse, and use health information depending on education level, health status,
and co-habitation status whether from a region or individual perspective, medical care, or
help with ADLs. There was no difference noted in age or gender.

**Research Aim II**

Determine levels of self-care using a single ASAS-R composite score for the
entire sample as well as by selected sample characteristics (e.g., gender and region);
determine associations with selected sample characteristics such as age and health status.
Question Three

What is the association between the self-care scale total score and selected sample characteristics (e.g., education, sex, region)?

The Appraisal of Self-Care Agency Scale (revised) - commonly known as ASAS-R - is a 15-item tool used to measure self-care. Item responses range from ‘1 = totally disagree’ to ‘5 = totally agree.’ It has a possible score range of 15 to 75. Higher scores indicate better the self-care capability. The overall mean was 53.42 (SD 8.02). The mean for the individual items ranged from 2.04 to 4.19 as seen in Table 9.
Table 9

*Total ASAS-R and Item Descriptives*

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
<th>Agree-Strongly Agree</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>As circumstances change, I make the needed adjustments to stay healthy</td>
<td>3.86</td>
<td>.96</td>
<td>70 (136)</td>
<td></td>
</tr>
<tr>
<td>If my mobility is decreased, I make the needed adjustments</td>
<td>3.88</td>
<td>.97</td>
<td>69 (137)</td>
<td></td>
</tr>
<tr>
<td>I look for better ways to care for myself</td>
<td>3.87</td>
<td>1.06</td>
<td>74 (147)</td>
<td></td>
</tr>
<tr>
<td>When needed, I manage to take time to care for myself</td>
<td>4.19</td>
<td>.79</td>
<td>91 (182)</td>
<td></td>
</tr>
<tr>
<td>In the past I have changed some of my old habits in order to improve my health</td>
<td>3.55</td>
<td>1.27</td>
<td>65 (130)</td>
<td></td>
</tr>
<tr>
<td>I routinely take measures to insure the safety of myself and my family</td>
<td>3.87</td>
<td>.96</td>
<td>72 (144)</td>
<td></td>
</tr>
<tr>
<td>I regularly evaluate the effectiveness of things that I do to stay healthy</td>
<td>3.40</td>
<td>1.23</td>
<td>51 (101)</td>
<td></td>
</tr>
<tr>
<td>In my daily activities I seldom take time to care for myself</td>
<td>3.75</td>
<td>1.37</td>
<td>68 (146)</td>
<td></td>
</tr>
<tr>
<td>I am able to get the information I need, when my health is threatened</td>
<td>3.75</td>
<td>1.15</td>
<td>72 (144)</td>
<td></td>
</tr>
<tr>
<td>I seek help when unable to take care of myself</td>
<td>4.08</td>
<td>.91</td>
<td>85 (107)</td>
<td></td>
</tr>
<tr>
<td>I seldom have time for myself</td>
<td>4.20</td>
<td>1.01</td>
<td>84 (167)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
<th>Disagree – Strongly disagree</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>When needed, I set new priorities in the measures that I take to stay healthy</td>
<td>3.22</td>
<td>1.05</td>
<td>52 (135)</td>
<td></td>
</tr>
<tr>
<td>I often lack the energy to care for myself in the way that I know I should</td>
<td>3.04</td>
<td>1.38</td>
<td>55 (110)</td>
<td></td>
</tr>
<tr>
<td>If I take a new medication, I obtain information about the side effects to better care for myself</td>
<td>2.68</td>
<td>1.46</td>
<td>65 (129)</td>
<td></td>
</tr>
<tr>
<td>I am not always able to care for myself in a way I would like</td>
<td>2.04</td>
<td>.95</td>
<td>91 (182)</td>
<td></td>
</tr>
</tbody>
</table>
Most of the respondents answered toward the higher end of the range (better self-care) (see Table 9). Although total scores are generally used to represent a continuous measure of self-care capacity, a cut-off has been established: those lacking perceived self-care capacity (score in the 15 - 45 range) and those with high perceived self-care capacity (score of 46 - 75). Eighty-four percent ($n = 168$) reported high perceived capacity (see Figure 5).

![Figure 5 Bar Graph ASAS-R Perceived Self-care Capacity](image)

As it relates to mean scores for selected sample characteristics across the ASAS-R total score, there were no significant differences for most socio-demographic variables such as gender, age, or rural-urban dwelling. With the use of an Independent $t$ test, there was a significant difference in education level between those with trade to university ($\bar{X} = 58.68$, $SD = 8.39$) and those with high school and below ($\bar{X} = 52.53$, $SD = 7.63$), ($t = -$ 

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Respondents with higher level of education are more likely to perceive better self-care capacity.

The regions and the ASAS-R scores were evaluated with the use of a one-way ANOVA test. The Central region had the highest mean ($\bar{X} = 57.29, SD = 7.82$), whereas the North West region recorded the lowest ($\bar{X} = 50.89, SD = 9.66$). There was a statistically significant difference in self-care capacity based on the region where the respondents lived. The Dunnett C post hoc test was used to verify the mean difference (6.40) for Central and North West and 5.36 for Central and South. Those in the Central region are more likely to have better self-care capacity. A correlation was performed to evaluate health status and ASAS-R score. The test was significant ($r = -.194, p = .01$); poorer health (which was coded as 5) was associated with a decreased ability to self-care.

**Research Aim III**

Determine whether individual aspects of health literacy predict self-care.

**Question Four**

What is the relationship between the individual health literacy scores and the composite self-care score?

Bivariate correlation tests were performed to evaluate the relationship between the HLQ scales and ASAS-R scores. All the correlations between the ASAS-R total score and the HLQ scales were significant ranging from .32 to .65 ($p = .01$) (See Table 10). Those with higher perceived self-care had higher health literacy scores.
Table 10

*HLQ & ASAS-R Correlations*

<table>
<thead>
<tr>
<th>HLQ Scales</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare provider support</td>
<td>.32*</td>
<td>.01</td>
</tr>
<tr>
<td>Having sufficient information</td>
<td>.49*</td>
<td>.01</td>
</tr>
<tr>
<td>Actively managing health</td>
<td>.65*</td>
<td>.01</td>
</tr>
<tr>
<td>Social support</td>
<td>.40*</td>
<td>.01</td>
</tr>
<tr>
<td>Critical appraisal</td>
<td>.45*</td>
<td>.01</td>
</tr>
<tr>
<td>Active engagement with healthcare provider</td>
<td>.44*</td>
<td>.01</td>
</tr>
<tr>
<td>Navigating the healthcare system</td>
<td>.38*</td>
<td>.01</td>
</tr>
<tr>
<td>Ability to find good health information</td>
<td>.50*</td>
<td>.01</td>
</tr>
<tr>
<td>Reading and understanding health information</td>
<td>.44*</td>
<td>.01</td>
</tr>
</tbody>
</table>

*Note* ** Sig. *p* < .05

**Question Five**

Does health literacy predict self-care agency after adjusting for education, region, health status, age, and sex?

To assess the contribution of health literacy to the prediction of self-care, a series of multiple regressions was conducted. HLQ scales with conceptual and item content overlaps with self-care were not used. The analytic strategy included adjusting (i.e., controlling) for education, the region lived, health status, age, and sex. A dummy variable was created for region, with Central being ‘1’ and all other regions (North West, North
East and South) coded as ‘0.’ Normality and collinearity assumptions were evaluated and met.

The hierarchical regression approach was chosen as it allowed for the evaluation of the HLQ predictors on the criterion variable while providing a means of controlling for the other variables. Moreover, when the predictors are entered in blocks, it allows for evaluation of incremental variance after each predictor. Second, based on the literature review, this approach was most appropriate to identify predictors. The order for entering the HLQ predictors was also based on the research literature (Osborne, 2013; Kroon, van der Burg, Buchbinder, Osborne, & Pitt, 2013) critical analysis, for example, appear especially important to include. The final order for the HLQ predictors was based on a logical sequence; one would critically appraise information, situation and health needs; garner support, and then engage healthcare providers.

The socio-demographic variables (region, health status, age, sex and level of education) were entered together and then the three HLQ scales were entered individually in separate blocks. The hierarchical order for the HLQ scales was critical appraisal then social support followed by engaging healthcare provider. The bivariate correlations between self-care (ASAS-R tool) and the predictors were mostly positive, whereas all variables were statistically significant ($p < .05$) except for age and gender. The correlations ranged from $r = -.19$ to .45. Self-care and education level ($r = .28$), region ($r = .27$), health ($r = -.19$), critical appraisal ($r = .45$), social support ($r = .40$), and actively engaging healthcare provider ($r = .44$).

In model 1 of the regression analysis, the socio-demographic variables (region, health status, age, sex and education) explained 13.9% of the variance in self-care ($R^2 =$
.139, \( p = .000 \)). Of the five variables, region (\( p = .004 \)), health status (\( p = .045 \)) and education (\( p = .011 \)) were significant.

When critical appraisal was added with the socio-demographic variables, together they accounted for 24.6\% of the variance seen in self-care with \( R^2 \) change = .107, \( p = .000 \) (see Table 11). Overall, the model was statistically significant. The variables that were significant in model 1 were no longer significant after critical appraisal was entered into model 2.

When social support was entered with critical appraisal and the sociodemographic variables in model 3, the explained variance increased to 33.9\%. Also, social support accounted for an additional 9.4\% of the variance seen in self-care. Critical appraisal remained significant after social support was added to the model 3.

Respondents who are able to critical appraise health information and have more social support appear to be better self-care agents.
Table 11

Summary of Hierarchical Regression analysis for variables predicting Self-Care Agency (N = 200)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
<th>Model 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>β</td>
<td>B</td>
<td>β</td>
</tr>
<tr>
<td>Region</td>
<td>3.862</td>
<td>.206**</td>
<td>2.231</td>
<td>.119</td>
<td>1.465</td>
<td>.078</td>
<td>1.057</td>
<td>.056</td>
</tr>
<tr>
<td>Health</td>
<td>-1.054</td>
<td>-.141*</td>
<td>-.741</td>
<td>-.099</td>
<td>-.825</td>
<td>-.110</td>
<td>-.760</td>
<td>.101</td>
</tr>
<tr>
<td>Age</td>
<td>.026</td>
<td>.028</td>
<td>.032</td>
<td>.034</td>
<td>.002</td>
<td>.003</td>
<td>.016</td>
<td>.017</td>
</tr>
<tr>
<td>Sex</td>
<td>.945</td>
<td>.059</td>
<td>1.036</td>
<td>.065</td>
<td>1.387</td>
<td>.086</td>
<td>1.148</td>
<td>.072</td>
</tr>
<tr>
<td>Education</td>
<td>.114</td>
<td>.181**</td>
<td>1.549</td>
<td>.068</td>
<td>.523</td>
<td>.023</td>
<td>.556</td>
<td>.024</td>
</tr>
<tr>
<td>Critical Appraisal</td>
<td>3.245</td>
<td>.370***</td>
<td>2.969</td>
<td>.338***</td>
<td>2.485</td>
<td>.283***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
<td>4.387</td>
<td>.321***</td>
<td>3.480</td>
<td>.255***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engage HC Provider</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.257</td>
<td>.246***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>.139</td>
<td>.246</td>
<td>.339</td>
<td>.389</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$ Adjusted</td>
<td>.116</td>
<td>.222</td>
<td>.315</td>
<td>.364</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$ Change</td>
<td>.139***</td>
<td>.107***</td>
<td>.094***</td>
<td>.050***</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p ≤ .05. **p ≤ .01 ***p ≤ .001
The final HLQ scale that was deemed relevant to predict self-care capacity was *active engagement with healthcare provider*. When this variable was added, the $R^2 = .389$ for the final model; 38.9% of the variability in self-care scores was accounted for by the three HLQ scales and the socio-demographic variables. In this model, the last of three HLQ scales contributed an additional 5% of the variance while slightly improving the model. Overall, this is a good predictive model (see Table 12 and Figure 6). Importantly, aspects of health literacy substantially improve the prediction of self-care agency, notably, personal (*social support*) and professional participation (*active engagement healthcare provider*), and the greater ones’ ability to make practical sense (*critical appraisal*) of health information, the better the ability to care for oneself.

Table 12

*Hierarchical Summary ANOVA for dependent variable – Self-care Agency (N = 200)*

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Square</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1776.080</td>
<td>5</td>
<td>355.216</td>
<td>6.242</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>11040.795</td>
<td>194</td>
<td>56.911</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>3147.442</td>
<td>6</td>
<td>524.574</td>
<td>10.470</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>9669.433</td>
<td>193</td>
<td>50.101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>4351.256</td>
<td>7</td>
<td>621.608</td>
<td>14.098</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>8465.619</td>
<td>192</td>
<td>44.092</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>4987.489</td>
<td>8</td>
<td>623.436</td>
<td>15.209</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>7829.386</td>
<td>191</td>
<td>40.992</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In the final model, *critical appraisal* had the largest standardized $\beta = .283$, $t = 4.309$ ($p = .000$) followed by *social support* ($\beta = .255$, $t = 4.135$, $p = .000$), and *active engagement with healthcare providers* ($\beta = .246$, $t = 3.904$, $p = .000$) had the lowest.

*Figure 6* Residual Plot – Self-care and Predictors

**Summary of Main Findings**

A total of 200 older adults were interviewed from the four regions in the parish of Manchester. The average age was 74 years accounting for more females than males with most respondents married. Most of the respondents owned their own homes, yet a substantial number lived with others. Although most achieved only primary school level education, females attained more education in the primary and secondary levels than their male counterparts who were better represented in trade and university-level education.

A large percentage indicated using the government-owned health insurance scheme, and most reported to be in excellent to good health. Most of the respondents were receiving medical care for at least one chronic disease such as hypertension,
diabetes, and arthritis. Females outnumbered males in the prevalence of chronic conditions. Overall, most of the older adults were independent with their ADLs. Cognitive assessment with the use of the Mini-Cog revealed that most persons were able to recall three words, whereas most refused to participate in the clock drawing activity.

In establishing the HLQ profiles (question one), the nine scales had relatively high and ‘acceptable’ Cronbach’s alpha. ‘Active engagement with healthcare provider’ (on a 5 point scale) had the highest mean and ‘critical appraisal’ (on a 4 point scale) the lowest. Overall, the respondents’ ability to secure health information from health professionals was satisfactory, whereas obtaining information by oneself appeared to be more challenging. The use of health information recorded the highest percentage.

Comparing HLQ scales with socio-demographic variables showed that those with higher education were more likely to have better health literacy skills. Although age and gender were not statistically significant with HLQ scales, when a correlation was done with health status, the results revealed that as age increases, health declines. Health and HLQ revealed small negative relationships. Being married showed an advantage in securing help from health professionals, using the health system, and facilitated better reading skills. Those who lived with others and received assistance had a greater level of social support. Based on the respondents’ region (for habitation), there was a significant difference between those who lived in the Central versus those who lived in the North West region. Interestingly, those who lived in the rural areas had better critical appraisal skills than those living in the urban settings. This summarizes question two.

In response to question three, self-care was analysed with socio-demographic variables. A large percentage of the older adults indicated that they had high perceived
self-care capacity. Those with higher levels of education had better self-care skills. As with the health literacy and the region analysis, those in the Central region showed a greater self-care capacity than North West region. There were no differences in self-care capacity for age, gender, and rural-urban dwelling. To answer question four, health literacy and self-care were analysed. All the correlations were positive and statistically significant. Hence, those with better self-care capacity are more likely to have high health literacy skills.

Identifying predictors of self-care was the final question to be addressed. Variables controlled prior to the analyses included education, regions, health, age and gender. Three HLQ scales namely ‘critical appraisal’, ‘social support’ and ‘active engagement with healthcare provider’ were seen as best predictors for self-care, and together, including the socio-demographic variables, account for 39% of the variance in self-care.
CHAPTER FIVE
DISCUSSION

Introduction to Chapter

This chapter provides a synopsis of the study while highlighting the important conclusions gleaned from Chapter Four. A comparison of the findings with current literature will precede the description of the study’s strengths and limitations. Subsequent sections will include the implications for theory, nursing practice, policy and recommendations for future research.

Summary of the Study

Standard methods of data entry, data cleaning and checking were used to prepare the survey data for analysis. Statistical analytic strategies included use of descriptive and inferential tests to answer the research questions, thus meeting the aims of the study.

The purposes of this study were to generate health literacy profiles for the newly developed Health Literacy Questionnaire (HLQ) (Osborne, et al. 2013) and to determine whether a relationship exists between health literacy and self-care. These purposes were an outgrowth of the existing problem in which aging persons are at risk for sequels of longevity that are related to functional decline, low health literacy and inability to self-care. Additionally, an existing health literacy tool TOFHLA (DeWalt, Berkman, Sheridan, Lohr, & Pignone, 2004) piloted in Jamaica (See Chapter Three) was not culturally sensitive; hence the need to explore the utility of a new tool (HLQ) developed in Australia and released in 2012.

Three aims were formulated to reveal information related to the sample socio-demography, health literacy and self-care. These aims were to: (a) determine levels of the
nine aspects of health literacy for the entire sample (Jamaican adults 60 years and older) as well as by selected sample characteristics (e.g., gender and region); determine associations with selected sample characteristics such as age and health status (b) Determine levels of self-care using a single ASAS-R composite score for the entire sample as well as by selected sample characteristics (e.g., gender and region); determine associations with selected sample characteristics such as age and health status and (c) Determine whether individual aspects of health literacy predict self-care.

With a sample of 200 older adults residing in the parish of Manchester, Jamaica, a correlational cross-sectional design was used to collect the data. Survey data collection strategies with multi-stage sampling were used to secure the sample from the four regions of the parish. The data were analysed using descriptive and inferential statistics. Data management was done including cleaning and relevant parameters were evaluated; for example, verifying normality. Dummy coding and the collapsing of variables were necessary prior to statistical testing. The data were analysed using conventional descriptive and inferential approaches. The descriptive statistics were comprised of frequencies, percentages, means, and standard deviations. The main inferential tests that were used included one-way ANOVA (with post-hoc tests), independent t-test, Pearson product moment correlation, and multiple linear regressions. Reliability based on the Cronbach’s alpha was established for health literacy and self-care measures.

The present study is the first to examine the relationship between health literacy and self-care in older adults in Manchester, Jamaica. The primary finding of this study is that while most respondents achieved only primary level education, all (such as actively managing health), $r = .65$, having the sufficient health information $r = .50$, and ability to
health literacy skills were significantly correlated with self-care ability. Despite the prevalence of chronic diseases among the older adults in this sample, their health status was self-reported as excellent to good. Owning ones’ home, co-habiting with others and where one lived, were significantly related to the older adults’ health literacy skills and self-care ability. To investigate whether health literacy could be a predictor for self-care ability, three key health literacy scales were identified; namely, critical appraisal, social support and ability to engage healthcare provider and entered into the hierarchical regression analysis along with education, region, health status, age and gender. The significant results suggest that health literacy is predictive of better levels of self-care in this sample of adults age 60 and older.

Comparison of the Findings with the Literature

It has been established that health literacy is related to self-care performance (Bostock & Steptoe, 2012; Dennison et al., 2011) and positive health care outcomes for specific adult populations. From this study, there was a strong positive correlation between health literacy skills and self-care performance. The study identified three predictors (from the multiple regression procedures) using the nine scales from the HLQ as independent variables. The socio-demographic variables were controlled and the resulting predictors were critical appraisal, social support and ability to engage healthcare provider.

The HLQ has been used as a framework (Kroon et al., 2013) to evaluate self-management practices of patients with osteoarthritis. This meta-analysis used electronic databases such as Cochrane and MEDLINE to evaluate 151 primary studies. The sample was mainly females and mostly Whites unlike the current study which consisted of 47%
males and 53% females who were Blacks. The predictors identified in that study (Kroon et al.) were social support, navigating healthcare system, actively managing health and ability to engage healthcare provider. The data from that study was limited to the number of trials (research studies) in which each scale was mentioned. The information lacked inferential statistical details. The difference between that data and the current study is that navigating the healthcare system and actively managing health are not considered predictors and critical appraisal is significant. To date, there is no comparable data available using the HLQ scales.

In the current study, understanding and comparing health information (critical appraisal) was predictive of self-care. However, overall, the respondents’ ability to use this skill had low to moderate mean scores. With most of the respondents achieving primary school level and below, this result is not surprising. The scores may also be related to insufficient access to different sources of health information. Many older adults do not have Internet or library access, which supports the role that the Information and Communication Technologies (ICT) sector play in providing knowledge and information to communities in Jamaica (Bailey, 2009). It has been postulated in a phenomenology study (Mayoh, Todres, & Bond, 2013) that high quality, relevant information is needed for self-care activities. The authors of this study agreed, however, that older adults are less likely to use the online sources (even of high quality) to seek health information.

Although the critical appraisal scores for this study were low to moderate, the health status of the respondents was excellent to good. Conversely, a cross-sectional study (Toci et al., 2014) reported that mean value for appraisal ability among older adults
was lower ($p < .001$) for those who reported poorer health status or had at least one chronic condition.

Research studies (Garcia, Espinoza, Lichtenstein, & Hazuda, 2013; Omachi, Sarkar, Yelin, Blanc, & Katz, 2013; van der Heide et al., 2013) suggested that persons with health literacy deficits associated with low education are likely to have poor health outcomes. The opposite was reported in the current study. Although most respondents had only primary education, the majority reported good to excellent health status corresponding with moderate to high health literacy skills.

People who lived in the rural areas had higher mean scores in six of the HLQ scales. Additionally, respondents living in the rural areas had higher critical appraisal skills than those living in the urban areas. This was an unexpected finding. Research studies (Hoi, Thang, & Lindholm, 2011; Wood, 2012) indicate that high illiteracy levels tend to be found in the rural areas resulting in poor health literacy which can be a barrier to personal healthcare management. Although no rationale could be found in the literature to explain this finding, it can be deduced that since rural older adults tend to live far from health facilities and are likely to have transportation challenges (Hoi et al., 2011; Wood, 2012), they might be forced to share (with others) available health information which helped to develop ability to evaluate critically.

Self-care scores were relatively and unexpectedly high as evidenced by 84% of the older adults indicated that they were able to self-care. Considering that data were collected by self-report, social desirability may have played a role in the high scores. No study in Jamaica was found to support this unusual finding. However, in a study (Yang, Jeong, Kim, & Lee, 2014) conducted among Korean older adults, the researchers found
that persons with higher self-efficacy skills for hypertension control, higher social support scores and being younger were better able to self-care. In another study (Van Haitsma et al., 2013), the respondents generally needed assistance with ADLs and IADLs. It was reported that African Americans had higher levels of impairment in ADLs \( t = 9.79, p = < .003 \) and IADLs \( t = 21.43, p = < .0001 \) than Whites. Although most of the respondents (in the current study) were able to self-care (high scores on ASAS-R tool) and reported independence with ADL performance, many lived with others. Family and friends provide invaluable assistance to older adults in managing their chronic diseases (Rosland et al., 2013). The HLQ social support scale revealed high frequency scores showing the vital role that this variable plays in the older adults’ capacity to self-care.

With the majority of persons in need of medical care related to at least one chronic disease, self-care may require a supportive social network. Considering that most of the older adults did not acquire an education higher than primary school; and with some previously engaged in farming or other non-traditional employment, the type of income or pension needed to sustain health in old age might be inadequate. In support of financial aid for the elderly, Eldemire-Shearer’s (2008) concern about the lack of “economic boom” in a country such as Jamaica cannot go unnoticed. Based on the current study, one-fourth of the respondents were in active labour, whereas some elders were on government aid (Program for the Advancement of Health & Education -PATH, National Health Fund- NHF, and the Jamaica Drug for the Elderly Program- JADEP). Considering that some older adults are without steady income, and only a small
percentage reported an income of over J$27,000.00 monthly, financial support to this population is needed.

Regardless of government initiatives, a Jamaican study (Chao, 2013) documents that the NHF only covers 19% of the population with a high co-payment (25-53%) and benefits the rich more than the poor. In view of this, it is not surprising that only a small aggregate (17%) could afford private health insurance. Health insurance as an employer benefit is more common than individual purchase and tends to be more common among the working class as stated in a study conducted in Jamaica (Wilks, Younger, Tulloch-Reid, McFarlane, & Francis, 2008). The self-care capability of older adults who are not working and are poor without government aid or insurance will be challenging. Yet, the data from this current study indicated that overall the older adults were in good to excellent health with high scores of being independent in ADLs and high self-care skills. A possible explanation to describe this phenomenon could be social resilience (Edward, 2013) in which older adults manage life events by active involvement such as self-care as a coping measure. Hence, they develop the power to adapt and strive in positive health.

Support within a family can be a key contributor for self-care performance. Whereas most of the older adults are presently or previously married (including widows and divorcees) a smaller percentage was never married. An examination of the Caribbean family (Lincoln, Chatters, & Taylor, 2013) revealed a close link between family life and religion in which being married was a norm within religious circles.

From the ANOVA health literacy analysis, a married older adult was more likely to benefit from support of the spouse when attending medical appointments; likely to have assistance when deciphering health information and tend to be more health literate.
In a population-based longitudinal study (Nicklett, Heisler, Spencer, & Rosland, 2013) conducted over two decades, social support measured at baseline revealed positive association with improved health outcomes. The support of family and friends helped the older adults to adhere to medication regimens, participate regularly in physical activities and provided them with assistance to attend doctor’s appointments. Nicklett et al. found however, that the trend was not significant over time with an eventual decline in the elders’ health status. Although it was expected that social support for the elderly would continue or intensify over time based on needs, this did not happen. The researchers assert that the responses of people may vary or change based on the older adults’ health. This change, they believe, should be investigated. The recommendation is that clients should take a relative or friend with them for their medical appointments to facilitate the currency of the person’s knowledge.

It is important to support self-care performance of older adults who are males. There were more females than males in the sample. This gender gap, or feminization according to Eldemire- Shearer (2008), is not unusual as current studies also (Alves, Cavenaghi, & Martine, 2013) support this finding. It has been reported that men are low users of the health care system (Eldemire-Shearer, 2012; Morris, James, Laws, & Eldemire-Shearer, 2011) and some view being ill as a sign of weakness. Men could benefit from strategies to improve health-seeking behaviours that could enhance their self-care activities. Self-care interventions need to be gender-sensitive and should include culturally-related factors to prevent hindrances to positive health outcomes.

The ability to engage a healthcare provider was a significant predictor for self-care. This client-healthcare provider interaction can build empowerment in the older
adult. As a relational construct, empowerment helps to build the elder’s capacity to solve problems, control situations, and courageously speak about issues that are of concern (Schulz & Nakamoto, 2013). With the older adults as an active participant, taking the responsibility and opportunity to talk with the healthcare provider can boost confidence and enhance self-care. Being autonomous could also improve critical appraisal skills.

This ability of the respondents to engage healthcare providers is an expected finding. Jamaicans’ oral ability is rooted in slavery and the African oral tradition (Lowery, 2013). Out of this history are folktales and storytelling which were used as literature for children and a means of explaining the world. Oral performances are still valued in the Jamaican culture.

Considering this existing oral ability, it is not surprising that all the respondents requested that the researcher fill in the questionnaire while they provided the answer. This engagement requires listening ability (Rubin, 2012) in addition to readability of health documents. The healthcare provider is encouraged to use plain language, visual aids and teach back. Teach-back is a process used by healthcare providers to verify if information taught to clients is understood. Hence, the healthcare provider would ask the client the repeat key points that were part of the teaching session. The use of plain language required that healthcare providers use common everyday words that are free of medical jargons to relate to clients. Visual aids are considered graphical representations of content being taught that are designed to meet the learning and developmental needs of different age groups.

It was interesting to note that although the research literature indicate that the profile of a health illiterate persons are found to be White, native Americans who speak
English, teach-back sessions are often done for Blacks (Jager & Wynia, 2012). This is based on the healthcare providers’ perception that Blacks have low literacy level, tend to be poor and have limited understanding of the healthcare system. Consequently, those needing teach-back sessions might be missed and the value of this process is deemed limited. The recommendation is for healthcare providers to adopt a ‘universal precaution’ approach in which all clients are exposed to the teach-back experience.

Although the respondents’ ability to engage the healthcare provider is remarkable, consideration should be given to possible confounders such as level of education, ability to hear and whether they use Standard Jamaican English or patois (broken Jamaican language). Future studies need to be conducted to evaluate the quality of the engagement, the level of listening ability of the healthcare providers’ spoken language and to test the applicability of the listening ability tool in different populations.

**Strengths and Limitations**

This study has several areas of strength. Although non-probability technique was used, the multi-stage approach strengthens the efficiency of the process (Fowler, 2009). The parish of Manchester was conveniently chosen but simple random selection of districts within the parish increased the possibility of a representative sample of older adults residing in the locale. Quota sampling was the final phase as a target of 25 interviews per ED was used. The overall response rate was high based on the execution of the study and the interest of the respondents. Based on the aims, the study has complete information across all variables (except income).

The study has strong theoretical and psychometric bases that allowed detailed profiling of groups and subgroups. The reliability testing for the HLQ scales were at
acceptable levels, although the authors of the tool suggested an alternative method (i.e., advanced psychometric testing - Confirmatory Factor Analysis) that is beyond the scope of this present study.

There are some limitations of the findings that are important to mention. The HLQ tool is new, and there are no available standards against which to judge the value (level) of the scales in this present sample. To rely on the descriptors for the scales, for example, ‘high’ or ‘low’ or the reporting of percentages of people responding in one category versus another should be used carefully. There is a need to be cautious about concluding that health literacy among older adults in Jamaica is either high or low. In some cases, correlations of HLQ scales with other variables were obvious (e.g., education). However, with other variables (e.g., marital status), only some HLQ scales were significant. Consequently, one cannot ascertain whether these differences are important. This limitation would need to be explored in future studies.

With regards to the self-care tool (ASAS-R), the total score was used in the analysis despite the authors’ suggestions to use the score subscales. Subscale use could have unnecessarily complicated the interpretation of the findings because no previous research studies are available that show use of subscales would differ in any meaningful way. Another limitation in this study was that the Mini-Cog tool results could not be included in the analysis due to the high level of refusal in the clock drawing section. Information gleaned from the clock drawing could have improved our understanding regarding the potential effects cognitive status could have on health literacy skills and the ability to self-care.
Based on the correlational cross-sectional design, it is inappropriate to infer causality in interpreting the study findings. The data were collected in rural Jamaica in the parish of Manchester. Hence, these findings cannot be generalized to the urban parishes of Jamaica. The data collection strategy employed the use of self-report which is subject to recall bias and possible social desirability. Also, the respondents requested that the researcher complete the questionnaire while they provided the answers. This also increased the risk for response bias. Although randomization was used to select the eight Electoral Districts (EDs), there was an overrepresentation of the rural areas of the parish.

**Recommendations**

**Implications for Theory**

It can be argued that Orem’s self-care theory provides a good fit for this study. The older adult being the self-care agent can be influenced by conditioning factors. The three traits (foundational, operational, and enabling) are apt description for the self-care agent. The elements ( estimative, transitional, and productive) of self-care constitute the deliberate actions taken by the self-care agent. Overall, the core concepts of the theory are relevant to study variables and there is a considerable fit with the ASAS-R tool. Orem’s theory is practice-oriented; hence, the nurses’ role is explicit in providing care to the client regardless of their health status. As a grand theory, Orem self-care theory has the potential to be developed as a situation-specific theory that could be relevant to health literacy deficit as delineated by its definition and key components. Within this context, the underlying linkages would need to be more explicit and greater congruence with health literacy would need to be established.
The older adult who participates in deliberate actions to care for self with the goal to maintain health and wellness is called a self-care agent. Their self-care agency was demonstrated in their high level of self-care involvement based on the percentage (84%). Based on the correlation between health literacy and self-care, older adults who had better health literacy were better able to care for themselves.

Conditioning factors can be either internal or external issues, situations or influences that aid or militate against the expected outcome. For this study, the outcome was self-care practices in older adults. These factors are closely related to the self-care requisites namely universal, developmental and health-illness. The ability to acquire health literacy can be affected by these factors. Universal requisites are associated with life processes and the maintenance of human functioning. Most of the respondents were independent, hence able to participate in self-care activities such as ADLs and IADLs. Developmentally, the sample consisted of aging adults who might be affected by at least one health-illness deviation such as hypertension.

The elements (estimative, transitional and productive) of self-care were evident as the correlation between self-care and health literacy showed strong relationships. Hence, older adults used health literacy to assess the need to self-care, decide on what was needed to self-care and participated in own care. Health literacy complemented the self-care traits and this empowered the elder to continue to care for themselves.

Although the study could build on the existing testable aspects of the theory, there are some noticeable gaps. Firstly, the definition of self-care could be considered narrow. The theory could benefit from a comprehensive definition that links it to the layered aspects of the self-care itself. Secondly, Orem’s conceptualization of ‘spontaneous
learning’ is underdeveloped. Self-efficacy could be incorporated to strengthen the tenets of the theory. This could enhance the enabling trait thereby moving the client beyond self-care knowledge, energy and decision-making to achieve greater empowerment. Also, the theory addresses primarily the hospital setting; hence, it is limited in its application to the community. Although Orem self-care model is useful to this study, there is a deficiency to incorporate the dimensions (e.g., skills, language, listening, cultural context) of health literacy. Lastly, although the theory develops the caring, effective role of a clinician, it is lacking in emancipatory knowledge and collaborative partnership.

For future theory use, the Health Literacy Skills Framework (Squiers et al., 2012) could be considered. It provides a connecting link between health literacy and health-related outcomes. It is developed to address health literacy needs at the individual level while including external factors such as culture, family and media. This theory is designed to examine health literacy on a full continuum while exploring the relationship between predictor, moderator, mediator and outcome variables. Based on the theory’s four components, it could be considered to be a parsimonious theory.

**Implications for Nursing Practice**

An aging Jamaican population plagued by the complications of lifestyle diseases will continue to be part of the future. The need for older adults to self-care will be crucial when viewed from a global economy perspective. This is supported by Eldemire-Shearer (2008) who argued that although health financing in Jamaica is affected by aging population, it is largely due to inflation, new technology and new treatment cost. Also, a significant portion of the health budget is used for salaries. Hence, there is a need for
older adults to manage their chronic diseases and decrease the need for healthcare services.

Because limited health literacy skills coupled with self-care deficits can increase morbidity and mortality, the current study provides preliminary data to inform healthcare providers of the existing situation. Although elders will be encouraged to self-care, the support of healthcare providers in facilitating this process is vital. The key findings can be used to offer training sessions for healthcare workers. This could include the value of health literacy screening, use of relevant communication skills to engage the clients while targeting interventions based on the different HLQ scales. Consequently, this study could guide best practices based on the multidimensionality of health literacy.

Assuming that older adults have reasonable access to health care materials and have no severe sensory deficits; health literacy interventions could be most profitably be directed towards increasing their level of understanding and strategies on how to effectively use health information. Involvement of family and friends of the aged could enhance their ability to effectively use health information to self-care.

Considering that people from different regions and EDs have different needs, healthcare providers could learn how to meet these varied health literacy and self-care needs. With the low education achievement and possible sensory deficits, healthcare workers should be aware of appropriate teaching and reading materials that can be used. Additionally, efforts should be made to encourage critical appraisal of health information to provide an understanding as to what is appropriate for individual self-care needs. This could reduce frustration and help to develop personalized adaptation to self-care that is culturally relevant.
Because social support of the older adult can be considered important, nurses could continue to involve relatives and friends in health literacy self-care interventions. With males identified as low users of the healthcare system, nurses need to use gender-sensitive strategies that are relevant to meet their needs. This will provide not only support but can build self-efficacy and foster a health literate population who are involved in their self-care.

**Implications for Policy**

Health literacy deficits and low involvement in self-care can result in increased costs for the Jamaican government. Because many of the older adults are on government aid (e.g. PATH), it could be considered prudent that the policy mandating clinic visits for beneficiaries include screening for health literacy skills of elders. The policy could outline that the screening is done on first contact with the client, then yearly or more frequently if cognitive deficit is suspected. The effectiveness of this screening policy would need to be evaluated over time as there are other studies that do not support routine screening. Jager & Wynia (2012) recommend the ‘universal precautions’ approach where all are assessed could be considered complemented by policies that would favour changes in the healthcare system. These two approaches could support all older adults with self-care needs.

The policy decision of the Jamaican government to assist persons with chronic diseases with the use National Health Fund (NHF) has been a vehicle that allows older adults to receive drugs at a lower cost. Additionally, considering that many of the respondents are beneficiaries of the NHF, it would be prudent for the government to expand the provision of drugs to offer other services to the elderly such as physiotherapy,
considering the number of clients with arthritis and stroke. This could strengthen their musculoskeletal system to facilitate self-care.

Regarding the Millennium Development Goals (MGDs) (King & Handa, n.d) plan “to eradicate poverty,” an assessment of health literacy skills as part of the target intervention could be considered by policymakers. This could increase knowledge and build capacity to self-care as means of support. Knowledgeable persons are more likely to make better decisions with regards to access to goods and services. To incorporate the Vision 2030 Health Sector (Chao, 2013; Lavigne & Vargas) plan, the government could add health literacy to the agenda to achieve goal number one designed to empower Jamaicans to achieve their fullest potential. Lastly, the National Council for Senior Citizens Policy (n.d) guidelines encourage active ageing. Policymakers could ensure that self-care strategies are included as one of the input indicators to monitor active ageing.

**Implications for Future Research**

This study is the first of its kind to examine the relationship of health literacy with self-care in Jamaica. Hence, it has advanced the field of knowledge in nursing and allied health. Use of the new HLQ provides awareness about health literacy; however, it was minimally challenging to get the respondents to answer between ‘very difficult’ and ‘quite difficult’. Because the Jamaican people were more concerned with the direction (‘agree’ or ‘disagree’; ‘very easy’ or ‘cannot do’) and not the strength (‘strongly agree’ versus ‘agree’) of the responses, it could be suggested that for settings where the respondents are not highly literate and tend to be more of an oral tradition, the responses could be ‘agree’ or ‘disagree’. Use of this approach, however, limit variability and could influence the type of tests that could be used for analysis.
More research needs to be done with the HLQ to refine the scale guidelines. Use of ‘high’ and ‘low’ could benefit from actual empirical scores based on numbers or a range. This could be used to guide the interpretation of the findings. Another area that could benefit from advanced research is whether there is a strong general factor running across all HLQ items and that scale scoring is justified.

Although the HLQ asked the respondents about their perceived ability to read medications labels or fill in medical form, they did not actually read for the interviewer. It would be worthwhile to add Rapid Estimate of Adult Literacy in Medicine (REALM) tool. This could fill the information gap to ascertain whether the respondents could actually read or they were health literate by ‘association.’ Also a phenomenology study regarding how health literacy develops over time in the lived experience of the older adults could add breadth and depth to our understanding of health literacy in Jamaica.

To identify actual self-care activities, a few ADL items (Barthel or Lawton ADL) could be added to the ASAS-R tool. It would be interesting to explore with the use of an ethnographic study the Jamaican perspective on self-care and the possible role that culture plays. This could be done as an independent study or as the minor aspect of a mixed method design. Because the respondents indicated a high level of perceived social support, it might be useful to investigate the types of supportive networks that exist and the role they play in facilitating self-care with the use of a longitudinal study.

Further analysis of the current data with health literacy scales and demographic status as predictors and self-reported health as the outcome variable could provide rich information to expand our understanding of older adults’ health. For future studies, the design with health literacy as predictor and health status as an outcome variable could
ascertain whether health literacy is a better predictor of health than self-care considering the likely prevalence of chronic diseases among older adults.

It would be valuable to study the use of the Mini-Cog to explore contributing factors resulting in the high refusal rates especially among those who were literate. This could be done as a case study while examining the usefulness of the tool to capture cognitive deficits in the Jamaican culture.

This study could be replicated in Manchester by including more regions and EDs. To secure an urban perspective and increase generalizability, a comparative study could be conducted between Manchester and Kingston (or another urban parish) to examine the effects of health literacy and self-care in older adults. In future studies it would be helpful to have more objective healthcare markers, such as reports from healthcare providers or family and neighbours. This information could improve our understanding of health literacy and self-care issues in the older adults while reducing self-reporting bias.

**Conclusion**

The data gleaned from this study has increased our understanding of the effects of health literacy skills on self-care performance in older adults in Manchester Jamaica. There is a strong positive relationship between health literacy skills and the older adults’ ability to self-care. Nurses and other healthcare providers can use this information to facilitate self-care in older adults. Although there was low education level, older adults were health literate and could participate in self-care activities. Since literacy plays a role in health literacy skills, there were other contributing factors such as family support, the region in which one lived, and gender to be considered. It is still unclear why rural
respondents surpassed their urban counterparts in more of the health literacy scales. Because the study was conducted in eight EDs in Manchester, generalizability is limited.

Primary data has been generated for the newly developed HLQ tool that has broadened our conceptualization of health literacy. Three health literacy predictors for self-care were critical appraisal, social support and ability to engage healthcare providers. More research is needed to refine the tool and to improve its utility. Orem’s self-care theory though identified initially as a good fit for the study is considered underdeveloped. The tenets could benefit from expansion of its scope for community use and include collaborative partnerships concepts.

Although the role of culture was beyond the scope of this study, its underlying effects surfaced in the manner in which the respondents opted to answer orally while the interviewer completed the questionnaire, the refusal to complete the clock drawing activity of the Mini-Cog and their ability to engage healthcare providers. The supportive network at the community level for the older adult was evident and this process should be encouraged. Nurses and other healthcare providers could use the ‘universal precaution’ mechanism to screen older adults for health literacy support that can facilitate self-care.

Jamaica has mechanisms (policies, social safety nets, and social support) in place to support health literacy and self-care in elders. These structures could benefit from a more focused, coordinated and deliberate approach by the healthcare sector. Nurses and healthcare providers should be aware of the age-specific needs of older adults and ensure appropriate strategies are employed. Nation building will require the continued input of our elders. They will only be able to perform at their optimal levels as they remain a
health literate population who continues to participate in self-care activities. The nursing profession is poised to participate in this collaborative partnership with older adults.
REFERENCES


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Nicklett, E. J., Heisler, M. E. M., Spencer, M. S., & Rosland, A.-M. (2013). Direct Social Support and Long-term Health Among Middle-Aged and Older Adults With Type


APPENDIX A
QUESTIONNAIRES

DEMOGRAPHIC PROFILE OF OLDER ADULTS

1. District: ___________  2. Electoral District: ______

2. Your home is:
   □ Owned by you
   □ Rented
   □ Leased
   □ Other ____________________________

3. Are you:
   □ Married
   □ Never married
   □ Widowed
   □ Separated
   □ Divorced

4. In general, would you say your health is:
   □ Excellent
   □ Very Good
   □ Good
   □ Fair
   □ Poor

5. Are you receiving medical care: □ Yes □ No

6. Would you benefit from care from others? □ Yes □ No

7. Are you presently receiving care from others? □ Yes □ No
   If you marked yes, please answer the following:
   Is the care you receive from others:
   □ As needed
   □ Scheduled (how often) _______________________

8. How much help do you need to care for yourself? Are you:
   □ Independent
   □ Partly independent
   □ Completely dependent

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Adventist Health Sciences Center
Institutional Review Board
Approved 8/19/2013
#51302.5 to Chair P. D. Yeh
9. Are you presently working: □ Yes □ No

10. What is your monthly income/other support?
   □ Less than $1,999 □ $8,000 - $89,999
   □ $2,000 - $3,999 □ $10,000 - $10,999
   □ $4,000 - $7,999 □ Over $20,000
### Instructions for Administration of the Mini-Cog™

<table>
<thead>
<tr>
<th>ADMINISTRATION</th>
<th>SPECIAL INSTRUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Three Word Recall</td>
<td>The following word lists have been used in one or more clinical studies:¹⁻³</td>
</tr>
<tr>
<td>Get patient’s attention. Say: “I am going to say three words that I want you to remember. The words are (select from word list). “Please say them for me now.” If patient is unable to repeat after 3 tries, then go to clock drawing test.</td>
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<td>- Sunrise</td>
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| 2. Clock Drawing Test (CDT) | A clock should not be visible to the patient during this task. Use either a blank piece of paper and have patient draw circle OR provide a preprinted circle – administration would then be to ask the patient to put in all the numbers like the face of a clock. Repeat instructions as needed. This is not a memory test. Move to next step if clock is not complete within 3 minutes. Inability or refusal to draw a clock is scored abnormal (0 points).  |
| Say in order: “Please draw a clock. Start by drawing a large circle.” (when done, say) “Put all the numbers in the circle.” (when done, say) “Now set the hands to show 11:10 (10 past 11) OR 8:20 OR 1:45.  |

| 3. Say: “What were the three words I asked you to remember? | Ask the patient to recall the three words you stated in Step 1.  |

### Scoring

<table>
<thead>
<tr>
<th>Word recall</th>
<th>(0-3 points)</th>
<th>1 point for each word spontaneously recalled without cueing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clock draw</td>
<td>(0 or 2 points)</td>
<td>Normal clock = 2 points. A normal clock has all numbers placed in the correct sequence and approximately correct position (e.g., with 12, 3, 6, and 9 in anchor positions) with no missing or duplicate numbers. Hands are pointing to the 11 and 2 (11:10) or the 8 and 4 (8:20) or 1 and 9 (1:45). (Length of hands less important). Abnormal clock = 0 points.</td>
</tr>
</tbody>
</table>

**Total** = **(0-5 points)**

Total score = word recall score + clock score

Negative screen for cognitive impairment: Mini-Cog™ 4-5 score

Positive screen for cognitive impairment: Mini-Cog™ 0-3 score

### References/Copyright Information


Mini-Cog™ Copyright © S. Borson. All rights reserved. Used with permission of the author in educational and clinical materials developed by the Alzheimer’s Association.
APPRAISAL OF SELF-CARE AGENCY SCALE REVISED (ASAS-R)

Circle the best answer for each statement listed below using the following scale:

1 = TOTALLY DISAGREE  
2 = DISAGREE  
3 = NEITHER DISAGREE OR AGREE  
4 = AGREE  
5 = TOTALLY AGREE

1. As circumstances change, I make the needed adjustments to stay healthy...  1 2 3 4 5
2. If my mobility is decreased, I make the needed adjustments......  1 2 3 4 5
3. When needed, I set new priorities in the measures that I take to stay healthy.............................................  1 2 3 4 5
4. I often lack the energy to care for myself in the way that I know I should...  1 2 3 4 5
5. I look for better ways to care for myself.........................  1 2 3 4 5
6. When needed, I manage to take time to care for myself.......  1 2 3 4 5
7. If I take a new medication, I obtain information about the side effects to better care for myself..................................................  1 2 3 4 5
8. In the past I have changed some of my old habits in order to improve my health..........................................................  1 2 3 4 5
9. I routinely take measures to insure the safety of myself and my family.......  1 2 3 4 5
10. I regularly evaluate the effectiveness of things that I do to stay healthy...............................................................  1 2 3 4 5
11. In my daily activities I seldom take time to care for myself...  1 2 3 4 5
12. I am able to get the information I need, when my health is threatened......  1 2 3 4 5
13. I seek help when unable to take care of myself..................  1 2 3 4 5
14. I seldom have time for myself.......................................  1 2 3 4 5
15. I am not always able to care for myself in a way I would like..............  1 2 3 4 5
Understanding Health and Healthcare Questionnaire

Thank you for taking the time to complete this questionnaire about health and healthcare.

- There are no right or wrong answers, so please answer every question based on your own experience and thinking about what you do, or might do, if you get sick.
- Completing this questionnaire is voluntary.
- This questionnaire is confidential.

In this questionnaire, please consider healthcare providers as doctors and any other allied health professional.

Unit Record Number (UR):_____________

The Health Literacy Questionnaire (HLQ®). © Copyright 2012 Richard Osborn, Rachelle Buchbinder, Roy Butterham, Gerald Elsworth. No part of the HLQ® can be reproduced, copied, altered or translated without permission of the authors. Further information: hlq@unsw.edu.au
Example:

Please indicate how strongly you disagree or agree with the following statements by crossing the response that best describes you now.

Ms. Jane Citizen has answered these questions in the following way:

**Check a box by crossing it:**

1. I am doing some of my hobbies

2. I have a plan to do some physical activity

Question 1, Jane’s answer shows that right now she agrees that she has been doing some of her hobbies.

Question 2, Jane disagrees with the statement that right now she has a plan to do some physical activity.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
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<td>4</td>
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<tr>
<td>7</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The Health Literacy Questionnaire (HLQ®) © Copyright 2013 Richard Osborne, Rachelle Buchbinder, Roy Bartels, Gerald Elsworth. No part of the HLQ® can be reproduced, copied, altered or transmitted without permission of the authors. Further information: hlq@edu.lmu.edu.au
Please indicate how strongly you disagree or agree with the following statements by crossing the response that best describes you now.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>I have at least one healthcare provider I can discuss my health problems with</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I make plans for what I need to do to be healthy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I have enough information to help me deal with my health problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>If I need help, I have plenty of people I can rely on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I always compare health information from different sources and decide what is best for me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Despite other things in my life, I make time to be healthy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I am sure I have all the information I need to manage my health effectively</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15</td>
<td>I have at least one person who can come to medical appointments with me</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I know how to find out if the health information I receive is right or not</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I have the healthcare providers I need to help me work out what I need to do</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I set my own goals about health and fitness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I have strong support from family or friends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I ask healthcare providers about the quality of the health information I find</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>There are things that I do regularly to make myself more healthy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>I can rely on at least one healthcare provider</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>I have all the information I need to look after my health</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example:

Please indicate how easy or difficult the following tasks are for you to do now.

Ms. Jane Citizen has answered these questions in the following way:

Check a box by crossing it:

1. Drive a car
2. Read a book

Question 1, Jane's answer shows that right now she cannot drive a car.
Question 2, Jane shows that right now she can read a book quite easily.

Please indicate how easy or difficult the following tasks are for you to do now.

1. Find the right health care
2. Make sure that healthcare providers understand your problems properly
3. Find information about health problems
4. Feel able to discuss your health concerns with a healthcare provider
5. Confidently fill medical forms in the correct way
6. Find health information from several different places
7. Have good discussions about your health with doctors
8. Get to see the healthcare providers I need to
9. Accurately follow the instructions from healthcare providers
10. Get information about health so you are up to date with the best information
11. Decide which healthcare provider you need to see
12. Read and understand written health information
13. Make sure you find the right place to get the health care you need

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Please indicate how easy or difficult the following tasks are for you to do now.

14 Get health information in words you understand
15 Discuss things with healthcare providers until you understand all you need to
16 Find out what healthcare services you are entitled to
17 Read and understand all the information on medication labels
18 Get health information by yourself
19 Work out what is the best care for you
20 Ask healthcare providers questions to get the health information you need
21 Understand what healthcare providers are asking you to do

Some details about yourself

1. Today’s date ______/_____/20____

2. What is your age? __________________________

3. What is your sex?  ■ Female  ■ Male

4. Do you live alone?  ■ Yes  ■ No

5. In which country were you born? ________________________________

6. What is your home postcode? ________________________________

7. Do you speak English at home?  ■ Yes  ■ No
8. What is the highest level of education you have attended? (Tick one only)
   □ Primary school or less
   □ High school (not completed)
   □ High school (completed)
   □ TAFE/Trade
   □ University

9. Do you have a long standing illness or disability? Please tick all that apply
   □ Arthritis
   □ Back pain
   □ Heart problems
   □ Asthma
   □ Cancer
   □ Depression or anxiety
   □ Diabetes
   □ Stroke
   □ Other, please specify __________________________
   □ None of the above

10. Do you have private health insurance? □ Yes □ No

11. Do you have a health care card? □ Yes □ No

Did someone help you complete this questionnaire? □ Yes □ No

If yes, please describe in what way you were helped: __________________________

Thank you for your time

Health Literacy Scales

---

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The Health Literacy Questionnaire (HLQ)
Scales and Items Summary Final confirmation version

**Form A**
Response set: How strongly you disagree or agree with the following statements
(Strongly disagree/disagree/Agree/Strongly agree)

### Scale 1. Healthcare provider support
**Item Number** | **Descriptor High:** Has an established relationship with at least one healthcare provider who knows them well and who they trust to provide useful advice and information and to assist them to understand information and make decisions about their health.
---|---
11 | I have at least one healthcare provider who knows me well
14 | I have at least one healthcare provider I can discuss my health problems with
18 | I have a doctor I can trust
22 | I trust advice I get from healthcare providers
26 | I have the healthcare providers I need to help me work out what I need to do
32 | I can rely on at least one healthcare provider

**Descriptor Low:** People who are low on this domain are unable to engage with doctors and other healthcare providers. They don’t have a regular healthcare provider and/or have difficulty trusting healthcare providers as a source of information and/or advice.

### Scale 2. Perceived information adequacy
**Item Number** | **Descriptor High:** Feels confident that they have all the information that they need to live with and manage their condition and to make decisions
---|---
4 | I feel I have good information about health
9 | When I receive treatments I always understand what they are for
13 | I have found it easy to find enough information about my health problems
17 | I have enough information to help me deal with my health problems
23 | I am sure I have all the information I need to manage my health effectively
28 | I have all the information I need to manage my health properly
34 | I have all the information I need to look after my health

**Descriptor Low:** Feels that there are many gaps in their knowledge and that they don’t have the information they need to live with and manage their health concerns.

### Scale 3. Taking responsibility for health
**Item Number** | **Descriptor High:** Recognise the importance and are able to take responsibility for their own health. They proactively engage in their own care and make their own decisions about their health.
---|---
5 | I try to control the decisions that are made about my health
8 | I spend quite a lot of time actively managing my health
16 | I make plans for what I need to do to be healthy
27 | I set my own goals about health and fitness
31 | There are things that I do regularly to make myself more healthy

**Descriptor Low:** People with low levels don’t see their health as their responsibility, they are not engaged in their healthcare and regard healthcare as something that is done to them.

---

HLQ for Confirmation – DEMONSTRATION PURPOSES ONLY
### Scale 4. Health focus

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Descriptor <strong>High</strong>: Looking after health is seen as a high priority and a person has the energy and time to do what is required. Health issues receive the necessary amount of the person’s attention.</th>
<th>Descriptor <strong>Low</strong>: Health issues are not a priority for the person’s attention, time and energy. This may relate to a lack of interest or a result of the impact of competing priorities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I try to make good decisions about things that affect my health</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I want to understand all I can about my health</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I like to hear about new ways to make myself healthier</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Despite other things in my life, I make time to be healthy</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>My health is important to me</td>
<td></td>
</tr>
</tbody>
</table>

### Scale 5. Social support

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Descriptor <strong>High</strong>: A person’s social system provides them with all the support they want or need</th>
<th>Descriptor <strong>Low</strong>: Completely alone and unsupported</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>I can get access to several people who understand and support me</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>When I feel ill, the people around me really understand what I am going through</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>If I need help, I have plenty of people I can rely on</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>I have people who can come to medical appointments with me</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>I have strong support from family or friends</td>
<td></td>
</tr>
</tbody>
</table>

### Scale 6. Critical appraisal

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Descriptor <strong>High</strong>: Able to identify good information and reliable sources of information. They can resolve conflicting information by themselves or with help from others</th>
<th>Descriptor <strong>Low</strong>: No matter how hard they try, they cannot understand most health information and get confused when there is conflicting information</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>I compare health information from different sources</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>When I see new information about health, I check up on whether it is true or not</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I know which places provide health information that I can trust</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I always compare health information from different sources and decide what is best for me</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>I know how to find out if the health information I receive is right for me or not</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>I ask healthcare providers about the quality of the health information I find</td>
<td></td>
</tr>
</tbody>
</table>
The Health Literacy Questionnaire (HLQ)  
Scales and Items Summary **Final confirmation version**  

**FORM B**  
Response options: How easy or difficult the following tasks are for you to do now  
(Cannot do/Very difficult/Quite difficult/Quite easy/Very easy)

### Scale 7. Agency in relationships with healthcare providers

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Descriptor High: Is proactive about their health and feels in control in relationships with healthcare providers. Is able to seek advice from additional health care providers when necessary. They keep going until they get what they want. Empowered.</th>
<th>Descriptor Low: Is passive in their approach to health care, inactive, i.e., they do not proactively seek or clarify information and advice and/or service options. They accept information without question. Unable to ask questions to get information or to clarify what they don’t understand. They accept what is offered without seeking to ensure that it meets their needs. Feel unable to share concerns.</th>
</tr>
</thead>
<tbody>
<tr>
<td>36</td>
<td>Make sure that healthcare providers understand your problems properly</td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>Feel able to discuss your health concerns with a healthcare provider</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Have good discussions about your health with doctors</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Discuss things with healthcare providers until you understand all you need to</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Ask healthcare providers questions to get the health information you need</td>
<td></td>
</tr>
</tbody>
</table>

### Scale 8. Navigating the healthcare system

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Descriptor High: Able to find out about services and supports so they get all their needs met. Able to advocate on their own behalf at the system and service level.</th>
<th>Descriptor Low: Unable to advocate on their own behalf and unable to find someone who can help them use the healthcare system to address their health needs. Do not look beyond obvious resources and have a limited understanding of what is available and what they are entitled to.</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>Find the right health care</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Work out how to make an appointment to see a healthcare provider</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Decide which healthcare provider you need to see</td>
<td></td>
</tr>
<tr>
<td>47</td>
<td>Make sure you find the right place to get the healthcare you need</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Find out what healthcare services you are entitled to</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Work out what is the best care for you</td>
<td></td>
</tr>
</tbody>
</table>

### Scale 9. Ability to access health information

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Descriptor High: Is an ‘information explorer’. Actively uses a diverse range of sources to find information and is up to date.</th>
<th>Descriptor Low: Cannot access health information when required. Is dependent on others to offer information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>Find information about health problems</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Find health information from several different places</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Get information about health so you are up to date with the best information</td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Get health information in words you understand</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Get health information by yourself</td>
<td></td>
</tr>
</tbody>
</table>
The Health Literacy Questionnaire (HLQ)
Scales and Items Summary Final confirmation version

<table>
<thead>
<tr>
<th>Scale 10. Reading and writing health information</th>
</tr>
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<tbody>
<tr>
<td><strong>Item Number</strong></td>
</tr>
<tr>
<td><strong>High:</strong></td>
</tr>
<tr>
<td>Descriptor</td>
</tr>
<tr>
<td>39</td>
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<tr>
<td>43</td>
</tr>
<tr>
<td>46</td>
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<tr>
<td>51</td>
</tr>
<tr>
<td>55</td>
</tr>
</tbody>
</table>
Self-Rated Health

In general, would you say your health is: ............................................ (Circle one)

Excellent .................................. 1
Very good .................................... 2
Good ........................................ 3
Fair .......................................... 4
Poor ......................................... 5

Scoring
Score the number circled. If two consecutive numbers are circled, choose the higher number (worse health); if two non-consecutive numbers are circled, do not score. The score is the value of this single item only. A higher score indicates poorer health.

Characteristics
Tested on 1,129 subjects with chronic disease. N=51 for test-retest.

<table>
<thead>
<tr>
<th>No. of items</th>
<th>Observed Range</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Internal Consistency Reliability</th>
<th>Test-Retest Reliability</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-5</td>
<td>3.29</td>
<td>.91</td>
<td>—</td>
<td>.92</td>
</tr>
</tbody>
</table>

Source of Psychometric Data

Comments
This item is used in the National Health Interview Survey. In a number of studies self-rated health has been found to be an excellent predictor of future health. This scale available in Spanish.

References


*This scale is free to use without permission*

**Stanford Patient Education Research Center**
1000 Welch Road, Suite 204
Palo Alto CA 94304
(650) 723-7935
(650) 725-9422 Fax
self-management@stanford.edu
http://patienteducation.stanford.edu

Funded by the National Institute of Nursing Research (NINR)
APPENDIX B

INSTITUTIONAL REVIEW BOARD EXEMPT NOTICE

Institutional Review Board
Research Protection Programs
24887 Taylor Street • Suite 202 • Loma Linda, CA 92350
(909) 558-4531 (voice) • (909) 558-0131 (fax)

Exempt Notice
IRB# 5130256

To: Winslow, Betty W
Department: School of Nursing
Protocol: The effect of health literacy skills on self-care practices in older adults in Manchester, Jamaica

Your application for the research protocol indicated above was reviewed administratively on behalf of the IRB. This protocol is determined to be exempt from IRB approval as outlined in federal regulations for protection of human subjects, 45 CFR Part 46.101(b)(2).

Stipulations of approval:

Please note the PI’s name and the IRB number assigned to this IRB protocol (as indicated above) on any future communications with the IRB. Direct all communications to the IRB c/o Research Protection Programs.

Although this protocol is exempt from further IRB review as submitted, it is understood that all research conducted under the auspices of Loma Linda University will be guided by the highest standards of ethical conduct.

Signature of IRB Chair/Designee: ____________________________ Date: 8/19/13

Loma Linda University Adventist Health Sciences Center holds Federalwide Assurance (FWA) No. 0000544T with the U.S. Office for Human Research Protections, and the IRB registration no. is (ORI) 0000226. This Assurance applies to the following institutions: Loma Linda University, Loma Linda University Medical Center (including Loma Linda University Children's Hospital, LLU Community Medical Center), Loma Linda University Behavioral Medicine, and affiliated medical practices groups.

IRB Chair:
Phillip L. Ripaby, M.D.
Department of Medicine
(909) 558-2341, ripaby@llu.edu

IRB Administrator:
Linda G. Holstead, M.A., Director
Research Protection Programs
Ext 43370, Fax 80131, holstead@llu.edu

IRB Specialist:
Mark Testerman
Research Protection Programs
Ext 42042, Fax 80131, testerman@llu.edu

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ITEMS SUBMITTED FOR IRB REVIEW:

1. Abstract
2. Survey Cover Letter (Consent)
3. Protocol
4. Survey Tools
5. Waiver of Informed Consent / Authorization
6. Letter of Support (Cultural Appropriateness/Local Contact)
7.
8.
9.
10.
11.
September, 2013

Dear Senior,

You are invited to participate in this survey because you are an adult age 60 or older living at home in Jamaica. This research is being conducted by Heather Fletcher, a nurse, as part of her doctoral education. The aims of this study are to check the usefulness of a new questionnaire that measures how well you understand health information and whether your answers on this questionnaire relate to how you take care of yourself.

Participation in this study involves answering questions about you such as your education level, your current health, how well you understand health information and how well you are able to take care of your health. It will take you approximately 30-45 minutes to complete the survey. Whether or not you participate is your choice.

There is a minimal risk of breach of confidentiality; however this possibility will be minimized by using a survey form that will not include your name or address or include any information that could be used to identify you. If you wish to proceed and participate after reading this letter you will complete the survey that is attached to this letter. When you have completed the survey you may place it in the envelope provided and hand it back to me. When the results are received by us, there will be no information linking your answers back to you. If you are unable to read the survey questions, I can read for you.

Although you will not benefit directly from this study, the information provided will potentially benefit other seniors who may need more health information to be able to care for themselves.

You may contact an impartial third party not associated with this study regarding any question or complaint you may have, by calling Dr. Carol Reid at 963-7239 (office) at Northern Caribbean University for information and assistance.

Thank you for giving consideration to this invitation. If you have any questions, please ask me. By completing the attached survey you will be giving your consent to participate.

Sincerely,
Heather Fletcher, RN, MS, PhD Student

A Seventh-day Adventist Institution
Loma Linda, California 92350 · (909) 558-4300 · www.llu.edu
College of Allied Health and Nursing

Dr Betty Winslow
Professor / Principal Investigator
Loma Linda University School of Nursing
11261 Campus Street
Loma Linda CA 92350

Re: Heather Fletcher’s Planned Research in Jamaica

Dear Dr. Winslow,

This letter is an indication of my support of Mrs Heather Fletcher to be the local contact in Jamaica as she collects data for her dissertation. The proposed plan is an appropriate research for the Jamaican setting. I anticipate her receiving IRB approval from the Loma Linda University. My recommendation is that Mrs Fletcher submits her proposal to the Northern Caribbean University IRB Board for local approval to conduct research in the designated communities.

Sincerely,

Carol Barnes Reid, DrPH, RD
Director, Public Health
Yes. Good luck with your project! If you think of it please let me know what you discover!
Soo
On Aug 5, 2013, at 5:06 PM, "Fletcher, Heather (LLU)" <hffletcher@llu.edu> wrote:

> Dear Borson,
> So, I have your permission to use the tool? Yes version 1 list of words should be fine for Jamaican.
> Heather
> ________________________________________
> From: Soo Borson [soob@u.washington.edu]
> Sent: Monday, August 05, 2013 5:02 PM
> To: Fletcher, Heather (LLU)
> Subject: Re: Permission to use Mini-Cog
>
> > Oh - OK! This is fine. However, what's not mentioned is that different word combinations generate different percentages of screen failures. An intermediate failure rate is produced by 'banana-sunrise-chair' and that list should be fine for Jamaica I think.
> > Regards,
> > Soo
> > On Aug 5, 2013, at 4:53 PM, "Fletcher, Heather (LLU)" <hffletcher@llu.edu> wrote:
> >
> >> <minicog.pdf>
> >
From: Marge Bott [mailto:MBOTT@kumc.edu]
Sent: Wed 15/02/2012 13:34
To: Winslow, Betty (LLU)
Cc: Fletcher, Heather (LLU)
Subject: Re: Self-Care Agency Scale

I am giving you permission to use the Revised Appraisal of Self-Care Agency Scale of Dr. Sousa's. Please see attached document.

I was able to locate the article and revise his tool based on the 15 items that were identified in the article. Please check to be sure that I got the correct items and do not hesitate to contact me if you think I made an error. I also found his output from the analysis and was able to identify the items that need to be reverse scored. They are identified with the R by each of those four items.

Dr. Sousa was a very good colleague of mine and his death was very difficult for me personally. I know that he would so excited that you want to use his tool in your research and in another cultural community.

He loved to work with students all over the world and I know he would have been very willing to work with you if he were still alive.

Please do not hesitate to contact me again if this is not correct.

Sincerely,

Marge J. Bott, RN, PhD
Associate Dean for Research
University of Kansas School of Nursing
Office of Nursing Grants & Research
3901 Rainbow Boulevard Mail Stop 4043
Kansas City, KS 66160-7502
Phone: 913-588-1692
FAX: 913-588-4531
Dear Heather,

Please find attached Health Literacy Questionnaire for you to use.

Kind regards,

Crystal McPhee  
Mondays, Tuesdays and Wednesdays  
Project Officer (heiQ and Health Literacy)

Public Health Innovation  
Population Health Strategic Research Centre  
Faculty of Health  
Deakin University (Burwood Campus),  
221 Burwood Highway, Burwood. VIC 3125  
Australia

Ph: (03) 9244 6292  
Fax: (03) 9244 6624  
Email: crystal.mcphee@deakin.edu.au
2011 Population and Housing Census

Manchester South

65

FROM THE POINT where the Rowes Corner/Cross Keys secondary road meets Ainsley Road in Broughton;
NORTHWESTERLY and along Ainsley Road to where it meets Curphey Home private road at Curphey Home;
NORTEASTERLY and along this private road to where it meets the Rudds Corner/Cross Keys secondary road at Curphey gate;
SOUTHEASTERLY and along this secondary road to where it meets the Marlie Hill/Cross Keys P.C.R. in Cross Keys Square;
SOUTHERLY and along this P.C.R. to where it meets a track opposite Lebert Allen's premises;
SOUTHWESTERLY and along this track to where it meets Great Valley Property Road on Great Valley Property;
NORTHWESTERLY and along this property road to where it meets the Rowes Corner/Cross Keys secondary road at Great Valley Gate;
NORTEASTERLY and along this secondary road to the starting point.
Population and Housing Census 2011

Manchester Central

45

FROM THE POINT where New Green Road meets Caledonia Road in front of Global Travel Service;
NORTHEASTERLY and NORTHWESTERLY along New Green Road to meet Kenda Road;
EASTERLY and along Kendal Road to meet Battersea Road;
NORTHEASTERLY and along this road to the eastern boundary of Mr. Black's (Skengdon) property at Lot 20 Battersea Road;
SOUTHWESTERLY along this property boundary to Bonito Crescent (beside Lot 53 Bonito Crescent);
WESTERLY then SOUTHWESTERLY and along Bonito Crescent to where it meets Confidence Avenue;
SOUTHEASTERLY and along this avenue to Caledonia Road;
SOUTHWESTERLY along Caledonia Road to the starting point.
2011 Population and Housing Census

Manchester South

FROM THE POINT where the Junction/Downs secondary road meets the Downs/Rowes Corner secondary road in Downs;
SOUTHEASTERLY and along the Downs/Rowes Corner secondary road to where it meets Blake Town Street at John Powell’s premises;
NORTHWESTERLY and along Blake Street meet the railway line southwest of Melvin Blake’s premises;
NORTHEASTERLY along the railway line to meet a track leading to Farm;
NORTHWESTERLY along this track to meet Farm Land Settlement Road opposite Marion Wilson’s premises;
SOUTHWESTERLY and along this settlement road to meet another branch of Farm Land Settlement Road at the Stewart’s premises;
SOUTHWESTERLY and along this branch of the settlement road to meet Bagie Crescent at Edith Banton’s premises;
NORTHEASTERLY along this crescent to meet the Junction/Downs secondary road at Miriam Russell’s premises;
NORTHEASTERLY and along this secondary road to the starting point.
Population and Housing Census 2011

Manchester North East

FROM THE POINT where the Sedburgh/Clandon main road meets Richmond Drive by the Mount Zion Apostolic Church;
SOUTHWESTERLY along Richmond Drive to where it meets Richmond track at Fisher's Welding shop;
SOUTHEASTERLY and along this track to where it meets Strat Road which leads to the Christiana/Walderston main road;
SOUTHWESTERLY and along Strat Road to the water tank on the farm;
NORTHEASTERLY from this point in a straight line to and along the western boundary of Providence Housing Scheme to meet the main road in the housing scheme;
WESTERLY and along this road to where it meets a road leading to the water catchment tank;
NORTHERLY along this road to where it meets a road south of the water catchment tank;
EASTERLY along this road to meet another section of the main scheme road;
NORTHWESTERLY and along this road to Miller Road;
NORTHEASTERLY along Miller Road to where it meets Holmwood Technical School road;
NORTHEASTERLY along this road to where it meets the Sedburgh/Clandon main road opposite the bus stop;
SOUTHEASTERLY and along this main road to the starting point.
<table>
<thead>
<tr>
<th>Manchester</th>
<th>North West</th>
<th>24</th>
</tr>
</thead>
</table>

FROM THE POINT where the John's Hall/Mile Gully secondary road meets Free Town/John's Hall P.C.R. opposite Lloyd Darby's shop;
NORTHERLY and along Free Town/John's Hall P.C.R. to where it meets Greenland (Green Mount) P.C.R. opposite Wilfred Patterson's premises;
NORTHEASTERLY and SOUTHEASTERLY along this P.C.R. to where it meets Heartease P.C.R. a chain east of Bushy Park parish tank;
SOUTHWESTERLY and SOUTHEASTERLY along Heartease P.C.R. to where it meets the John's Hall/Mile Gully secondary road in Topsham opposite William Reece's premises;
SOUTHWESTERLY and along this secondary road to the starting point.
FROM THE POINT where the Coleyville/Malton secondary road meets the Craig Head/Coleyville secondary road by Samuel Chung's shop;
SOUTHEASTERLY along the Craig Head/Coleyville secondary road to where it meets the Christiana/Lorrimer's main road in Dump Square;
SOUTHEASTERLY and along this main road to where it meets the Ticky Ticky P.C.R.;
SOUTHWESTERLY and along this P.C.R. to the Coleyville/Malton secondary road by Derrick Hall's shop;
NORTHEASTERLY and along this secondary road to the starting point.
Population and Housing Census 2011

Manchester Central

97

FROM THE POINT where Knockpatrick District Road meets the Newport/Cedar Grove secondary road at the Church of God of Prophecy;
NORTHERLY and along the Newport/Cedar Grove secondary road to where it meets th
Knockpatrick/Old England P.C.R. in Knockpatrick;
SOUTHEASTERLY and along the Knockpatrick/Old England P.C.R. to where it meets
Sunset Drive at the round-a-bout opposite Denzil Reid's premises;
SOUTHEASTERLY and along Sunset Drive to where it meets the Newfield/Bottom
Patrick P.C.R. opposite "Bove Rock's" premises;
SOUTHERLY then SOUTHWESTERLY and along the Newfield/Bottom Patrick P.C.R
to where it meets a private road at Hubert Wright's premises;
NORTHERLY and along this private road to where it meets Alpart's Haul Road on
Alpart's land;
NORTHERLY and along Alpart's Haul Road to where it meets Knockpatrick District
Road at Chippy Knight's premises;
SOUTHWESTERLY and along Knockpatrick District Road to the starting point.
FROM THE POINT where Bethel Street meets Green Vale P.C.R. opposite Max Morgan's premises;
SOUTHEASTERLY and along Green Vale P.C.R. to meet 14th Street;
WESTERLY along 14th Street and continuing over the hill to where it meets Long Lane;
WESTERLY and along Long Lane to meet Bethel Street at Joseph Harriott's shop;
EASTERLY and along Bethel Street to the starting point.
APPENDIX F
DATA FINDINGS

Scale 7: Navigating the healthcare system

- Find the right health care: 80
- Work out how to make an appointment to see a healthcare provider: 60
- Decide which healthcare provider you need to see: 60
- Make sure you find the right place to get the healthcare you need: 59
- Find out what healthcare services you are entitled to: 60
- Work out what is the best care for you: 57
- 64

Scale 8: Ability to find good information

- Find information about health problems: 59
- Find health information from several different places: 72
- Get information about health so you are up to date with the best information: 72
- Get health information in words you understand: 84
- Get health information by yourself: 73
- 50

Scale 9: Reading and understanding health information

- Confidently fill medical forms in the correct way: 62
- Follow the instructions from healthcare providers properly: 79
- Read and understand written health information: 66
- Read and understand all the information on medication labels: 63
- Understand what healthcare providers are asking you to do: 90
### Table F2

**Independent $t$-test – HLQ & Education Levels**

<table>
<thead>
<tr>
<th>HLQ Scales</th>
<th>LevelEd2</th>
<th>Mean</th>
<th>SD</th>
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<th>$p$</th>
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<td>0.97</td>
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<td>3.64</td>
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<td>Having sufficient information</td>
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<td>2.40</td>
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<td>Actively managing health</td>
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<td>2.00</td>
<td>3.01</td>
<td>1.04</td>
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<td>Active engagement with healthcare providers</td>
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1= High school level and below ($n = 171$)

2= Trade and university ($n = 29$)
Table F3

Correlations – Health Status and HLQ

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<tr>
<th>HLQ Scales</th>
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<td>Healthcare Provider Support (HPS)</td>
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<tr>
<td>Having Sufficient Information (HIS)</td>
<td>-.242**</td>
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<tr>
<td>Actively Managing Health (AMH)</td>
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<td>Social Support (SS)</td>
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<td>.991</td>
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<td>Critical Appraisal (CA)</td>
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<tr>
<td>Ability to Engage Healthcare Provider (AEHP)</td>
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<tr>
<td>Navigating Healthcare System (NHS)</td>
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<tr>
<td>Ability to Find Good Health Information (AFGHI)</td>
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<tr>
<td>Reading and Understanding Health Information (RU)</td>
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** Sig. 0.01 level (2 tailed)

Table F4

Descriptives – HLQ Means for Regions

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<th>Region</th>
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<th>(HPS)</th>
<th>(HIS)</th>
<th>(AMH)</th>
<th>(SS)</th>
<th>(CA)</th>
<th>(AEHP)</th>
<th>(NHS)</th>
<th>(AGHI)</th>
<th>RU</th>
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<td>Central</td>
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<td>3.18</td>
<td>3.71</td>
<td>2.67</td>
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<td>N West</td>
<td>55</td>
<td>2.67</td>
<td>2.10</td>
<td>2.38</td>
<td>3.44</td>
<td>1.86</td>
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<td>N East</td>
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<td>3.20</td>
<td>2.65</td>
<td>2.95</td>
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<td>South</td>
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<td>2.90</td>
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<td>3.55</td>
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Table F5

One-Way ANOVA – HLQ & Regions between Central & North West

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<th>HLQ Scales</th>
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<th>$p$</th>
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<tr>
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<td>Having Sufficient Information (HIS)</td>
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<td>Actively Managing Health (AMH)</td>
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APPENDIX G

RESEARCH ASSISTANT TRAINING PROTOCOL

Table G

Dissertation Activities – August – September 2013

<table>
<thead>
<tr>
<th>DATE</th>
<th>Research Assistant Activities</th>
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<tbody>
<tr>
<td>12-08-13</td>
<td>IRB Training started</td>
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<tr>
<td>15-08-13</td>
<td>IRB Training Completion</td>
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<tr>
<td>15-08-13</td>
<td>Conflict of Interest Training Completion</td>
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<tr>
<td>21-08-13</td>
<td>Training in research activities / Reading of <em>Survey Research Methods</em> – (Fowler, 2009) Chapter 5</td>
</tr>
<tr>
<td>22-08-13</td>
<td>Training re tools and data collection with older adults</td>
</tr>
<tr>
<td>05-09-13</td>
<td>Data Entry- SPSS database set-up and re-training</td>
</tr>
<tr>
<td>06-09-13</td>
<td>Data Collection (Observation)</td>
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<td>First Data Collection Experience</td>
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