University of New Hampshire
University of New Hampshire Scholars' Repository

Master's Theses and Capstones | Student Scholarship

Fall 2015

A Culturally Appropriate Cognitive Assessment Screening for Bhutanese Refugees

Holly Milligan
University of New Hampshire - Main Campus

Follow this and additional works at: https://scholars.unh.edu/thesis

Part of the Nursing Commons

Recommended Citation

Milligan, Holly, "A Culturally Appropriate Cognitive Assessment Screening for Bhutanese Refugees" (2015). *Master's Theses and Capstones*. 12.
https://scholars.unh.edu/thesis/12

This Thesis is brought to you for free and open access by the Student Scholarship at University of New Hampshire Scholars' Repository. It has been accepted for inclusion in Master's Theses and Capstones by an authorized administrator of University of New Hampshire Scholars' Repository. For more information, please contact Scholarly.Communication@unh.edu.

A Culturally Appropriate Cognitive Assessment Screening for Bhutanese Refugees

By

Holly Milligan

Bachelors of Science, California Polytechnic State University, 2009

CAPSTONE PROJECT

Submitted to the University of New Hampshire

in Partial Fulfillment of

the Requirements for the Degree of

Master of Science

in

Nursing

September, 2015

This Capstone Project has been examined and approved.

_____

Pamela DiNapoli, RN, PhD, CNL
Committee Chairperson

_____

Date

DEDICATION

This quality improvement project is dedicated to the Patrice L. Engle, Ph.D. (1944-2012). Dr. Engle was a Professor of Psychology and Child Development at California Polytechnic State University, San Luis Obispo since 1980. Dr. Engle was an internationally recognized expert in child nutrition, education and women's health. As the Senior Advisor for United Nations Children's Educational Fund (UNICEF) in Early Childhood Development, she spent time in India and New York, as well as with the World Health Organization in Geneva and International Food Policy Research Institute in Washington, D.C. Dr. Engle's research encompassed the theme of caring and the impact of poverty on child development, and the role of family members. Above all, Dr. Engle was a supportive, loving, and inspirational Professor that will forever be remembered.

ACKNOWLEDGEMENTS

This quality improvement project would not have been possible without the support and dedication of Karen Decker-Gendron, Pat Finn, Dipak Pokhrel, Tina Parris, Rory Richardson, Kim Martin, Emily Allen, and the rest of the Concord Hospital Family Health Center staff. To my dear family and friends in California, Arizona, Nebraska, Colorado, Pennsylvania, Texas, North Carolina, New York, Virginia, Ireland, Italy, France, and England, thank you for your love and patience. Lastly, a very special thanks to the UNH Nursing Department, especially Dr. DiNapoli, and my comrades of the 11th cohort.

TABLE OF CONTENTS

DEDICATION..... iii

ACKNOWLEDGEMENTS..... iv

LIST OF TABLES..... vii

LIST OF FIGURES.....viii

ABSTRACT..... ix

INTRODUCTION..... 1

GLOBAL PROBLEM..... 1

Definitions..... 1

Refugee..... 1

Culturally appropriate or competent care..... 2

Cognitive Impairment..... 2

LOCAL PROBLEM..... 2

EVIDENCE OF THE PROBLEM..... 3

LITERATURE REVIEW..... 6

GLOBAL AIM..... 10

SPECIFIC AIM..... 10

METHODS..... 11

Setting..... 11

Theoretical Framework..... 12

Intended Improvement..... 12

RESULTS..... 14

CONCLUSION..... 16

Recommendations..... 16

Limitations..... 17

Implications for the Clinical Nurse Leader..... 17

REFERENCES 19

APPENDICES..... 22

APPENDIX A MONTREAL COGNITIVE ASSESSMENT..... 23

APPENDIX B SURVEY OF NURSES..... 24

APPENDIX C SURVEY OF PROVIDERS 28

APPENDIX D ROWLAND UNIVERSAL DEMENTIA ASSESSMENT SCALE..... 32

APPENDIX E INSTITUTIONAL REVIEW BOARD APPROVAL..... 34

LIST OF TABLES

TABLE 1 QUALITATIVE COMPARISON OF CATEGORIES OF THE MOCA AND RUDAS..... 13

TABLE 2 SEVERITY OF IMPAIRMENT OF MOCA AND RUDAS..... 14

TABLE 3 COMPARISONS OF MOCA AND RUDAS SCORES WITH BHUTANESE REFUGEES..... 15

TABLE 4 QUALITATIVE OBSERVATIONS OF MOCA AND RUDAS..... 15

LIST OF FIGURES

FIGURE 1 CHALLENGES AND BARRIERS IDENTIFIED BY NURSES USING THE MOCA WITH REFUGEES..... 4

FIGURE 2 CHALLENGES AND BARRIERS IDENTIFIED BY PROVIDERS USING THE MOCA WITH REFUGEES..... 5

Abstract

A Culturally Appropriate Cognitive Assessment Screening for Bhutanese Refugees

Holly Milligan, BS, RN
University of New Hampshire
Durham, New Hampshire

Background: As the incidence of cognitive impairment continues to rise, timely and accurate diagnoses are essential.

Aim: The aim of this quality improvement project was to evaluate the standard cognitive assessment screening for Bhutanese refugees in a medical home, and compare an alternative, validated, and potentially more culturally appropriate tool. Also, an assessment of provider, nurse and interpreter satisfaction with the two tools was performed.

Method: Mixed methods including qualitative observations and quantitative satisfaction surveys related to the implementation of a culturally appropriate cognitive assessment tool.

Results: When assessed with the standard tool, all 10 people screened positive for cognitive impairment. However, when using the alternative tool on the same sample, 4 of the 7 people screened positive, but with less impairment. Accounting for this difference was language, literacy and a different alphabet. Results of the pre-and-post surveys indicated an increase in provider, nurse and interpreter satisfaction with the alternative cognitive assessment screening tool with Bhutanese refugees.

Conclusion and Implications for CNL Practice: Providing culturally appropriate screening tools in diverse populations potentially decreases the chance of misdiagnosis and under-diagnosis. The validated alternative tool has the potential of providing more accurate and timelier diagnoses, resulting in a higher level of patient and family-centered care and satisfaction. Limitations and Clinical Nurse Leader implications will be discussed.

Key Words: *Rowland Universal Dementia Assessment Scale, Montreal Cognitive Assessment, cognitive impairment, culturally appropriate, refugees, Bhutanese*

A Culturally Appropriate Cognitive Assessment Screening for Bhutanese Refugees

In the United States, an estimated 5 million people are living with Alzheimer's disease, costing an estimated $226 billion in healthcare annually (Alzheimer's Association, 2015). By 2050, 16 million Americans are estimated to be living with the disease, increasing costs to $1.1 trillion per year (Alzheimer's Association, 2015). A high incidence of undiagnosed cognitive impairment exists, and in turn there is an increased risk of harm; driving, activities of daily living, financial decisions are a few of the aspects that may be impacted. Therefore, timely and accurate diagnosis and treatment of cognitive impairment identifies the need for community support and resources. Additionally, patients and families are then able to plan for financial and legal decisions before the disease progresses (Sayegh & Knight, 2013). Family members are also able to address their own health needs by receiving genetic screening.

Global Problem

Over the past 35 years, nearly 3 million refugees have resettled in the United States, and the numbers continue to rise each year (Cultural Orientation Resource Center, 2015). While the incidence of dementia increases, presumably an increase in the use of cognitive assessment tools will ensue. As the United States is often referred to as a "melting pot," the accuracy of available cognitive assessment screening tools must be assessed in diverse populations. Providing efficient, effective and culturally appropriate care is essential in this vulnerable population.

Definitions

Refugee. According to New Hampshire's Department of Health and Human Services (2010), "refugees are people who have been forced to flee their home countries because of persecution or a well-founded fear of persecution because of race, religion, nationality, political opinion, or membership in a particular social group" (p. 1).

Culturally appropriate or competent care. Culturally competent care involves tailoring and adjusting the approach, services, and overall care to a patient's background, while remaining cognizant of their beliefs, values, and social constructs (Betancourt, Green, & Carrillo, 2002).

Cognitive impairment. Cognitive impairment is on a spectrum and can range from mild to severe. This impairment includes, but is not limited to, being unable to learn new things, difficulty remembering, to losing the ability to talk or write (Centers for Disease Control and Prevention, 2011).

Local Problem

Approximately 200 refugees from around the world arrive locally each year and initiate their healthcare at the Concord Hospital Family Health Center (FHC). FHC is the only medical home that provides primary care to this population in the immediate area. Therefore, it is especially crucial that culturally competent and appropriate care be provided from the micro to macro-system levels. In an effort to provide the most culturally appropriate care to the largest population of refugees at FHC, an evaluation of the Bhutanese in this healthcare system was performed.

Regardless of the language or cultural background of patients at FHC, the same screenings are routinely performed among all populations. These include: the Snellen Eye Chart exam, Whisper Test, Get-Up-and-Go, clock drawing, PHQ-2 and 9, development tests for children of all ages, Montreal Cognitive Assessment (MoCA), among others. One of the components of the Medicare Wellness Visit, as well as the only screening tool available for cognitive impairment at FHC, is the MoCA (Appendix A). Thus, the purpose of this quality

improvement project was to assess whether this is the most culturally appropriate cognitive assessment tool for Bhutanese refugees.

Evidence of Problem

As the culturally and linguistically diverse population at FHC continues to grow each year, appropriate screening tools must be utilized. Prior to mid-2013, the "gold standard" of cognitive assessment screening, the Mini-Mental Status Examination, was used at FHC. However, new copyright laws restrict its use, and it was replaced by the MoCA.

At FHC, Bhutanese refugees undergo the same cognitive assessment screening as patients originally from the United States, when a patient, family, or provider is questioning potential cognitive impairment. During a recent case, a MoCA screening was observed with an 86-year-old, illiterate, non-English speaking Bhutanese man. The patient was unable to complete all but one of the tasks. The nurse and interpreter had to repeat instructions multiple times, and adjustments were necessitated. For example, the letters included in the screening do not coincide with the Nepali language, as Nepali has a different alphabet of consisting of 36 letters.

Following this experience, casual inquiries were made with nursing staff regarding their insight with the MoCA and refugees. Nursing staff and providers were then surveyed regarding their attitudes towards the MoCA. A total of 11 nurses and 16 providers responded to the surveys (Appendices B and C).

Top barriers or challenges specified by nurses and providers when screening refugees with the MoCA were as follows. One, the patient was illiterate in own native language; two, the patient could not identify the animals in the drawings; three, the patient had difficulty with dexterity. Seven of the 11 nurses that responded to the survey indicated they "strongly agree" or "agree" that there has been a recent increase in the MoCAs being ordered, whereas the remaining

4 nurses were “neutral,” but did not “disagree.” Figures 1 and 2 identify the barriers and challenges indicated by 7 nurses and 9 providers.

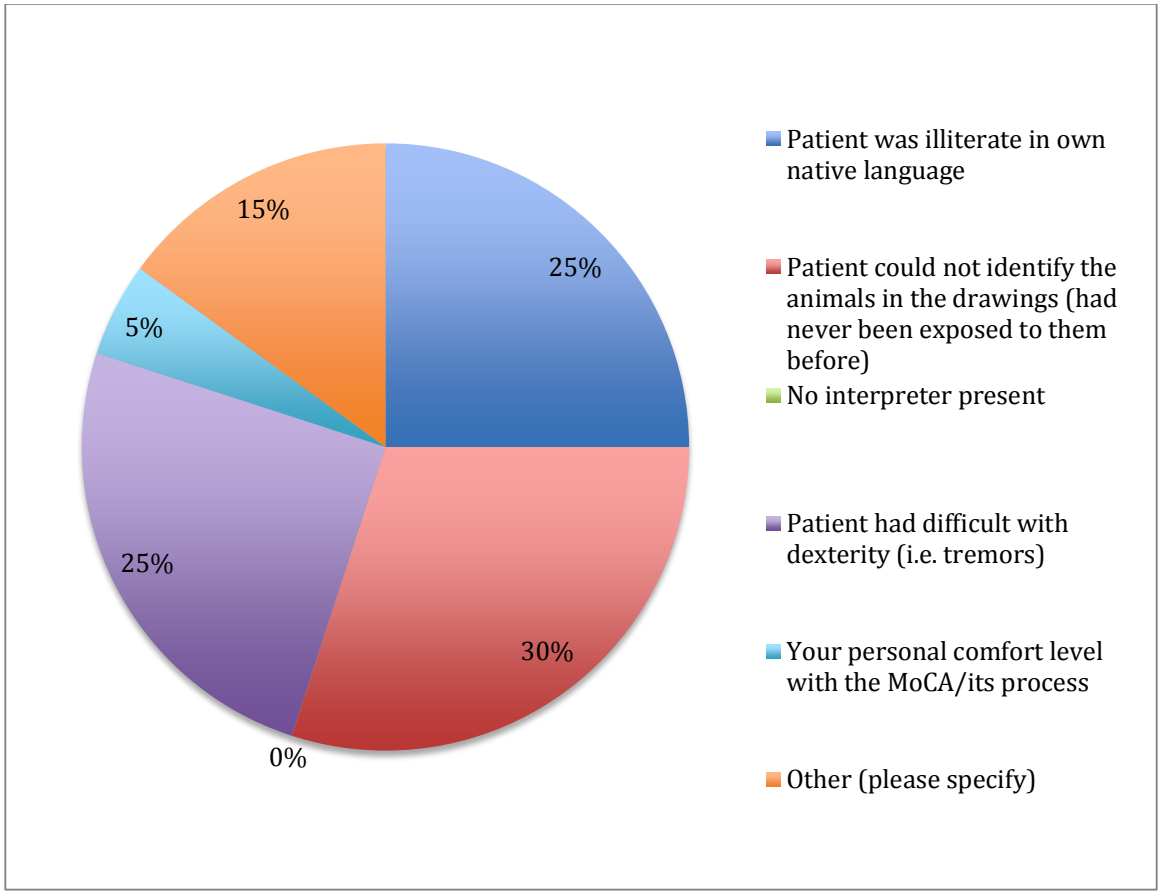


Figure 1. Challenges and barriers identified by nurses using the MoCA with refugees.

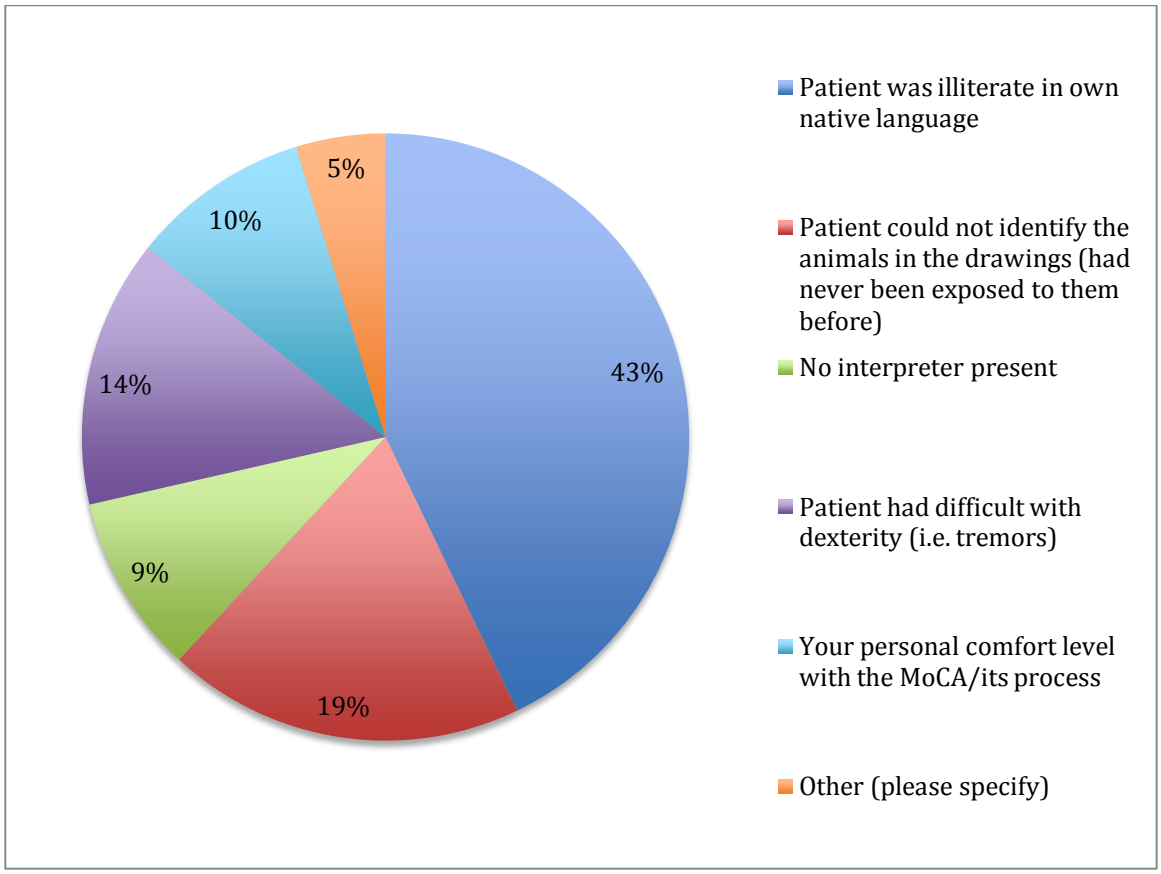


Figure 2. Challenges and barriers identified by providers using the MoCA with refugees.

When administering the MoCA, there are times when the screener has to repeat a question numerous times to the patient. Interpreters may also actively try to explain questions in more than one-way. Occasionally, family members are present, which can be distracting to the patient, screener or interpreter. As a result, misdiagnosis or under-diagnosis may occur.

Timely and accurate screenings of cognitive impairment are essential so early interventions can take place (Sayegh & Knight, 2013). There are several benefits to early diagnosis of cognitive impairment, such as dementia. For example, the ability and knowledge to prepare for future symptoms and life-style changes may help family and caregivers. Also, there are pharmacological treatments that are available to slow-down the decline of impairment (Sayegh & Knight, 2013).

Literature Review

A review of the literature was conducted to evaluate the most culturally appropriate cognitive assessment tool for non-English speaking individuals. Several search engines and databases were accessed to complete this search, including the University of New Hampshire's EbscoHost, as well as CINAHL, Cochrane Database of Systematic Reviews, and Google Scholar. Key words included "universal," "culturally appropriate," "non-English, " "screening tool," "dementia," "multicultural," "culturally and linguistically appropriate," and "transcultural." Inclusion criteria included full-text articles published between 2009-2015, as well as English-only versions. Fifteen articles were evaluated, and 4 were appropriate for the purpose of this review.

The "Cognitive assessments in multicultural populations using the Rowland Universal Dementia Assessment Scale: a systematic review and meta-analysis" examines the psychometric properties of the RUDAS compared to the Mini-Mental Status Examination (MMSE), the gold standard of cognitive assessment tools (Naqvi, Haider, Tomlinson, & Alibhai, 2015). Previous studies were addressed regarding the MMSE and MoCA's limitations in screening individuals with low-education and that are non-English speaking. Of the 148 articles reviewed, 11 were included from 6 different countries, which involved 1,236 participants. The correlation between the RUDAS and MMSE was 0.77 (95% CI: 0.72-0.81). More specifically, a high specificity of 91.4% was determined across diverse cultures and immigrants when using the RUDAS (Appendix D).

The effect of education and language on the MMSE and RUDAS was evaluated. The original validation study of the RUDAS found that education (p=0.20) and language (p=0.33) had no effect on scores. The second study suggests that the MMSE was significantly affected by

education level (p=0.016), whereas the RUDAS did not ($p > 0.05$). Next, a study determined an association between scores of the MMSE and English as a first language ($p < 0.01$), but not with the RUDAS (p=0.33). Last, another study found a lower correlation of the level of education for the RUDAS (0.42), compared to the MMSE (0.76) (Naqvi, Haider, Tomlinson & Alibhai, 2015).

Naqvi, Haider, Tomlinson and Alibhai's (2015) systematic review and meta-analysis assessed the RUDAS in multicultural populations. There were multiple limitations addressed by the authors. For example, complete data on literacy and education level was not included in the several studies evaluated. Also, none of the studies included assessed the RUDAS scores over a period of time, and only 2 studies included the test-rest reliability results (Naqvi, Haider, Tomlinson and Alibhai, 2015). The authors did not mention, however, the limitation that many of the studies included research from Australia, the country of origin of the RUDAS. As a result, this may limit the generalizability to other populations. There may be potential bias, as many of the studies included the researchers of the creators of the RUDAS itself.

The "Rowland Universal Dementia Assessment Scale, Mini-Mental State Examination and General Practitioner Assessment of Cognition [GPCOG] in a multicultural cohort of community-dwelling older persons with early dementia" study was performed to address the need for accurate screening tools of diverse populations (Basic et al., 2009). One hundred and fifty one older adults from Melbourne and Adelaide, Australia were included in this study, and of this total, 65 were born in non-English speaking countries. Memory impaired participants were recruited from local memory clinics (33 with cognitive impairment, not dementia; 58 with dementia), whereas the people with normal cognition were from a falls and balance clinic (60 with normal cognition) (Basic et al., 2009).

Correlations were assessed between the RUDAS, MMSE and GPCOG. A high correlation was determined between the three cognitive tools, RUDAS and MMSE ($p < 0.0001$), and the RUDAS and GPCOG ($p < 0.0001$). A sensitivity of the RUDAS was 87.7 (95% CI: 76.3-94.9), and specificity of 90.0 (95% CI: 79.5-96.2) (Basic et al., 2009). The RUDAS and GPCOG were not impacted by culturally or linguistically diverse backgrounds, unlike the MMSE. The authors identified a benefit to the RUDAS over the GPCOG in that the RUDAS was specifically designed for diverse backgrounds. While, the RUDAS and GPCOG appeared not to be influenced by education, age or gender, the GPCOG does include components that ask participants to identify a current event, for example. Overall the participants were well educated, which may have influenced the new finding that the GPCOG is not affected by educational level (Basic et al., 2009).

Basic et al. (2009) compared the RUDAS, MMSE and GPCOG in a multicultural cohort of participants. Several limitations were addressed. A majority of the non-English speaking participants were from European countries, which limits the generalizability to other populations (Basic et al., 2009). Also, the RUDAS and GPCOG assessments were limited to a small number of dementia syndromes. The brain pathology was not assessed, leading to the possibility of misdiagnosis (Basic et al., 2009). The research assistants were blinded to the RUDAS administration, whereas the researchers who administered the MMSE and GPCOG were not. Finally, the average education level of participants was higher than previous studies, so the impact of low education on these screening tool scores was unavailable.

Pang, Yu, Pearson, Lynch and Fong's (2009) pilot study evaluated the correlation of scores of the MMSE and RUDAS of a multicultural population, as well as compare the amount of time to complete the screening, and satisfaction of the patients and providers involved in the

process. Forty-six participants were recruited from the Eastern Health service, Victoria, Australia from April to August 2007. Half of the non-English speaking participants spoke Chinese, and the other half spoke a European language. Twenty percent (9/46 participants) had a history of dementia, and the average number years of education was 8.4 with a standard deviation of 2.1. It was determined that the providers favored the MMSE in general, but they preferred the RUDAS for patients of culturally and linguistically diverse backgrounds. While the exact time difference was not indicated, the RUDAS took more time to perform than the MMSE. The authors attribute this to the fact that providers are unfamiliar with the RUDAS, and the time to perform the screening may lessen with experience. In conclusion, the authors identified the RUDAS as an appropriate tool in the inpatient setting (Pang, Yu, Pearson, Lynch, & Fong, 2009).

In Pang, Yu, Pearson, Lynch & Fong's (2009) pilot study the implementation of future research was not addressed. However, other limitations were identified by the authors, such as the small sample size. Confounding variables were not identified, which potentially influences the internal validity. Finally, their methods were not clearly identified, limiting the possibility of replication of the study.

"Can Rowland Universal Dementia Assessment Scale (RUDAS) Replace Mini-Mental State Examination (MMSE) for Dementia Screening in a Thai Geriatric Outpatient setting?" assessed the performance of the cognitive impairment screening, as well as identify optimal cut-off points (Limpawattana, Tiamkao, Sawanyawisuth, & Thinkhamrop, 2012). Two hundred participants from the Internal Medicine Outpatient Clinic of Srinagarind Hospital medical school were included in this study. Eighty-nine (44.5%) had dementia, 44.5% had no cognitive impairment, and 11% had mild cognitive impairment. Pearson's coefficient of 0.80 (95% CI:

0.745-0.85, $p < .0001$) was determined when assessing the RUDAS-Thai and MMSE-Thai, which indicates the scores are highly correlated (Limpawattana, Tiamkao, Sawanyawisuth, & Thinkhamrop, 2012). Based on the results of the Youden index, the recommended cut-off points are 24 for both the MMSE-Thai and RUDAS-Thai (Youden index of cut-off of 24 for MMSE-Thai was 0.45, and for RUDAS-Thai was 0.405). Results of the MMSE-Thai indicate an influence of culture, language, age, and years of education on scores. On the other hand, the RUDAS-Thai was only affected by educational level (Limpawattana, Tiamkao, Sawanyawisuth, & Thinkhamrop, 2012).

Limpawattana, Tiamkao, Sawanyawisuth, and Thinkhamrop's (2012) study compared the validated MMSE-Thai and RUDAS-Thai in a geriatric outpatient setting. A sufficient sample size was calculated by the ROC curve (AUC). A potential limitation in the misclassification of dementia syndromes may be present, as the study did not include brain pathology or follow-up. Also, the authors suggested, a dementia diagnosis is based upon clinical judgment, and there currently is no biomarker that identifies it specifically. Notably, a majority of participants had 6 years of education or less, which limits the generalizability of results to other populations.

Global Aim

The global aim of this quality improvement project was to ensure that culturally competent screenings are completed in a primary care setting.

Specific Aim

The specific aim of this quality improvement project was to increase the accuracy and nurse, provider, and interpreter satisfaction of cognitive assessments of Bhutanese refugees over the age of 55. This was completed by implementing the Rowland Universal Dementia Assessment Scale from June 1 to July 13, 2015 in a medical home setting, in attempt to evaluate

accuracy of diagnoses and timeliness of interventions for this population. Also, an assessment of provider, nurse and interpreter satisfaction with the MoCA and RUDAS was performed.

Methods

Setting

Concord Hospital Family Health Center (FHC) embraces multidisciplinary patient and family-centered, low-cost care while utilizing evidence-based practice in a medical home. From January 2009 to December 2014, FHC has provided care for a total of 1,176 refugee patients. The top three countries are Bhutan (852 people), Democratic Republic of Congo (220 people), and Sudan (23 people). The most common language of refugees at FHC is Nepali (67%), which is the primary language of the Bhutanese. The next most common languages are Swahili (10%), and Kinyarwandan (8%).

Most of the Bhutanese refugees' ancestors, also known as *Lhotsampas* ("People of the south"), were originally from Nepal; therefore, the primary language of the Bhutanese is Nepali and 60% are Hindu (Centers for Disease Control and Prevention [CDC], 2014). In the 1980's political turmoil ensued, as the King forced unification of the Hindu and Buddhist religions and traditions. As a result, many *Lhotsampas* Bhutanese were forced to leave Bhutan, or chose to resettle in Southeastern Nepal (CDC, 2014).

The top three priority health conditions of Bhutanese refugees are anemia, vitamin B-12 deficiency and mental health conditions, such as substance abuse and depression (CDC, 2014). The providers, including residents, faculty, physician assistants, as well as nurses, administer the MoCA to Bhutanese refugees. An interpreter is also present, and this is either the full-time, in-house Nepali interpreter from FHC, or from an outside source.

Theoretical Framework

Madeleine Leininger's Theory of Culture Care Diversity and Universality was developed to help guide care to those of different backgrounds and culture, while preventing helplessness of the caretakers and patients themselves (Leininger, 1991). Modalities were created to guide nursing judgments and decisions in effort to provide culturally congruent care. These include, "cultural care preservation and/or maintenance," "cultural care and accommodation and/or negotiation," and "cultural care repatterning or restructuring" (Leininger, 1991, p. 41-42). Culturally congruent care incorporates patient-centered care, while respecting and incorporating a patient's beliefs, traditions and values.

Numerous theoretical premises were assumed for the purpose of the Culture Care Diversity and Universality theory. First, acknowledgment of the existing differences among cultures must be established (Leininger & McFarland, 2002). Further, education, religion, politics, ethnohistory, and religion are integral concepts behind culture care, which are necessary for the well-being and development of individuals. Additionally, in order for curing or healing to take place, caring must exist and vice versa (Leininger & McFarland, 2002).

Intended Improvement

The intended improvement of this project was to increase culturally competent care by implementing the Rowland Universal Dementia Assessment Scale (RUDAS), in lieu of the Montreal Cognitive Assessment (MoCA), with Bhutanese refugee patients over the age of 55. Table 1 compares the similar screening elements of each tool. Ethical consideration was sought from the IRB and the project was considered exempt (Appendix E).

Table 1

Qualitative Comparison of Categories of the MoCA and RUDAS

Category	Montreal Cognitive Assessment (MoCA)	Rowland Universal Dementia Cognitive Assessment Scale (RUDAS)
Language	1. Name as many words that start with the letter 'B' in one minute. 2. Repeat 2 identified sentences.	Name as many animals as you can in one minute.
Memory	Repeat list of words "train, egg, hat, chair, blue. *Two trials to if 1st trial unsuccessful at repeating. Recall performed after 5 min.*	We are going grocery shopping, and asked to remember list when we go to the store: "tea, cooking oil, eggs, soap." *Can repeat list 5 times to patient. Recall performed after 5 minutes.*
Visuospatial/Executive	1. Connect/associate numbers and letters. 2. Copy cylinder picture.	1. Identify the different parts of the body. 2. Copy the square. 3. Describe how you would cross the road safely with no pedestrian crossing or stop light.

The RUDAS is a validated tool in multicultural backgrounds, and was found to be less affected by educational level or preferred language than other commonly used screeners. The RUDAS is easily translatable without having to change the format of questions. There are 6 items to this screening including memory/recall, visuospatial orientation, praxis, visuoconstructional drawing, judgment, and language (Storey, Rowland, Conforti & Dickson, 2004). The RUDAS is out of 30 points total, and scores of 22 or less suggest possible cognitive impairment (NSW Health Department & Department of Ageing, Disability and Home Care, 2004).

Mixed methods were used as measures of improvement including qualitative observations of the MoCA and RUDAS, and quantitative nurse/provider surveys in relation to implementation of the culturally appropriate cognitive screening tool. A record review was done to identify the number of Bhutanese refugees from May 2014 – April 2015 that were screened with the MoCA. Ten patients were identified, of which all screened positive. Of the 10 patients identified, an average score of 6.7, with 1 being the lowest score and 17 the highest was determined; a score less than 10 suggests severe cognitive impairment (Nasreddine, 2015).

Next, the RUDAS was implemented with 7 of the same patients that completed the MoCA in the same medical home setting. The patients were selected based upon provider and patient willingness to participate in this quality improvement project. In two instances, a provider performed the screening, and lead of this project was an observer to the process. The other 5 screenings were administered by 2 nurses and the lead of this project.

Results

Of the Bhutanese refugees aged 55 and older who visited the clinic within the year, 10 had completed the MoCA. Seven of the 10 refugees were screened with the RUDAS. The average age of participants was 67. The average score of the RUDAS was 16 (moderate), compared to the average score of the MoCA of 8 (severe). See Table 2 for further scoring details regarding the MoCA and RUDAS, and Table 3 for specific screening results of the 7 patients.

Table 2

Severity of Impairment of MoCA and RUDAS

Impairment Severity	**MoCA Score****	**RUDAS Score**
Mild	26-18	22-19
Moderate	17-10	18-13
Severe	Less than 10	13- 10

Very Severe	N/A	Less than 10

**One point added for less than 12 years of education.
(Nasreddine, 2015; J. Rowland, personal communication, July, 2, 2015)
Table 3

Comparisons of MoCA and RUDAS Scores with Bhutanese Refugees

	Sex	**Age**	**MoCA Score**	**RUDAS Score**
1	M	59/60***	17	18
2	M	66	6	21
3	M	67	10	19
4	F	61	7	18
5	F	55	1	8
6	M	86	8	4
7	M	72	8	22
Averages	M	67	8	16

***Patient had birthday between the MoCA and RUDAS screenings.

Following administration of the RUDAS, qualitative data was collected and a comparison with the MoCA was completed, as exhibited in Table 4.

Table 4

Qualitative Observations of MoCA and RUDAS

MoCA	**RUDAS**
Unable to recall list of items.	Able to recall list of grocery items
Able to recall list of grocery items	Appeared more relaxed in specific environment.
Unable to identify words starting with letter 'B'- no letter 'B' in alphabet.	Able to list several animals in 1 minute as they were able to identify animals there were familiar with.
Unable to complete A-B sequencing due to illiteracy.	Able to identify parts of body.
Some can draw cylinder, but none could complete clock drawing.	Unable to draw cube.

The 1 provider, 2 nurses and 1 in-house interpreter who administered the RUDAS completed post-intervention surveys regarding their satisfaction with the alternative tool. All

surveyed preferred the RUDAS to the MoCA for Bhutanese refugees. The administrators also stated they would recommend utilizing the RUDAS with other refugee populations. Likewise, they indicated they felt either "comfortable" or "very comfortable" administering the RUDAS, in comparison to the pre-intervention survey results, which identified a majority of staff felt "not at all comfortable" with the MoCA.

Additional comments from the post-intervention surveys were collected:

"I found it much easier to administer this test and felt like the questions I was asking the patient were appropriate screening questions for a person of any background and education level. It was a much less stressful experience and I felt like the data gathered was far more valuable than the data I have gathered in the past using MOCA on refugees."

"It is simpler and easier to understand for people with ESL and lack of literacy."

"More appropriate questions without education level bias."

Conclusion

The implementation of the Rowland Universal Dementia Assessment Scale (RUDAS) for Bhutanese patients at the Concord Hospital Family Health Center (FHC) to increase the accuracy of cognitive impairment screening is recommended. Providing culturally appropriate screening tools in diverse populations potentially decreases the chance of misdiagnosis and under-diagnosis. The RUDAS is a validated alternative tool that has the potential of providing accurate and timelier diagnoses, resulting in a higher level of patient and family-centered care and satisfaction. The RUDAS appears to be least affected by language and cultural background, as well as educational level.

Recommendations

Future recommendations include assessment of the RUDAS with other refugee populations, as well as with the general FHC population. For the purpose of this project, the in-house Nepali interpreter was used for most of the RUDAS screenings. Therefore, it is recommended the same interpreter be utilized for future screenings, as they would be aware of the interpreting guidelines and clearly understand screening tool. Next, an evaluation of other screening tools used in multicultural, non-English speaking, and illiterate populations can be achieved in effort to provide culturally appropriate care.

Limitations

There are limitations to this quality improvement project. Potential confounding variables, such as co-diagnoses, can impact the screening results. Also, there was up to a year lapse in time between the two screenings. Potential bias includes the administrator and interpreter of the screenings were not blinded to the project.

Implications for the Clinical Nurse Leader

A Clinical Nurse Leader (CNL) plays a vital role in the medical home setting. With especially vulnerable populations, such as refugees, CNLs need to advocate and promote staff and patient education. As advocates, CNLs have the opportunity to bridge the gap within health disparities, and influence policies in regards to patient care (American Association of Colleges of Nursing [AACN], 2007). Along with advocacy, the CNL encourages self-care and health awareness and promotion as a component of education (AACN, 2007). Advocating for patients during transitions, such as moving to a new country, and understanding their backgrounds are essential.

As educators, CNLs have the opportunity to utilize evidence-based practice, as it is the foundation for all patient and family-centered care (AACN, 2007). This may include assessment

and evaluation of current practices and cultural appropriateness of screening tools, while exploring alternative treatment options. However, an accurate and thorough risk assessment must be achieved when exploring alternative evidence-based practices (AACN, 2007). Meanwhile, protecting a patient's safety and confidentiality are of upmost importance.

At a medical home, CNLs are active participants in the intra- and interdisciplinary teams in effort to coordinate safe and appropriate care, while facilitating communication between disciplines, as well as with patients and their families (AACN, 2007). CNLs have the ability to facilitate continuity of care and more frequent communication with patients and their teams by methods such as telehealth (AACN, 2007). This further develops a relationship built on trust and respect.

CNLs foster a microsystem comprised of integrity, evidence-based practice, leadership, quality, continuous education, culturally appropriate and self-care, and dignity. Therefore, development of the CNL role in the medical home setting, such as FHC, has the potential to improve patient outcomes and staff satisfaction.

References

Alzheimer's Association. (2015). 2015 ALZHEIMER'S DISEASE FACTS AND FIGURES. Retrieved from http://www.alz.org/facts/overview.asp

American Association of Colleges of Nursing. (2007). White paper on the education and role of the clinical nurse leader. Retrieved from http://www.aacn.nche.edu/publications/white-papers/ClinicalNurseLeader.pdf

Basic, D. D., Khoo, A., Conforti, D., Rowland, J., Vrantsidis, F., Logiudice, D., & Prowse, R. (2009). Rowland Universal Dementia Assessment Scale, Mini-Mental State Examination and General Practitioner Assessment of Cognition in a multicultural cohort of community-dwelling older persons with early dementia. *Australian Psychologist, 44*(1), 40-53. http://dx.doi.org/doi:10.1080/00050060802593593

Betancourt, J. R., Green, A. R., & Carrillo, J. E. (2002). CULTURAL COMPETENCE IN HEALTH CARE: EMERGING FRAMEWORKS AND PRACTICAL APPROACHES. *The Commonwealth Fund*. Retrieved from http://www.commonwealthfund.org/usr_doc/betancourt_culturalcompetence_576.pdf

Centers for Disease Control and Prevention. (2011). Cognitive impairment: A Call for Action, Now! Retrieved from http://www.cdc.gov/aging/pdf/cognitive_impairment/cogimp_poilicy_final.pdf

Centers for Disease Control and Prevention. (2014). Bhutanese Refugee Health Profile. Retrieved from http://www.cdc.gov/immigrantrefugeehealth/profiles/bhutanese/priority-health-conditions/index.html

Cultural Orientation Resource Center. (2015). Arrival Statistics. Retrieved from http://www.culturalorientation.net/learning/arrivals

Leininger, M. (1991). *Culture Care Diversity and Universality Theory of Nursing*. New York: National League for Nursing Press.

Leininger, M., & McFarland, M. R. (2002). *Transcultural Nursing: Concepts, Theories, Research, and Practice* (3 ed.). United States of America: McGraw-Hill Companies, Inc.

Limpawattana, P., Tiamkao, S., Sawanyawisuth, K., & Thinkhamrop, B. (2012). Can Rowland Universal Dementia Assessment Scale (RUDAS) Replace Mini-Mental State Examination (MMSE) for Dementia Screening in a Thai Geriatric Outpatient Setting? *American Journal Of Alzheimer's Disease & Other Dementias*, *27*(4), 254-259. http://dx.doi.org/doi:10.1177/1533317512447886

Naqvi, R. M., Haider, S., Tomlinson, G., & Alibhai, S. (2015). Cognitive assessments in multicultural populations using the Rowland Universal Dementia Assessment Scale: A systematic review and meta-analysis. *Canadian Medical Association Journal*, *187*(5), E169-E176. http://dx.doi.org/doi:10.1503/cmaj.140802

Nasreddine, Z. (2008). The Montreal Cognitive Assessment: Version 7.3 Alternative Version [Image]. Retrieved from http://www.mocatest.org/wp-content/uploads/2015/tests-instructions/MoCA-Test-English_7_3%20June_13.pdf

Nasreddine, Z. (2015). Frequently Asked Questions. In *Montreal Cognitive Assessment*. Retrieved from http://www.mocatest.org/faq/

New Hampshire Department of Health and Human Services. (2010). Refugee Facts. Retrieved from http://www.dhhs.nh.gov/omh/refugee/facts.htm

NSW Health Department & Department of Ageing, Disability and Home Care. (2004). Administration and Scoring Guide. Retrieved from https://fightdementia.org.au/sites/default/files/20110311_2011RUDASAdminScoringGuide.pdf

Pang, J., Yu, H., Pearson, K., Lynch, P., & Fong, C. (2009). Comparison of the MMSE and RUDAS cognitive screening tools in an elderly inpatient population in everyday clinical use. *Internal Medicine Journal*, *39*(6), 411-414. http://dx.doi.org/doi:10.1111/j.1445-5994.2009.01918.x

Sayegh, P., & Knight, B. G. (2013). Cross-Cultural differences in dementia: the Sociocultural Health Belief Model. *International Psychogeriatrics*, *25*(4), 517-530. http://dx.doi.org/doi:10.1017/S104161021200213X

Storey, J. E., Rowland, J. J., Conforti, D. A., & Dickson, H. G. (2004). The Rowland Universal Dementia Assessment Scale (RUDAS): a multicultural cognitive assessment scale. *International Psychogeriatrics*, *16*(1), 13-31. doi:10.1017/S1041610204000043

Appendices

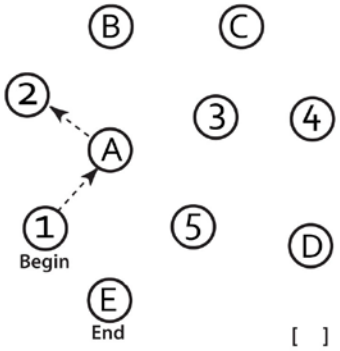
Appendix A

Montreal Cognitive Assessment

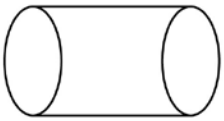
MONTREAL COGNITIVE ASSESSMENT (MOCA)
Version 7.3 Alternative Version

NAME :
Education : Date of birth :
Sex : DATE :

VISUOSPATIAL / EXECUTIVE — POINTS



Copy cylinder



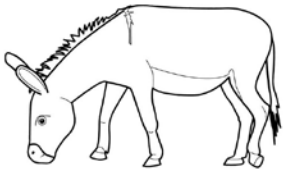
[ ] [ ]

Draw CLOCK (Ten past nine)
(3 points)

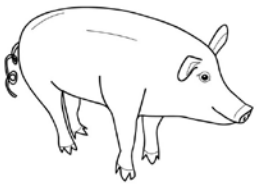
[ ] Contour [ ] Numbers [ ] Hands

__/5

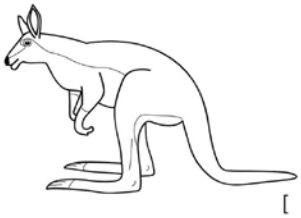
NAMING



[ ]



[ ]



[ ]

__/3

MEMORY Read list of words, subject must repeat them. Do 2 trials, even if 1st trial is successful. Do a recall after 5 minutes.

	TRAIN	EGG	HAT	CHAIR	BLUE
1st trial					
2nd trial					

No points

ATTENTION Read list of digits (1 digit/ sec.).
Subject has to repeat them in the forward order [ ] 5 4 1 8 7
Subject has to repeat them in the backward order [ ] 1 7 4

__/2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B

__/1

Serial 7 subtraction starting at 80 [ ] 73 [ ] 66 [ ] 59 [ ] 52 [ ] 45
4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt**

__/3

LANGUAGE Repeat : She heard his lawyer was the one to sue after the accident. [ ]
The little girls who were given too much candy got stomach aches. [ ]

__/2

Fluency / Name maximum number of words in one minute that begin with the letter B [ ] _____ (N ≥ 11 words)

__/1

ABSTRACTION Similarity between e.g. banana - orange = fruit [ ] eye – ear [ ] trumpet – piano

__/2

DELAYED RECALL — **Optional**

	TRAIN	EGG	HAT	CHAIR	BLUE	
Has to recall words WITH NO CUE	[ ]	[ ]	[ ]	[ ]	[ ]	Points for UNCUED recall only
Category cue						
Multiple choice cue						

__/5

ORIENTATION [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City

__/6

Adapted by : Z. Nasreddine MD, N. Phillips PhD, H. Chertkow MD
© Z.Nasreddine MD www.mocatest.org

Normal ≥ 26 / 30

TOTAL __/30
Add 1 point if ≤ 12 yr edu

Administered by: _____

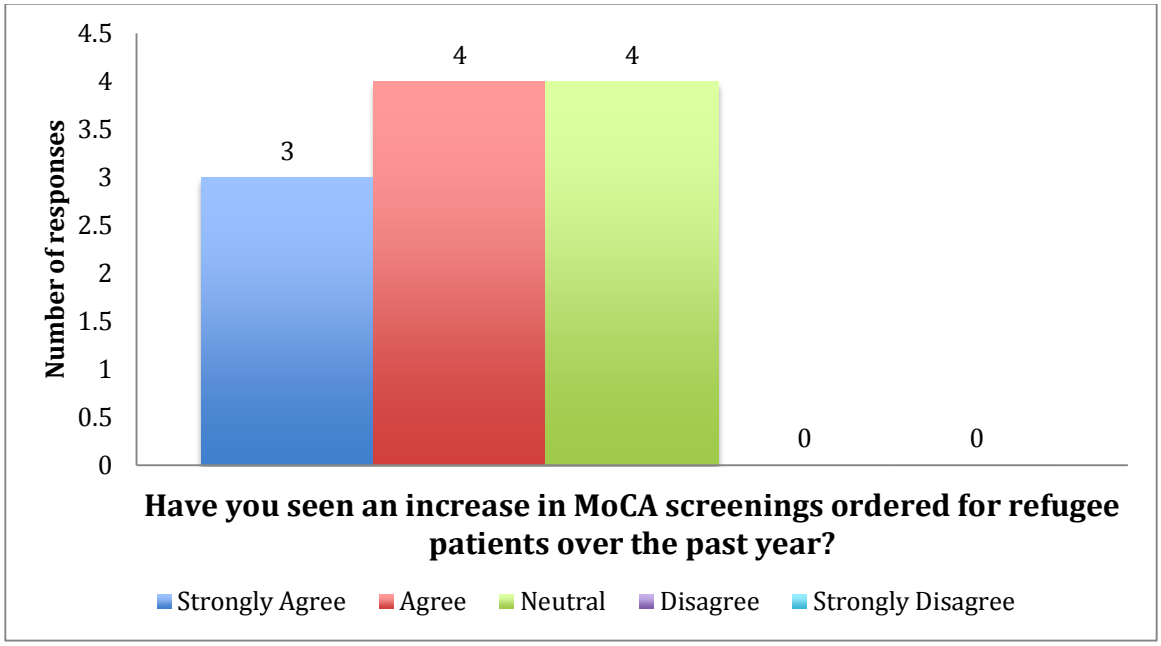
(Nasreddine, 2008)

Appendix B

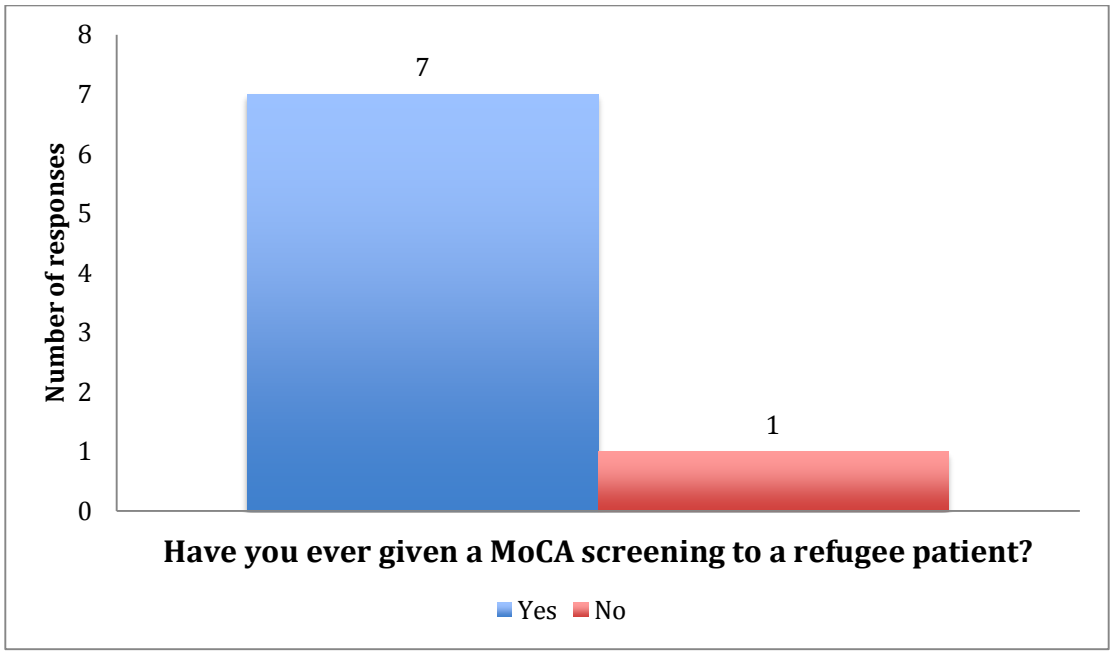
Survey of Nurses

Survey results of 6 questions from 11 nurses regarding the current cognitive screening assessment tool, the Montreal Cognitive Assessment (MoCA), at FHC.

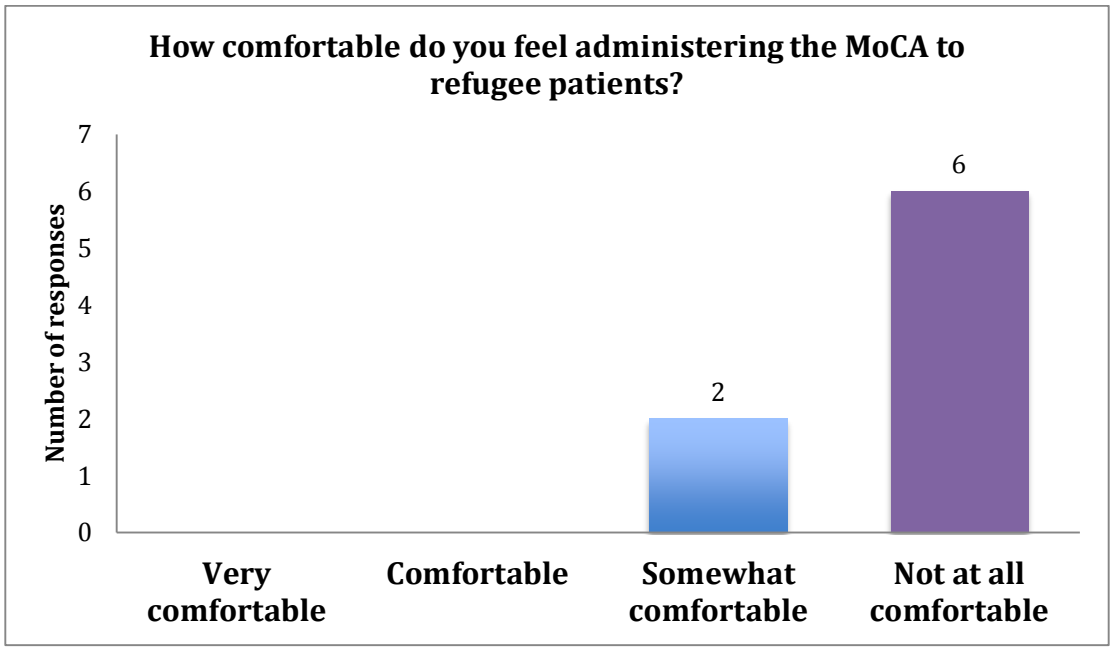
1.



2.

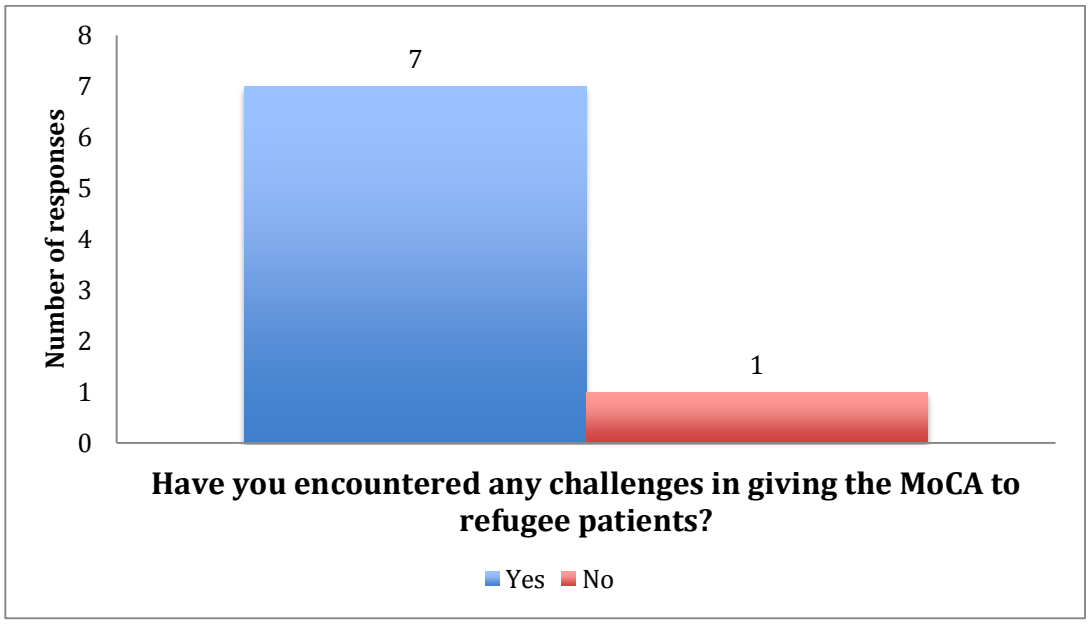


3.

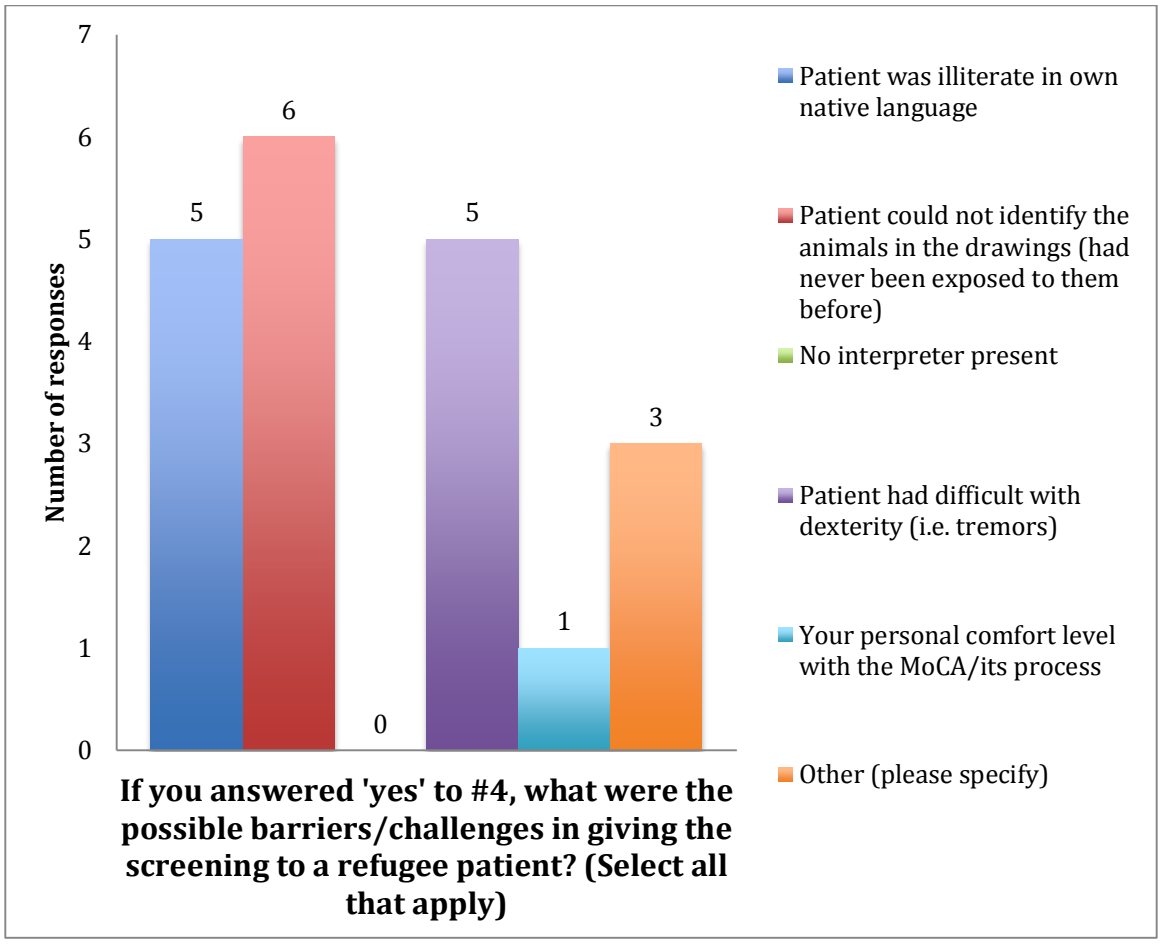


Comments
"MoCA appears to be designed for English speaking North American patient."
"I am concerned our current assessment tool does not provide valid data with this patient population."
"Many refugee patient's are of the older generation and are illiterate in their native language and would not recognize the English alphabet, have animals that they need to identify which they would never have seen in their lifetime, and/or an alphabet which does not include the same letters as the English alphabet would."
"Very difficult experience - even had 2 interpreters."

4.


8
7
6
5
4
3
2
1
0
Number of responses
7
1
Have you encountered any challenges in giving the MoCA to refugee patients?
Yes
No

5.


7
6
5
4
3
2
1
0
Number of responses
5
6
0
5
1
3
If you answered 'yes' to #4, what were the possible barriers/challenges in giving the screening to a refugee patient? (Select all that apply)
Patient was illiterate in own native language
Patient could not identify the animals in the drawings (had never been exposed to them before)
No interpreter present
Patient had difficult with dexterity (i.e. tremors)
Your personal comfort level with the MoCA/its process
Other (please specify)

6.

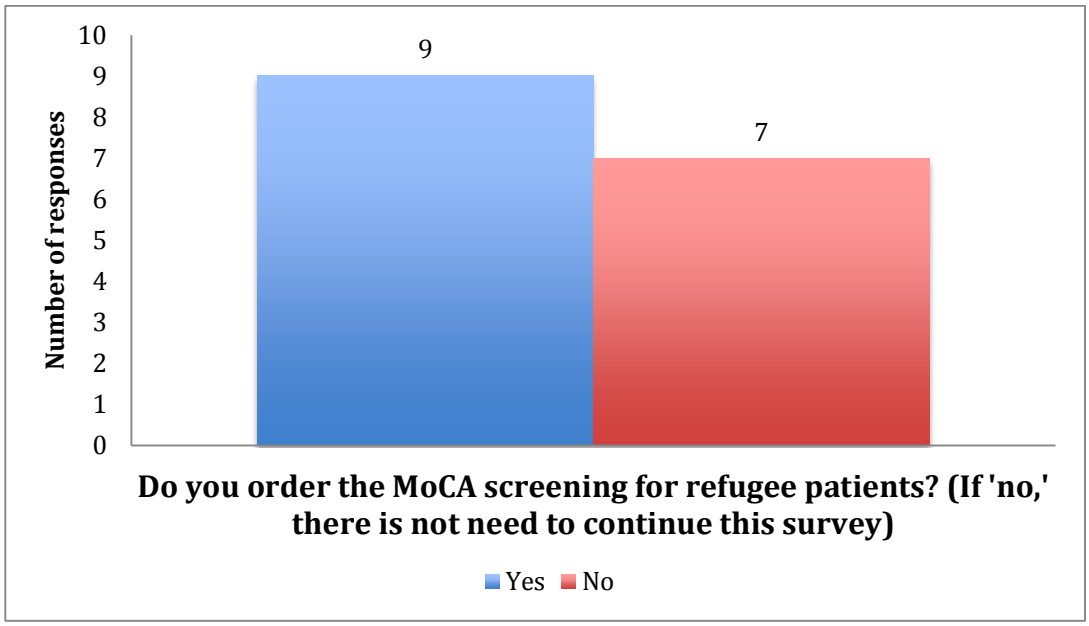
Do you have any other comments, questions, or concerns?
"We need to not do an English MoCA on a non-English speaking patient unless it is in their own language somehow."
"Not a fair or valid tool for the refugee population due to the necessity of translation."
"I think a cognitive test which does not include a clock, many refugees have not seen a clock until they come to the United States, or the test which requires sequential tracing (ie; A-1-B-2-C-3....) as many, because of illiteracy, are unable to fathom how these "symbols" correlate to one another."

Appendix C

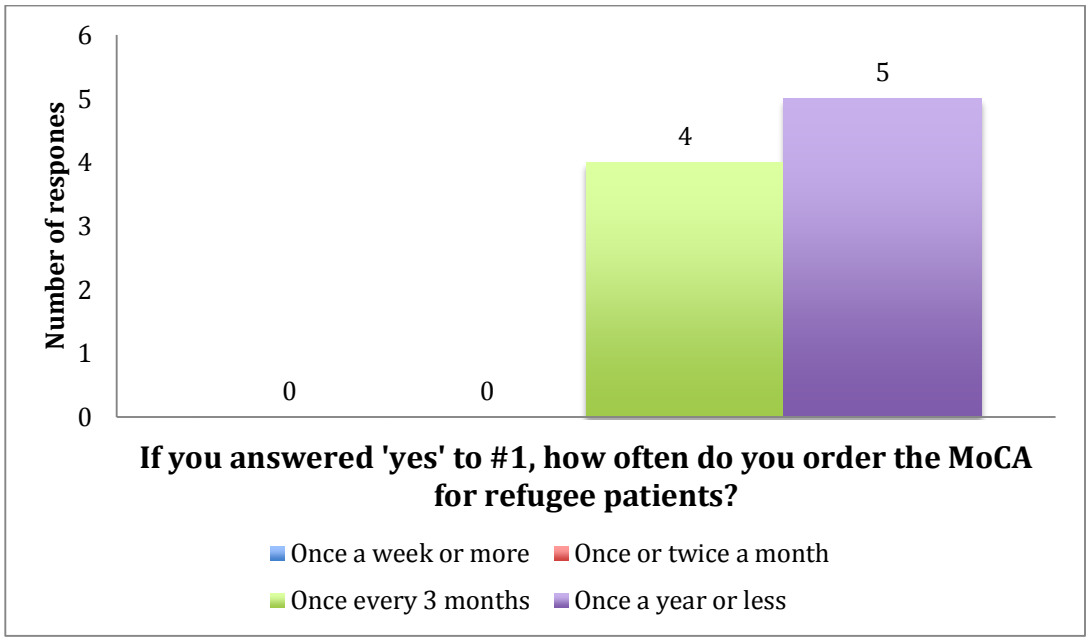
Survey of Providers

Survey results of 8 questions from 16 providers (DOs, Physician Assistants and MDs) regarding the current cognitive screening assessment tool, the Montreal Cognitive Assessment (MoCA), at FHC.

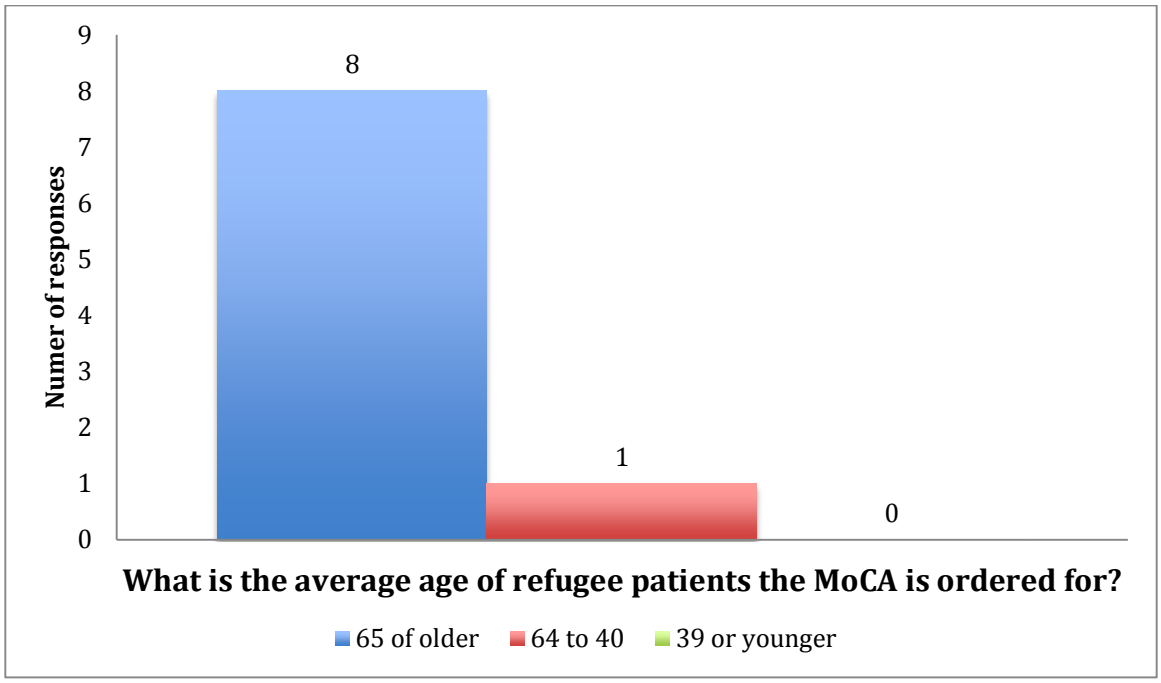
1.



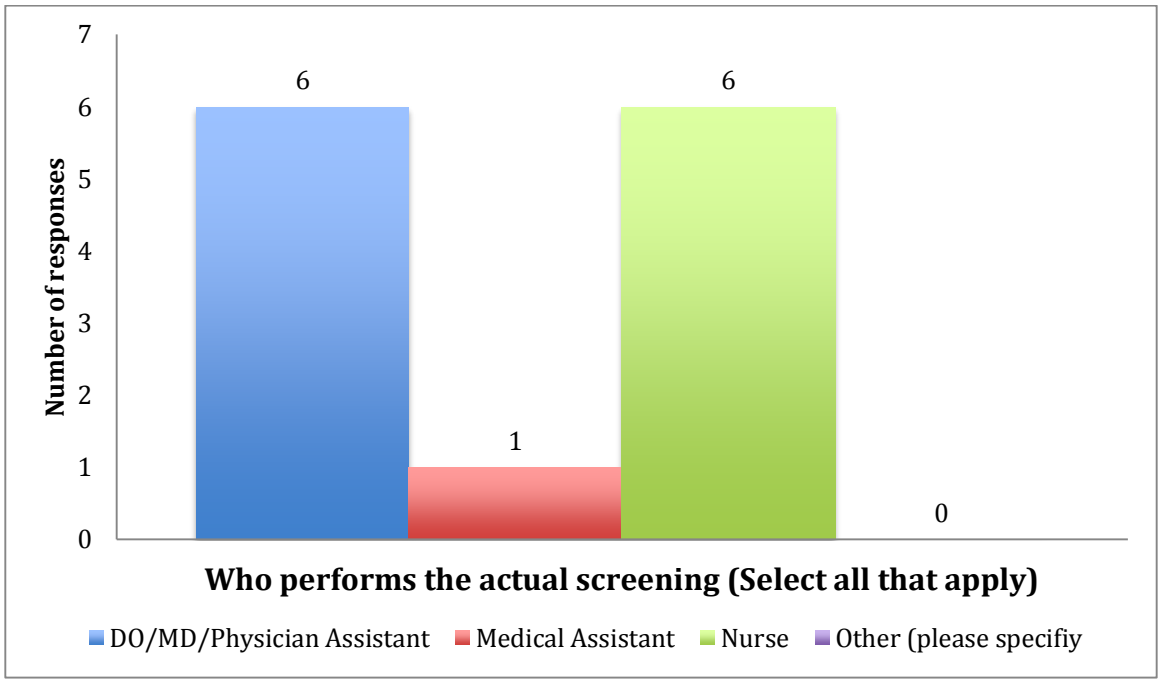
2.



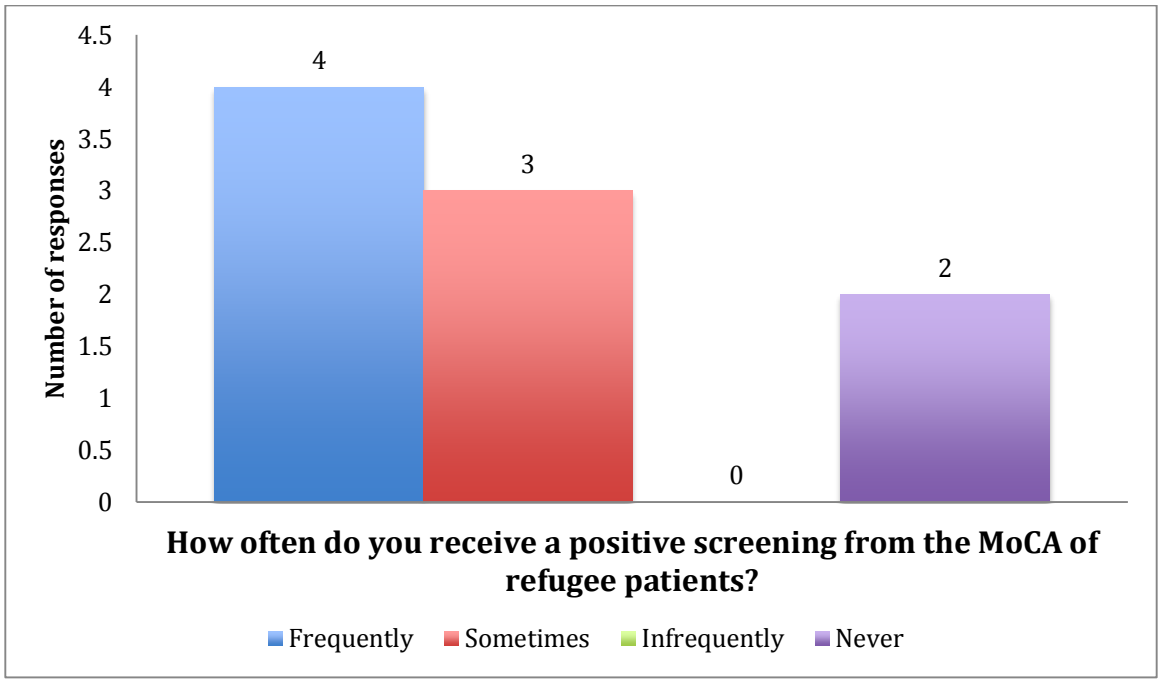
3.


9
8
7
6
5
4
3
2
1
0
Numer of responses
8
1
0
What is the average age of refugee patients the MoCA is ordered for?
65 of older
64 to 40
39 or younger

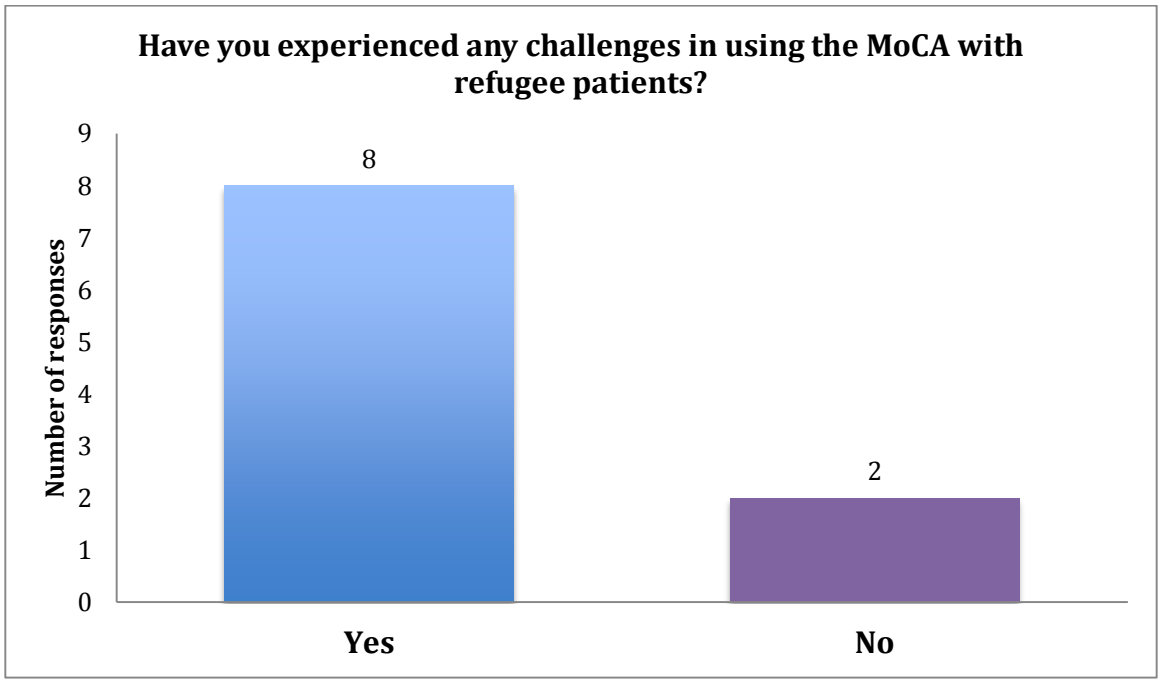
4.


7
6
5
4
3
2
1
0
Number of responses
6
1
6
0
Who performs the actual screening (Select all that apply)
DO/MD/Physician Assistant
Medical Assistant
Nurse
Other (please specifiy

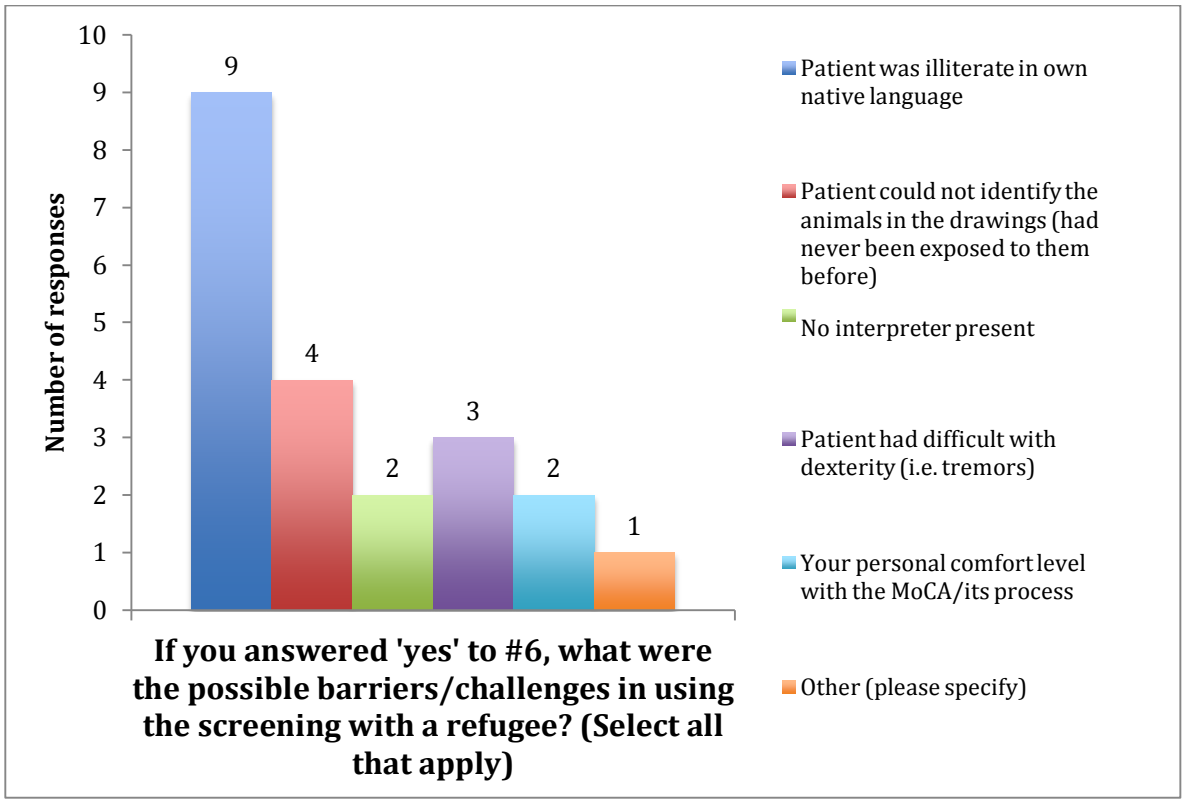
5.


4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
Number of responses
4
3
0
2
How often do you receive a positive screening from the MoCA of refugee patients?
Frequently
Sometimes
Infrequently
Never

6.


Have you experienced any challenges in using the MoCA with refugee patients?
9
8
7
6
5
4
3
2
1
0
Number of responses
8
2
Yes
No

7.



Other (please specify)
"Hard to differentiate dementia from illiteracy, once patient was blind with cataracts no one had noticed before."

8.

Do you have any other comments, questions, or concerns?
"It is important to be able to screen for dementia, and we need a culturally relevant tool, perhaps for our biggest subpopulation e.g. Bhutanese."
"The MoCA is an inadequate diagnostic test for refugee patients, but I do not know of anything better."
"I am a provider and I don't know what the most appropriate evidence based tool is for performing MoCA on non English speaking pts. Especially as MoCA is time sensitive as well. Very interesting project!"

Appendix D

Rowland Universal Dementia Assessment Scale

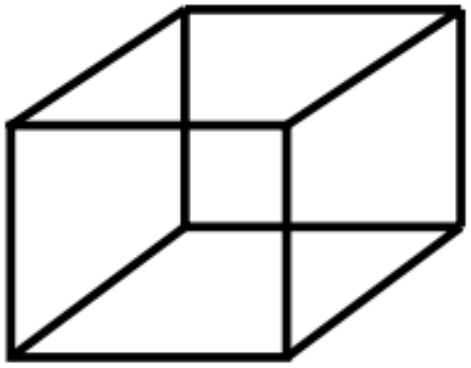
R U D A S

The Rowland Universal Dementia Assessment Scale: A Multicultural Cognitive Assessment Scale.
(Storey, Rowland, Basic, Conforti & Dickson, 2004). International Psychogeriatrics, 16 (1), 13-31

Date: ___/___/___ Patient **Name:** _____

Item		Max Score
Memory 1. (Instructions) I want you to imagine that we are going shopping. Here is a list of grocery items. I would like you to remember the following items which we need to get from the shop. When we get to the shop in about 5 mins. time I will ask you what it is that we have to buy. You must remember the list for me. **Tea, Cooking Oil, Eggs, Soap** Please repeat this list for me (ask person to repeat the list 3 times). (If person did not repeat all four words, repeat the list until the person has learned them and can repeat them, or, up to a maximum of five times.)		
Visuospatial Orientation 2. I am going to ask you to identify/show me different parts of the body. *(Correct = 1)*. Once the person correctly answers 5 parts of this question, do not continue as the maximum score is 5.		
(1) show me your right foot	1	
(2) show me your left hand	1	
(3) with your right hand touch your left shoulder	1	
(4) with your left hand touch your right ear	1	
(5) which is (indicate/point to) my left knee	1	
(6) which is (indicate/point to) my right elbow	1	
(7) with your right hand indicate/point to my left eye	1	
(8) with your left hand indicate/point to my left foot	1	
		..../5
Praxis 3. I am going to show you an action/exercise with my hands. I want you to watch me and copy what I do. Copy me when I do this . . . (One hand in fist, the other palm down on table - alternate simultaneously.) Now do it with me: Now I would like you to keep doing this action at this pace until I tell you to stop - approximately 10 seconds. (Demonstrate at moderate walking pace). Score as: *Normal = 2 (very few if any errors; self-corrected, progressively better; good maintenance; only very slight lack of synchrony between hands)* *Partially Adequate = 1 (noticeable errors with some attempt to self-correct; some attempt at maintenance; poor synchrony)* *Failed = 0 (cannot do the task; no maintenance; no attempt whatsoever)*		
		..../2
Visuoconstructional Drawing 4. Please draw this picture exactly as it looks to you (Show cube on back of page). *(Yes = 1)* Score as: (1) Has person drawn a picture based on a square?	1	
(2) Do all internal lines appear in person's drawing?	1	
(3) Do all external lines appear in person's drawing?	1	
		..../3
Judgment 5. You are standing on the side of a busy street. There is no pedestrian crossing and no traffic lights. Tell me what you would do to get across to the other side of the road **safely**. (If person gives incomplete response that does not address both parts of answer, use prompt: "Is there anything else you would do?") Record exactly what patient says and circle all parts of response which were prompted. .... Score as: Did person indicate that they would look for traffic? *(YES = 2; YES PROMPTED = 1; NO = 0)*	2	
Did person make any additional safety proposals? *(YES = 2; YES PROMPTED = 1; NO = 0)*	2	
		..../4

Memory Recall 1. (Recall) We have just arrived at the shop. Can you remember the list of groceries we need to buy? (Prompt: If person cannot recall any of the list, say "The first one was 'tea'." *(Score 2 points each for any item recalled which was not prompted – use only 'tea' as a prompt.)* *Tea* .....2 *Cooking Oil* .....2 *Eggs* .....2 *Soap* 2		..../8
Language 6. I am going to time you for one minute. In that one minute, I would like you to tell me the names of as many different animals as you can. We'll see how many different animals you can name in one minute. (Repeat instructions if necessary). Maximum score for this item is 8. If person names 8 new animals in less than one minute there is no need to continue. 1. ..... 5. ..... 2. ..... 6. ..... 3. ..... 7. ..... 4. ..... 8.		..../8
TOTAL SCORE =		**/30**



(Storey, Rowland, Conforti & Dickson, 2004)

Appendix E

May 28, 2015

CONCORD HOSPITAL

Holly Milligan, SN
Karen Decker-Gendron, RN, MS, CNL
Patricia Finn, RN, MS
Family Health Center-Concord
250 Pleasant St.
Concord, NH 03301

Dear Ms. Milligan et al,

After review of the Protocol for "A Culturally Appropriate Cognitive Assessment Screening for Bhutanese Refugees" study, I have determined it to be exempt from Human Investigation Committee (IRB) review based on the regulatory guidance cited below:

CFR Title 45 Part 46.101
(b) Unless otherwise required by department or agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior,; and unless: (i) Information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

(3) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b) (2) of this section, if: (i) The human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

Based on our understanding of your project, you are comparing the results of two different commonly used cognitive tests, MoCA and RUDAS. However, please note that if at any point in time there are changes to the project, the protocol will require prior IRB approval.

Thank you for bringing the protocol before the Human Investigation Committee for appropriate review prior to its inception.

If you have any additional questions or concerns, you may contact Lisa Rocheford, Research and Education Coordinator at 603-227-7000 x3540.

Sincerely,

Andrew Westbrook, MD
Andrew Westbrook, MD, Chair
Human Investigation Committee