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SCREENING FOR DEPRESSIVE SYMPTOMS USING THE CORNELL SCALE FOR
DEPRESSION IN DEMENTIA

by

Yumi Jono

Under the Supervision of

Dr. Brenda Windemuth

Second Reader

Dr. Margaret Hammersla

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Abstract

Background: Dementia and depression are two of the most common mental illnesses among the older adults. Some older adults have both diagnoses. The prevalence of depression among those over 65 years of age ranges between 1-5% in the community, 13.5% in those who require homehealth care, and 25% in those residing in long-term and assisted living facilities. Prevalence of depression among older adults residing in long-term facilities or assisted living facilities is a significant issue because the number of these facilities in the United States is increasing. However, it is difficult to assess depressive symptoms in patients with dementia in long-term and assisted living facilities as those patients are often unable to accurately articulate their feelings and thoughts.

Local Problem: The provider for residents at an assisted living facility on the east coast currently has the Patient Health Questionnaire-9 as a screening tool for depressive symptoms. The screening for depressive symptoms is not being conducted because most residents have moderate to severe dementia and are unable to answer the questions on PHQ-9. Therefore, there is a need for another screening tool that could be used for those with dementia.

Interventions: The purpose of this DNP project was to screen residents at the assisted living facility using the Cornell Scale for Depression in Dementia (CSDD) to identify those who may need intervention and to educate and involve the staff in screening. The CSDD is a screening tool for depressive symptoms that can be used for those with and without dementia. The CSDD is useful because the questions can be answered by those around individuals with dementia. The possible score for CSDD ranges between 0 and 38. The score of 8 is considered a person is presenting with depressive symptoms. Score of 12 and above is considered significant depressive symptoms.

Results: Fifty residents were screened using the Cornell Scale for Depression in Dementia. Among those screened, the lowest score was 0 and the highest was 13. The mean score was 5.36 (SD 2.66). Eleven out of 50 residents had CSDD score of 8 or above. All residents with a diagnosis of depression were already receiving a pharmacological intervention. A significant number of residents without diagnosis of were also on pharmacological interventions for other medical diagnoses such as anxiety, insomnia, and Parkinson's disease

Conclusion: The screening for depressive symptoms using CSDD provided a structure to screen residents with dementia. It also provided an objective measurement of residents' level of depressive symptoms. Having an objective number allows the provider to assess the improvement or progression of depressive symptoms in residents in the future. This assisted living facility had a small number of residents with frequent access to their provider, which may explain a low mean CSDD score and their existing treatments. This screening can be

implemented in other facilities that do not have a screen tool or have large volume of patients with dementia, especially in underserved areas. However, the need for screening for depressive symptoms must be assessed prior to the actual screening.

Overview

Depression and dementia are two of the most prevalent psychiatric illnesses among the older adults. There are currently 5.7 million Americans living with Alzheimer's Disease, the most common type of dementia (Alzheimer's Association, 2019). The prevalence of depression among those over 65 years of age ranges between 1-5% in the community, 13.5% in those who require home-health care (Center for Disease Control and Prevention [CDC], 2017), and 25% in those residing in long-term facilities and assisted living facilities (Beuscher & Dietrich, 2016). In 2014, there were 15,600 nursing homes in the United States (CDC, 2017) and 30, 200 assisted living facilities (National Center for Assisted Living [NCAL], 2018). It is estimated that about 1 million seniors reside in assisted living facilities alone (NCAL, 2018).

There are several risk factors for depression, including having chronic illnesses (Bekhet & Zauszniewski, 2014; Kvael, Bergland, & Telenius, 2017), impaired cognitive function (Mini Mental Scale Exam < 26), higher educational level, upper limbs disabilities, and being female (Almomani & Bani-issa, 2017). Additionally, decreased physical activity has also been associated with increased depressive symptoms (Chun et al., 2015; Kvael, Bergland, & Telenius, 2017; Phillips, 2015). Thus, older adults residing in assisted living facilities have multiple risk factors for depression.

The difficulty of recognizing depressive symptoms in older patients with cognitive impairment contributes to the underdiagnosing and undertreatment of depression (Beuscher & Dietrich, 2016; CDC, 2017). Providers are less likely to assess for depression in those with dementia. Chun and colleagues (2017) found that there was a discrepancy between the provider rating and observer rating for depression screening in residents in long term facilities (Chun et

al., 2017). Depressive symptoms such as sadness and loss of interest in patients with cognitive impairment are not easily detected (Resnick, 2014). Some symptoms of dementia and depression may even overlap. Those with cognitive impairment tend to be unaware of their own cognitive status, which leads to the underreporting of their symptoms. Lui et al., (2017) reported that seventy-eight percent of those without cognitive impairment reported that they have memory problem while only twenty-two percent of those with cognitive impairment reported that they had a memory issue (Lui et al., 2017). In another study, those who visited a memory clinic with a mean Mini Mental Examination score of 21 were screened for depression. Thirty-seven percent of the participants had mild depression and 14.1 percent of the participants had severe depression, indicating that the prevalence of depression among those with dementia is high (Knapkog, Barca, & Engedal, 2013).

Providing care to those individuals with dementia and behavioral problems places additional burden on the direct caregivers. Some behaviors that are the results of dementia and depression combined may be lessened once the residents are properly screened and treated with either a pharmacologically or non-pharmacological treatment. Thus, it is hoped that the timely screening for depression and using an appropriate screening tool along with initiation of an early intervention will not only help patients with cognitive impairment but will also decrease the caregiver burden and increase staff satisfaction.

Therefore, the purpose of this Quality Improvement Project was to introduce the Cornell Scale for Depression in Dementia (CSDD) to the provider and administrators to increase screening the residents for depressive symptoms and identify those who needed interventions at a 54-bed assisted living facility on east coast. The assisted living facility staff were also given education on CSDD and the importance of recognizing the symptoms so they can participate in the screening.

Theoretical Framework

Implementing a practice change in any setting is challenging. Having a theoretical framework that fits the clinical practice problem could facilitate the process. The Theory of Planned Behavior developed by Icek Ajzen helps identify the barriers as well as effective methods for practice change implementation (Ajzen, 2005). There are five key concepts in this theory; “attitude toward the behavior,” “subjective norm,” “perceived behavioral control,” “intention,” and “behavior.” Ajzen proposed that the first three concepts, “three determinants,” influence one’s intention, which in return affects and predicts behavior (Ajzen, 2005).

In the context of this QI project, the attitude toward the behavior was mainly the provider’s attitude toward the screening for depressive symptoms. Subjective norm had two parts. First was the provider’s perception of what other providers would do. The second was the provider’s perception of how others perceived her. The third determinant of intention, perceived behavioral control, was how much power the provider believed she had to screen the residents.

In order to find out the provider’s attitudes and to identify barriers, the project leader first met with the provider to discuss the current lack of depression screening. The project leader attempted to influence the subjective norm by including the administrators, particularly by having them create a sense of expectation and urgency for the provider to screen residents. Introduction of CSDD tool served to influence the provider’s perception of her ability to screen the residents now that she had a useful tool. The goal was to influence the provider’s intent to screen by addressing the attitude, social norm, and perceived behavioral control, which ultimately lead to the change in her behavior, the screening of residents for depressive symptoms. The administrators’ and staff’s attitudes, social norm, perceived behavioral control, intent, and behavior were also affected by having them participate in the project.

Literature Review

Depression screening among the patients with dementia is challenging. The Cornell Scale for Depression in Dementia (CSDD) has been found to be valid and the use of this screening tool could assist providers to identify those with depressive symptoms by assessing their behaviors (Goodarzi, Mele, Roberts, & Holroyd-Leuc, 2017; Hancock & Larner, 2014). In a systemic review with the total of 3030 participants, Goodarzi et al., (2017) estimated the sensitivity of the CSDD to be 0.88 and specificity to be 0.8, higher than those of 0.62 and 0.81 respectively for the Thirty-Item Geriatric Depression Scale and 0.86 and 0.84 for the Hamilton Depression Rating Scale. However, in this systemic review, studies with subjects with severe dementia were excluded (Goodarzi, Mele, Roberts, & Holroyd-Leuc, 2017) which limits its generalizability to that population.

The determination of an official diagnose of depression lies with the provider based on a comprehensive evaluation of the patient. However, Hancock and Larner studied the utility of the Cornell Scale for Depression in Dementia in their pragmatic prospective study with 242 participants. Hancock and Lerner found those with diagnosed depression had the mean score of 12.6 ± 6.4 compared with those without the diagnosed depression whose mean CSDD score was 3.23 ± 4.0 (Hancock & Larner, 2014).

The screening for the depressive symptoms should be approached in a multi-disciplinary fashion. The education and the engagement by the caregivers become critical when implementing screening for depressive symptoms. (Abraham et al., 2017; Beucher & Dietrich, 2016). Beucher and Dietrich (2016) used a pretest-posttest design to assess the effectiveness of the training program that included following four modules: (1) myths and truth about depression, (2) signs and symptoms of depression (3) staff responsibility to report symptoms, and (4) how to interact effectively with residents with dementia. There was a significant improvement in the

median post-test score of staff knowledge to 64 from 56 ($p=0.018$). Although the study has a limitation of a small sample ($n=7$), no control group, and no reports of standard deviation, all participants reported that they perceived the training to be helpful and that they had a better understanding of depression in the older adults (Beucher and Dietrich, 2016).

Similarly, Abraham et al., (2017) introduced and evaluated the three-module training program to the nursing home direct care staff in their two-arm cluster randomized controlled trial. The modules focused on the recognition of depressive symptoms, factors related to the diagnosis of depression, and intervention methods. The knowledge on the modules were tested on the pretest and posttests along with the attitudes and satisfaction ratings. The test score of up to 143 persons showed significant improvements in many of the items on the posttest in the intervention group. For example, there was an improvement from 47.9% on pre-test to 92.4% on post-test ($p<0.001$) on a question asking about what can be done for a depressed person. Limitations were that only the short-term knowledge could be tested in the study and that the researchers could not assess the training's effect on the actual staff behavior (Abraham et al., 2017).

Brown, Raue, and Halpert (2015) published an evidence-based practice guideline screening for depressive symptoms after conducting a systemic review. They first identified risk factors for depression and recommended that assisted living or long-term care facility residents be screened within 2 to 4 weeks of admission. Screening includes a three-step approach that starts with the assessment of the mental status using the Mini Mental State Examination followed by the assessment of depression. The third and the final step is the further evaluation or the appropriate referral based on the screening results (Brown, Raue, & Halpert, 2015).

Plan for Implementation

The purpose of this Quality Improvement (QI) project was to increase screening residents for depressive symptoms using the Cornell Scale for Depression in Dementia (See Appendix B) to identify those who need intervention and to involve the staff in screening by providing education to the staff. The permission to use the CSDD was obtained from Dr. George S. Alexopoulos from Cornell University (See Appendix C). The QI project proposal was submitted to University of Maryland Baltimore (UMB) Institutional Review Board (IRB) and was deemed Non-Human Subjects Research (NHSR).

The inclusion criteria for screening were any resident of the facility (permanent or respite) who was cared for by the primary provider of the facility. Additionally, inclusion criteria for the staff education was any staff who had direct contact with residents. Exclusion criteria were a handful of residents who had outside providers. Those residents not cared for by the primary facility provider were taken to their medical appointments by their family members. They would have to be screened at a later time by assisted living facility staff once the staff gets education and training on the SCDD tool. However, this was outside of the scope of this project.

This project was conducted over the course of 14 weeks. During the first week, the project leader met with one of the administrators at the assisted living facility to review the purpose and the plan of the project. It was during this meeting that the project leader was informed by the administrators that the education session to the staff had to be changed from the fifth week to the ninth week due to other mandatory training classes. The project leader also met with the nurse practitioner who was the primary provider for the ninety percent of residents at this assisted living facility. The provider agreed to screen residents that were being seen both for episodic and routine visits each week.

At the beginning of the project, a chart review was conducted to obtain baseline data. The chart review included the residents' gender, length of time that they have been at the assisted living, whether they have documented diagnosis of depression, and if so, what type of intervention had been ordered and documented (See Appendix F). Residents' ages were not obtained because they could be an identifier in this type of setting.

Through the second to the tenth week, the project leader visited the facility almost weekly and observed the provider screen the residents using CSDD. The project leader and the provider discussed how the screening process was going and some of the challenges associated with obtaining accurate information, such as residents' sleep pattern and eating habits. The project leader also interacted with the staff, including nurses and nursing assistance, weekly to informally discuss the purpose of the project and the use of CSDD. Attitudes of the staff and their strengths and weaknesses were also assessed during these interactions.

During the ninth week the project leader provided one education session to the staff on the following topics; the prevalence of depression among older adults, the purpose of using the Cornell Scale for Depression in Dementia, and the importance of their participation in the project (See Appendix D). Those who attended this education session was asked to complete the evaluation form created by the project leader. The administrator of the AL facility also attended and completed the evaluation form.

The final chart review was conducted during the thirteenth and the fourteenth week. The data was collected mainly with pencil and paper forms. The communications between the project leader, the assisted facility administrators, provider, and the staff were maintained throughout the project. The assessment and the evaluation of the progress of the project was done on an ongoing basis.

Results

Excel program was used to analyze the results. The descriptive statistics were used to describe the residents who were screened for the depressive symptoms using the Cornell Scale for Depression in Dementia as well as the screening results. Although the facility has a capacity to accommodate 54 residents, some rooms were empty, and some residents were hospitalized during the first week. Therefore, only 42 residents' charts were available for reviewing. Among 42 residents audited, 12 residents (29%) had documented diagnosis of depression and had at least one pharmacological intervention documented. None of these residents had documentation of any depression score or how often they were being screened for their symptoms.

At the completion of the project, a total of 50 residents were screened using the Cornell Scale for Depression in Dementia. Twenty-six (52%) were men and 24 (48%) were women. The length of time residing at the assisted living facility ranged from one month to 154 months. The average length was 24 months (see Table 1). Thirteen residents (26%) among 50 who were screened had documented diagnosis of depression. All those residents with a documented diagnosis of depression had an order for a pharmacological intervention. Many residents with or without documented diagnosis of depression were already on medications that influenced the behaviors, including medications such as sertraline, citalopram, mirtazapine, divalproex sodium, haloperidol, and lorazepam (See Figure 2). Documentation of psychiatric disorders other than depression was also reviewed. Five residents (1%) had no psychiatric illness, 22 residents (44%) had diagnosis of dementia, 9 residents (18%) had either anxiety disorder, mood disorder, insomnia, or Parkinson's disease (See Table 1).

Among the 50 residents screened, the lowest score was 0 and the highest was 13. The mean score was 5.36 (SD 2.66) and the mode was 6 (See Figure 1). Eleven residents out of 50 residents had CSDD score of 8 or above; five residents had a score of 8, three residents had a

score of 9, one resident had a score of 10, one resident had a score of 11, and one resident had a score of 13 (See Figure 3). Among these eleven residents who scored 8 or above, six of them had diagnosis of depression and were already on either SSRI or SNRI or tetracyclic antidepressant. Additional four residents without diagnosis of depression were on either an antipsychotic or benzodiazepine for behavioral issues. Only one resident was not on any medication.

Twenty-three staff attended the one-time education session that was provided during one of their monthly staff meetings. Among those who attended the session, only 18 completed the evaluation (See Appendix E). All 18 answered “Yes” to the four questions on the effectiveness of the education session on the following topics: risk factors for depression in older adults, common symptoms of depression in older adults, the purpose of Cornell Scale for Depression in Dementia tool, and the importance of recognizing the symptoms and reporting to the provider. The number of residents at the assisted living facility varied day to day due to deaths, hospitalizations, transfers to other facilities or short-term residents returning home. On the last day of audit, there were 50 residents at the assisted living facility. Although 50 residents had been screened using the Cornell Scale for Depression in Dementia, four of those residents had expired during the project, making the final percentage of residents screened "92%." This number was calculated by the 46 residents who were screened by CSDD who were still living divided by total 50 residents living in the facility during the week of final audit.

Discussion

The initial audit revealed that 29% of residents had a documented diagnosis of depression, and the final audit showed that 26% of residents had a documented diagnosis of depression. This finding was consistent with what has been reported in other studies (Almomani & Bani-issa, 2017; Beuscher & Dietrich, 2016; Knapskog, Barca, & Engedal, 2014). All residents who had a diagnosis of depression had a pharmacological intervention, which was not

consistent with current literature (Boehlen, 2017; Beuscher & Dietrich, 2016; Yoon, Moon, & Pitner, 2018). One particular study showed that the overuse and underuse of the medications depend on the characteristics of the patients (Boehlen, 2017). Many residents at this assisted living facility had a diagnosis of psychiatric or neurological illnesses other than depression such as anxiety, insomnia, or Parkinson's disease.

The possible score for Cornell Scale for Dementia ranges between 0 and 38. A score between 8 and 11 is considered that a person has depressive symptom. A score of 12 and above indicates probable depression. The average score for the residents at this assisted living facility was 5.36 and was lower than this threshold of 8. However, this could be attributed to the fact that many residents were on medications for other conditions, such as anxiety, insomnia, Parkinson's disease, anorexia, and behavioral issues. Among these eleven residents who scored 8 or above, six of them had diagnosis of depression and were already on either SSRI or SNRI or tetracyclic antidepressant. Additional four residents without diagnosis of depression were on either an antipsychotic or benzodiazepine for behavioral issues. The review of overall interventions for those who were already on medications but had scored 12 or higher should be further reviewed by the provider. Only one resident was not on any medication. The provider was also suggested to monitor this resident carefully for further evaluation.

Although the formal education session was conducted later than the project leader had originally planned, all the staff that attended the education and completed the evaluation indicated that they felt the information to be helpful and that they gained an understanding of the importance of screening for depressive symptoms. This positive feedback from the staff not only suggests their interest in the topic but their openness to learn more in the future. The project leader also had weekly interactions with the staff, reinforcing the importance of continuous monitoring of residents' behaviors. They were also reminded to report any concerns regarding

residents' condition to the provider. This was important because the participation of caregivers has been shown to be critical in the screening process (Abraham et al., 2017; Beucher & Dietrich, 2016).

A few barriers were identified during this project. Those were the lack of policy for depression screening, limited time that the provider had at the location each week, and staff engagement. Prior to the initiation of this QI project, neither the facility nor the provider's employer had a policy to screen residents. Similarly, the provider had a limited schedule to see residents each week. The provider's multiple competing priorities allowed only several residents to be screened each week. Staff's initial lack of engagement and initial resistance were a small but noticeable barrier. However, they became more engaged during the project.

There were some facilitators that were also identified, including the assisted living facility administrators, the timing of the screening, and the provider. The administrators showed an interest in the project, and the residents' families appeared to recognize the importance of the project and provided support. Additionally, as the implementation of the project coincided with the change of season from the fall to the winter, the subject of seasonal depression was one of the topics discussed during the staff meeting, which contributed to the staff showing more interest. The provider's openness to the new screening tool, the CSDD, as well as her willingness to spend the time to screen the residents as much as possible was a great facilitator. Her relationship with the staff also facilitated the project.

Lastly, while there may not have been any immediate financial benefit created by the screening, there was no additional cost associated with the screening. It is hoped that the screening would lead to the early intervention and prevention of worsening of condition, which could save costs associated with delayed recognition and initiation of treatments. Further analysis of costs associated with long-term depression screening and treatments is recommended.

Limitations

This facility indicated that regular screening for depression was a concern. However, a formal review or audit of the patient records had not been completed. Therefore, the need for improved screening for depressive symptoms at this facility could not be adequately assessed prior to implementation of the project. The project revealed that many residents had documented depression and were receiving treatment. However, there was no documentation of the screening tool for depression. Despite receiving treatment for depression, continued screening is still beneficial to monitor the effect of treatment and evaluate if adjustments in management are warranted. It is reassuring that the residents are receiving adequate pharmacological interventions. At the same time, non-pharmacological interventions may also be considered initially (Apostolo, Borowicz-Campos, Rodrigues, Castro, & Cardoso, 2016) supplement pharmacological intervention. Other factors that may influence the responses to nonpharmacological therapy was not reviewed in this project (Kubo, Hayashi, Kozawa, & Okada, 2019).

Furthermore, while the staff played a critical role in the screening process, their attitudes and changes in behavior could not be properly measured. Evaluation form that they completed at the end of education session was not adequate to address this issue. Staff's changes in attitudes as well as in behavior should be further evaluated and analyzed in the future projects.

Conclusion

This project provided a structure for the screening for depressive symptoms at the assisted facility by introducing the Cornell Scale for Depression in Dementia (CSDD). Routine screening for depressive symptoms using CSDD can assist in determining whether residents need further attention or adjustments in their current treatment.

Sustainability requires a multi-layered approach. The provider must be committed and proactive in screening the residents on a regular basis. Second, the administrators could consider developing a new policy to screen residents for depressive symptoms on a routine basis. They have verbalized their agreement on the importance of routine screening using a useful tool such as CSDD. Finally, and probably the most importantly, the staff plays an important role in recognizing the symptoms in residents. The staff should continue to be educated on the importance of recognizing the depressive symptoms and reporting those symptoms through the annual training and new-hire orientation. It is hoped that the routine screening using CSDD will be conducted not only by the provider but also by staff, especially for those residents who are seen by outside providers, in the future.

It is important to assess the need for screening for depressive symptoms at each facility prior to the initiation of the screening. The project revealed that those residents who had a diagnosis of depression were already on pharmacological intervention. However, this screening is easily replicable in other locations, especially at facilities that currently have no screening tool or those facilities with a large number of residents, such as in rural and underserved areas. Socioeconomical status of residents as well as the frequency of their visits with their providers may be factors in assessing the need. Additionally, review of non-pharmacological interventions, such as diet and physical activity, in addition to the pharmacological intervention will be useful.

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Table 1

Demographic Information and Diagnosis of Residents who were Screened (n=50)

Category	No. (%)
Gender	
Men	26 (52%)
Women	24 (48%)
Depression Diagnosis	
Yes	13 (26%)
No	37 (74%)
Other Psychiatric Diagnoses	
None	5 (1%)
Dementia	22 (44%)
Other (Anxiety, Mood disorder, Parkinson's, Insomnia)	9 (18%)
Dementia & Other	14 (28%)

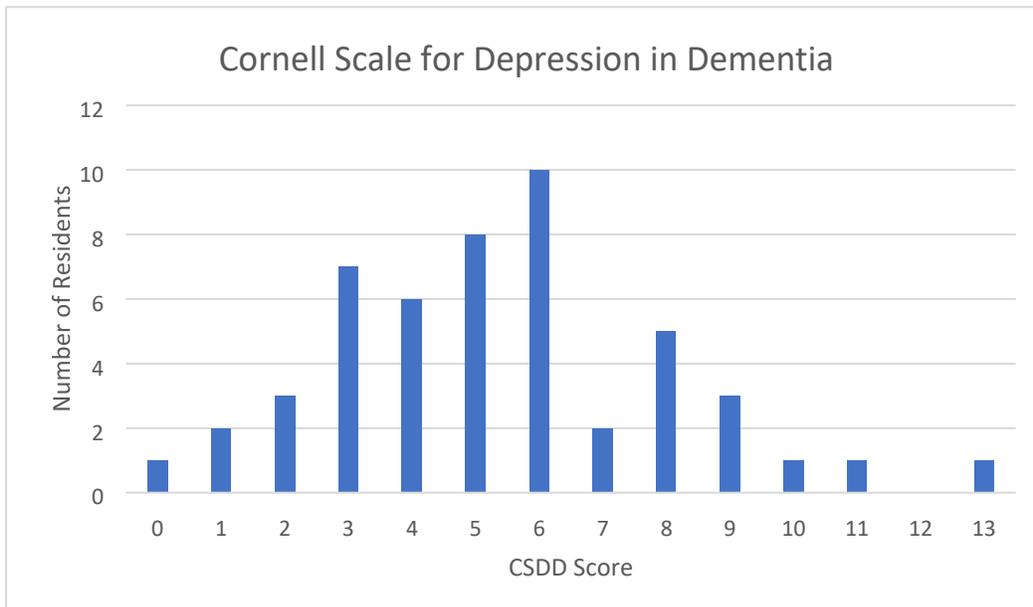


Figure 1. Residents' Scores of Cornell Scale for Depression Dementia (n=50).

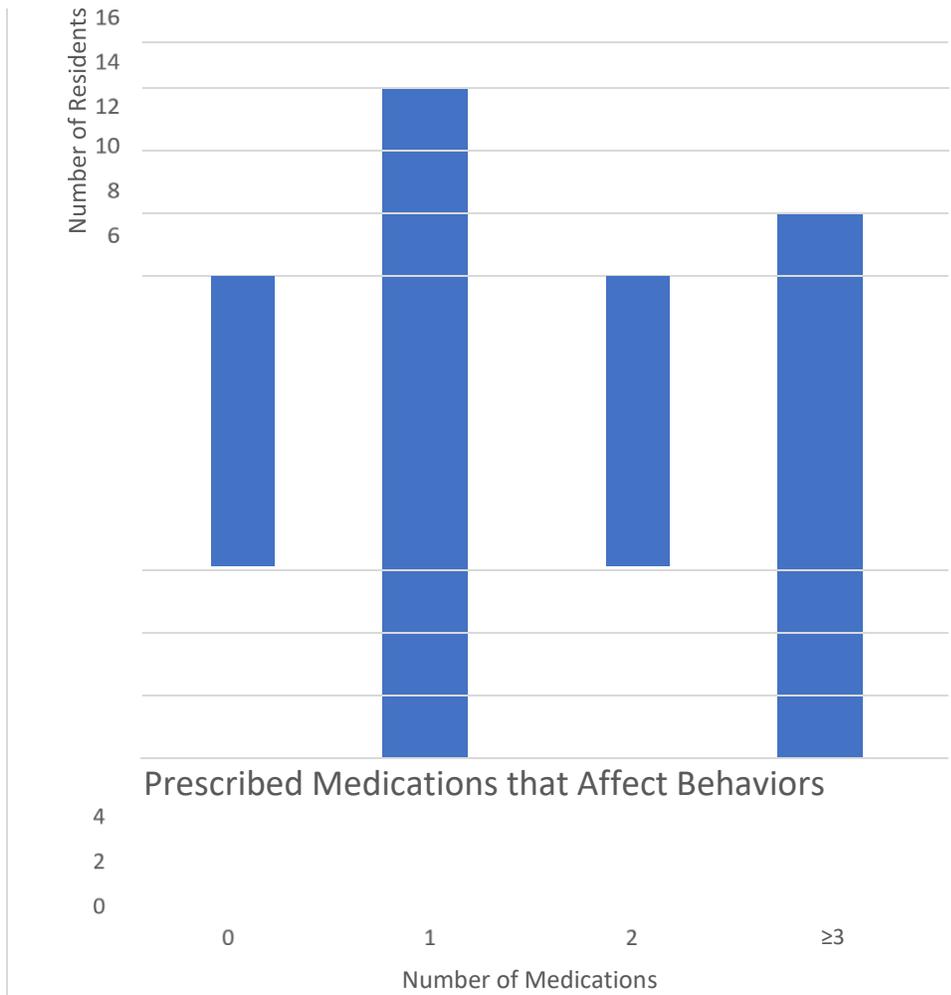


Figure 2. Residents on Medications (n=50).

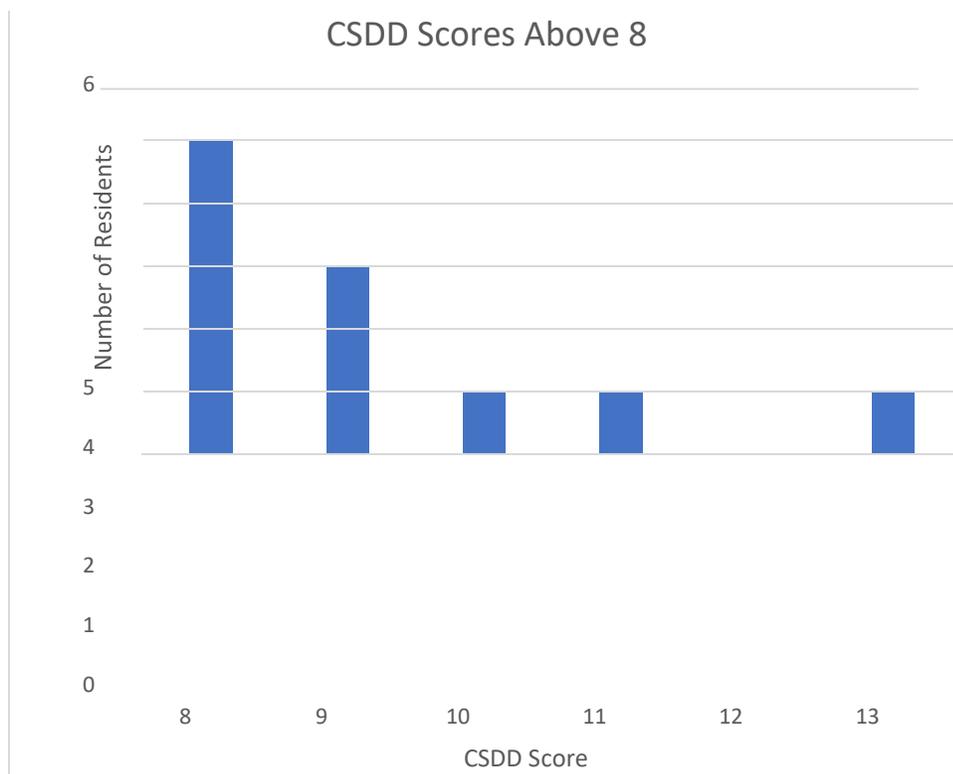


Figure 3. Analysis of CSDD Scores Above 8 (n=11).

Appendix A

Evidence Review Table

Author, year	Study objective/intervention or exposures compared	Design	Sample	Outcomes Studied (how measured)	Results	Level & Quality Rating
Abrams, et al., 2017.	To introduce and evaluate the training program for the front-line workers for the recognition, detection, differential diagnoses, and the intervention tactics for the depression of the LTC residents.	Two-arm cluster randomized controlled trial. The training program included the three modules; (1) Recognition of depression and dysthymia (2) Factors r/t diagnosis of depression (3) the tactics of intervention: tips on how best to work of resident with dementia&depression	485 nursing home direct-care staff members (CNAs, RNS, and LPNs) in LTC facilities.	Pre- and post items for both control and the intervention groups were compared using McNemar’s chi-square test for the dichotomous variables and paired t-test for continuous variables. The items measured were focused on topics discussed in the modules such as signs and symptoms of depression and interventions. Test items also included attitudes and satisfaction ratings.	Mean scores on the many items on the posttest for the intervention groups were statistically higher for the intervention group.	III A

Barca, et al. 2015.	To examine whether or not the Cornell Scale for Depression in Dementia differ across the severity of dementia by creating five sub-scales of mood, physical, cyclic, retardation, and behavior.	Cross-sectional study with randomization using exploratory and confirmatory factor analysis.	1682 patients (750 from memory clinics and 932 from nursing homes).	Degree of dementia was assessed with the Clock Drawing Test and MRI for measurement of the medial temporal lobe.	The sum score of SCDD scores differs across dementia severity. Among the sub-scales, the mood and the cyclic subscales do not vary across dementia while the	II 2
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				The relatives were interviewed by the nurses using the Neuropsychiatric Inventory (NPI), CSDD, Lawson, and Brody's Physical Self-Maintenance Scale. Kruskal-Wallis test, Pearson correlation coefficient were used to compare the average CSDD scales and sub-scales.	physical, retardation, and behavior vary across dementia severity, indicating that the mood factor is equally prevalent in dementia patients across the severity.	
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<p>Borza et al., 2014.</p>	<p>To investigate the course of depressive symptoms in dementia patients using the Cornell Scale for Depression in Dementia.</p>	<p>Longitudinal study over 74 months.</p>	<p>1158 nursing home residents over 50 years of age from 26 nursing homes in Norway.</p>	<p>Depressive symptoms were measured by the CSDD scores.</p>	<p>Poor physical health, more medications, more severe dementia, and the use of antidepressive were associated with higher CSDD score. Individual symptoms varied across dementia severity: there was no change in “disruption of sleep” while “suicidal ideation, pessimism, and delusions” decreased at a later time, possibly due to poorer communication ability.</p>	<p>V B</p>
<p>Brown et al., 2015</p>	<p>To improve detection of depression in older adults with dementia.</p>	<p>Evidence-Based Practice Guidelines for the depression detection in older adults with depression.</p>	<p>NA (Guidelines)</p>	<p>Outcome indicators are increased percentage of patients receiving referral for depression, increased recognition of depression symptoms in dementia patients,</p>	<p>Screening is recommended 2-4 weeks after admission to a LTC facility. The use of three step procedure (Step 1) Administration of Mini-Mental State Exam</p>	<p>V B</p>

SCREENING FOR DEPRESSIVE SYMPTOMS USING

				<p>and improved detection and treatment.</p>	<p>(Step 2) Administration of either the Geriatric Depression Scale Short Form or Cornell Scale for Depression in Dementia. (Step 3) Further evaluation or referral for positive screening.</p>	
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Chun et al., 2017.	To examine the disparities in depression screening in residents ethnically diverse nursing homes.	Observational baseline data and longitudinal intervention study.	155 residents from 12 longterm care units.	Clinician rating and researcher rating were compared for (1) selfreported capacity (2) suicidal ideation (3) at least moderate depression (4) PHQ using the Cohen's kappa.	<p>Moderate agreement between providers and researchers (Cohen's kappa =0.52) found in determination of capacity.</p> <p>Poor agreement (k=0.100.37) found in reporting suicide ideation.</p> <p>Poor agreement (k= -0.02-0.24) found in moderate depression.</p> <p>Use of PHQ for nonEnglish speakers needs further investigation.</p>	IV B
Goodarzi et al., 2017	To compare the depression tools, CSDD, GDS, and Hamilton Depression Rating Scale, in adults with dementia in outpatient-setting and long-term facilities.	Systemic review and meta-analysis	3033 elderly patients in outpatient clinics and long-term facilities.	<p>Mantel-Haenszelweighed DerSimonian and Laird models were used to calculate estimate studyspecific estimates.</p> <p>Meta-analysis of pooled sensitivity and specificity were used to measure diagnostic accuracy.</p>	<p>Ten studies were examined for CSDD. Estimated sensitivity was 0.88 and specificity was 0.80.</p> <p>Thirty-Item Geriatric Depression scale's estimated sensitivity was 0.62 and specificity was 0.81.</p> <p>Four studies were examined for Hamilton Depression Rating Scale.</p>	I B
					<p>Estimated sensitivity was 0.86 and specificity was 0.84.</p> <p>Pooled prevalence of depression was 30.3% for outpatient with dementia.</p>	

<p>Hancock & Larner, 2014</p>	<p>To assess the clinical utility of the Cornell Scale for Depression in Dementia for the differential of depression with and without depression.</p>	<p>Pragmatic prospective study</p>	<p>242 patients with reliable “informant” who have been referred to a memory clinic.</p>	<p>Participants with information were assessed for the dementia and depression using DSM-IV criteria and CSDD (ranging from 0-26) and PHQ-9 over the course of 44month.</p>	<p>Those diagnosed with depression, the mean CSDD score was 12.6+/- 6.4. Those without diagnosed depression, the mean CSDD score was 3.23 +/- 4.0. There was a statistical difference between the two groups.</p> <p>For those diagnosed with dementia, the mean SCDD score was 3.2+/- 4.2. For those not diagnosed with dementia, SCDD score was 5.3+/-5.9. There was a statistical difference between the two groups.</p>	<p>III 3</p>
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*Appendix B***Cornell Scale for Depression in Dementia Scoring System**

A = unable to evaluate 0 = absent 1 = mild or intermittent 2 = severe

Ratings should be based on symptoms and signs occurring during the week prior to interview. No score should be given in symptoms result from physical disability or illness.

A. Mood-Related Signs

- | | |
|---|---------|
| 1. Anxiety: anxious expression, ruminations, worrying | a 0 1 2 |
| 2. Sadness: sad expression, sad voice, tearfulness | a 0 1 2 |
| 3. Lack of reactivity to pleasant events | a 0 1 2 |
| 4. Irritability: easily annoyed, short-tempered | a 0 1 2 |

B. Behavioral Disturbance

- | | |
|--|---------|
| 5. Agitation: restlessness, handwringing, hairpulling | a 0 1 2 |
| 6. Retardation: slow movement, slow speech, slow reactions | a 0 1 2 |
| 7. Multiple physical complaints (score 0 if GI symptoms only) | a 0 1 2 |
| 8. Loss of interest: less involved in usual activities
(score only if change occurred acutely, i.e. in less than 1 month) | a 0 1 2 |

C. Physical Signs

- | | |
|--|---------|
| 9. Appetite loss: eating less than usual | a 0 1 2 |
| 10. Weight loss (score 2 if greater than 5 lb. in 1 month) | a 0 1 2 |
| 11. Lack of energy: fatigues easily, unable to sustain activities
(score only if change occurred acutely, i.e., in less than 1 month) | a 0 1 2 |

D. Cyclic Functions

- | | |
|---|---------|
| 12. Diurnal variation of mood: symptoms worse in the morning | a 0 1 2 |
| 13. Difficulty falling asleep: later than usual for this individual | a 0 1 2 |
| 14. Multiple awakenings during sleep | a 0 1 2 |
| 15. Early morning awakening: earlier than usual for this individual | a 0 1 2 |

E. Ideational Disturbance

- | | |
|--|---------|
| 16. Suicide: feels life is not worth living, has suicidal wishes, or makes suicide attempt | a 0 1 2 |
| 17. Poor self esteem: self-blame, self-depreciation, feelings of failure | a 0 1 2 |
| 18. Pessimism: anticipation of the worst | a 0 1 2 |

19. Mood congruent delusions: delusions of poverty, illness, or loss a 0 1 2

Appendix C

Permission from Dr. George S. Alexopoulos (Cornell University Medical Center) to Use the Cornell Scale for Depression in Dementia in the NDP Project



Yumi Jono <yumijono@gmail.com>

Fwd: Request for permission to use the Cornell Scale for Depression in Dementia

1 message

Yumi Jono <jonoyu@umaryland.edu>
To: yumijono@gmail.com

Mon, May 7, 2018 at 10:56 AM

----- Forwarded message -----

From: George S Alexopoulos <gsalexop@med.cornell.edu>
Date: Mon, May 7, 2018, 9:34 AM
Subject: Request for permission to use the Cornell Scale for Depression in Dementia
To: Yumi Jono <jonoyu@umaryland.edu>

You have my permission

Sent from my iPhone

On May 7, 2018, at 9:22 AM, Yumi Jono <jonoyu@umaryland.edu> wrote:

Dear Dr. Alexopoulos,

Thank you very much for your attention to this email.
My name is Yumi Jono, and I am a registered nurse currently enrolled in the Doctorate of Nursing Practice program at the University of Maryland Baltimore.

I am writing to request for your permission to use the Cornell Scale for Depression Dementia in my DNP project. The purpose of my DNP project is to implement a screening for depressive symptoms at an Assisted Living facility in Columbia, Maryland, whose residents have mild to severe cognitive impairment. My project is a quality improvement project and not a research project.

Please kindly inform me if I need to submit any additional documentation or forms to request your permission.
Thank you very much for your time and consideration.

Sincerely,
Yumi Jono
240-671-8444



Appendix D

Objectives and Contents for the Education Session for the Staff and the

Learning Objectives	Content Outline	Method of Instruction	Time Spent	Method of Evaluation
1. The staff will understand the depression risks factors & symptoms in the older adults	<ul style="list-style-type: none"> • Prevalence of depression in the elderly population • Risk factors for depression • Symptoms of depression 	Lecture and discussion	10	Survey
2. The staff will be familiar with the Cornell Scale for Depression in Dementia	<ul style="list-style-type: none"> • Cornell Scale for Depression in Dementia • Review all of the questions in the CSDD 	Lecture and discussion	5	Survey
3. The staff will understand the importance of communication with providers	<ul style="list-style-type: none"> • The reasons for communication • Timing for communication 	Lecture and discussion	5	Survey

1. Depression in the Elderly Risk factors for depression

- Living in assisted living facilities
- Having one or more chronic illnesses
- Having disability in the upper extremities
- Decreased Physical Activity

Common Depressive Symptoms

- Not engaging in activities
- Decreased appetite
- Changes in sleep pattern
- Disruptive behaviors

2. Cornell Scale for Depression in Dementia

- Mood related signs
- Behavior disturbances
- Physical Signs

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