THE GERONTOLOGICAL SOCIETY OF AMERICA®

Innovation in Aging
cite as: *Innovation in Aging*, 2019, Vol. 3, No. 2, 1–10
doi:10.1093/geroni/igz011
Advance Access publication May 29, 2019

OXFORD

Original Research Article

Screening Older Adults for Depression: Barriers Across Clinical Discipline Training

Ronald Smith, PhD[1,2,*] and Suzanne Meeks, PhD[1]

[1]Department of Psychological and Brain Sciences, University of Louisville, Kentucky. [2]Geriatric Mental Health, VA Boston Healthcare System, Massachusetts.

*Address correspondence to: Ronald Smith, PhD, University of Louisville, Life Sciences Building 111, Louisville, KY 40292. E-mail: ronald.smith@louisville.edu

Received: December 6, 2018; Editorial Decision Date: April 18, 2019

Decision Editor: Jennifer Tehan Stanley, PhD

Abstract

Background and Objectives: Depressed older adults are more likely to be seen in primary care than in specialty mental health settings, but research shows that physicians may not routinely screen for depression. Other clinical disciplines are also in a position to screen for depression, but have not been studied. This study examined barriers to screening older adults for depression, and disciplinary differences in clinical trainees' likelihood of screening.

Research Design and Methods: We used a cross-sectional, online survey with experimental manipulation of vignettes. A four-way mixed analysis of variance explored the effects of clinical discipline (between subjects) and time pressure, patient difficulty, and level of symptoms (within subjects) on trainees' likelihood of screening.

Results: Participants were 229 trainees in medicine (83), psychology (51), nursing (49), and social work (46). Lower time pressure and greater symptom severity increased likelihood of screening. There was a significant three-way interaction among discipline, patient difficulty, and symptom level that was driven by social work graduate trainees' greater likelihood of screening for depression when there were more symptoms present, which was diminished if the patient was being difficult. There was a two-way interaction between patient difficulty and level of symptoms: more symptoms resulted in increased likelihood of screening, an effect that diminished with greater patient difficulty.

Discussion and Implications: The study holds implications for identifying and addressing gaps in education on depression screening to minimize the effects of barriers. Interventions could address education about older adults and depression, including practice-based screening, time management, and behavior management skills.

Translational Significance: Training programs across disciplines should provide education on how to handle time pressure and to recognize all symptoms of depression in older adults, because these barriers reduce likelihood of screening among trainees in medicine, psychology, nursing, and social work disciplines.

Keywords: Barriers, Decision making, Depression, Primary care, Screening

Background and Objectives

Depression prevalence in older adults is estimated at 4% in the community, 5% in primary care settings, and 15%–25% in long-term care (LTC) settings (Kessler et al., 2010; Reynolds, Pietrzak, El-Gabalawy, Mackenzie, & Sareen, 2015; Robins & Regier, 1991; Seitz, Purandare, & Conn (2010)).

Subsyndromal or minor depression is also two to three times more likely than major depression in older adults and occurs at higher rates in primary care and LTC (Allan, Valkanova, & Ebmeier, 2014; Meeks, Vahia, Lavretsky, Kulkarni, & Jeste, 2011). Undetected depression is costly, increases health care resource use, and exacerbates comorbid illnesses (Lacruz et al., 2012; Noel et al., 2004; Unutzer et al., 1997).

Older adults often avoid using mental health specialists due to stigma (Conner et al., 2010) and instead use primary care providers for both medical and mental health issues (Gallo, Rabins, & Iliffe, 1997; Shah, McNiece, & Majeed, 2001). Most depression cases are therefore seen in primary care (Kessler et al., 2010). With low rates of specialty mental health utilization (Klap, Unroe, & Unützer, 2003), detecting depression becomes the responsibility of the primary care providers, who rarely screen older adults for mental illness (Glasser & Gravdal, 1997; Tai-Seale et al., 2005) and do not often recognize mental illness (Akincigil & Matthews, 2017; Mitchell, Rao, & Vaze, 2010; O'Byrne & Jacob, 2018; Pfaff & Almeida, 2005; Tai-Seale et al., 2005).

Despite the importance of detecting depression, there are conflicting findings on the benefits of screening for improved depression outcomes, due to insufficient resources for diagnosis, treatment, and follow-up, a caveat of the United States Preventive Service Task Force (USPSTF) recommendation in support of screening (Mojtabai, 2017; Siu et al., 2016). The USPSTF found little evidence of harm from screening, though other research notes potential for over diagnosis of depression and overprescribing antidepressants (Maust, Sirey, & Kales, 2017; Palmer & Coyne, 2003). Screeners such as the PHQ-9 and GDS have sufficient sensitivity and specificity (Smithson & Pignone, 2017), but a relatively low positive predictive value could result in a high rate of false positives. Others have argued that older adults' increased physical comorbidities could result in depression being overlooked (Mitchell, Rao, & Vaze, 2010). Clearly accurate detection of depression is important so that individuals with depression can be properly treated; screening is a first step to accurate detection despite the fact that it may not be the final step. Understanding whether and under what conditions clinicians will screen for depression among older patients can enhance education and training on best practices for detection and treatment.

Barriers to screening have been examined mostly through self-report surveys of physicians, who listed multiple difficulties with screening. One survey of physician attitudes and beliefs found that 80% of physicians felt responsible to diagnose depression but only 55% felt confident doing so (Callahan et al., 1992). Physicians in this study also indicated that older adults were frustrating and not rewarding, and that depression in the elderly adults was "understandable." Time pressure was the most common physician reported barrier to screening (Callahan et al., 1992; Glasser & Gravdal, 1997; Glied, 1998; Loftis & Salinsky, 2006; Scogin & Shah, 2006; Solberg, Korsen, Oxman, Fischer, & Bartels, 1999). Other research found that patients are less likely to be screened for depression if many topics were discussed during a primary care visit (Tai-Seale et al., 2005) and that many standardized depression screeners are cumbersome to administer (Loftis & Salinksy, 2006). Physician concerns about how patients may react to answering questions about their mood may also inhibit screening (Scogin & Shah, 2006; Solberg et al., 1999), though more recent studies suggest that older adults have favorable attitudes about screening (Samuels et al., 2015; Shah, Scogin, Pierpaoli, & Shah, 2018; Wood, Pill, Prior, & Lewis, 2002). One study of physicians noted that screening may not be necessary because if the patient is depressed "a problem would surface eventually" (Solberg et al., 1999), a conclusion suggesting that the number of symptoms a patient reports may influence the likelihood of screening. Clinicians may miss subthreshold depression, which is known to be prevalent and to have important health implications (Meeks et al., 2011), if they do not screen when only a few symptoms are present.

The aim of this study was to examine the influence of barriers on clinical trainees' decisions to screen for depression in older adults. In a departure from previous studies that focused on physicians or physicians in training, we included additional disciplines who care for older adults in primary care settings to explore whether such barriers are common across providers who represent the interdisciplinary nature of contemporary health care. Psychology, social work, and nursing are often included in collaborative care teams and were identified by Park and Unützer (2011) as common depression care managers in interdisciplinary primary care models. (See also Harris, Walmer, Nwogu, Peraza-Smith, & Cacchione, 2017, for an effective case example.) Whether trainees in these disciplines learn to screen for depression could influence the effectiveness of primary care for depressed older adults. We studied potential barriers that have been supported by prior research: time pressure during visit, patient difficulty, and number of symptoms (Callahan et al., 1992; Glasser & Gravdal, 1997; Loftis & Salinsky, 2006; Scogin & Shah, 2006; Solberg et al., 1999). We predicted that when there was perceived time pressure, trainees would be less likely to screen for depression. Second, we predicted that trainees would be more likely to screen patients who were easier to work with. Finally, we predicted that screening would be more likely for patients who presented more symptoms of depression. We did not have specific hypotheses about disciplinary differences because there was no a priori evidence that these would exist, but we proposed exploratory analyses to examine the possibility that there would be disciplinary differences in screening, and that these would interact with screening barriers.

Research Design and Methods

Study Design and Sample

We presented advanced clinical trainees with eight randomized vignette conditions in a two (time pressure: low

vs high) by two (patient difficulty: low vs high) by two (level of symptoms: low vs high) mixed complete factorial design. Clinical discipline (psychology, nursing, medicine, and social work) was a between-subjects factor. Dependent variables were two clinical decisions: screening for depression using a standardized tool, and referring the patient to another health professional. Only data on participant decisions to use a depression screening scale were analyzed for this paper.

To be included in the study, participants had to be graduate-level clinical trainees in the United States: clinical and counseling psychology graduate students (PhD, PsyD, or MS/MA), social work graduate students (MSW or PhD), nursing graduate students (MSN, DNP, PhD, or MS), or medical students (MD or PhD). The study was presented to participants as examining decision making about depression in older adults, without mentioning screening specifically.

Measures

The Clinical Decision-Making Survey was created for the purpose of this study. It included items on demographics and education and eight depression vignette conditions that manipulated three barriers to screening.

Sociodemographic and Education Information

Participants reported their age, gender, clinical discipline, degree they were working toward, year in their program, whether they had clinical experience with a client/patient thus far in their training, and whether they had any specialty gerontology training. Demographic and experience statistics for participants are displayed in Table 1.

Manipulated, Independent Variables

The independent variables in the current study were barriers to screening for depression. These factors were manipulated in vignettes describing a provider encountering an older patient in a healthcare setting, with the study participant taking the perspective of the provider. In the vignettes, the patient presents with some depressive symptoms. To be able to differentiate between main and interaction effects, all barriers to screening factors were fully crossed, resulting in eight vignette experimental conditions (three factors with two levels each). Since there were no existing vignettes with these factors, we created the vignettes for this study. Vignettes did not feature names or sexes to leave the participants' perceptions of the character free from biases. Neutral pronouns were used. Vignettes were piloted with 10 clinical psychology PhD students to ensure variability in clinical decisions in response to the manipulated independent variables.

Time pressure

The high time pressure scenario depicts that the provider is running behind schedule, has a colleague who called in sick to work, and has many patients waiting to be seen. In the low time pressure scenario, the health provider has more time due to a patient cancellation.

Patient difficulty

In the high patient difficulty scenario the patient exhibits impatience, frustration, and anger with a hurried and inconvenienced manner. In the low patient difficulty scenario, the patient is cooperative, calm, and compliant.

Symptom level

The high symptom level scenario depicted a patient with six depressive symptoms, anhedonia, trouble sleeping, feeling down, reduced appetite, weight loss, and low energy. The low symptom level scenario depicted a patient with two symptoms, anhedonia and trouble sleeping.

Nonmanipulated, Independent Variables

Clinical discipline

The between subjects variable was clinical discipline (Graduate professional trainees in Psychology, Medicine,

Table 1. Sample Characteristics by Clinical Discipline

	Psychology	Medicine	Nursing	Social work
N	51	83	49	46
Mean Age	29.2	25.7	35.2	31
% Female	78.4	45.8	95.9	87.0
% Degree	86.2 - PhD	91.6 - MD	65.3 - MSN	69.6 - MSW
	7.8 - PsyD	7.2 – PhD	28.6 - PhD	30.4 - PhD
	3.9 - MS/MA		2.0 - MS/MA	
			4.1 - DNP	
% Year in Program	11.8 - 1st	31.3 - 1st	30.6 - 1st	32.6 - 1st
	7.8 - 2nd	24.1 - 2nd	38.8 - 2nd	34.8 - 2nd
	19.6 - 3rd	26.5 - 3rd	18.4 - 3rd	26.1 - 3rd
	11.7 - 4th	16.9 - 4th	10.2 - 4th	0.0 - 4th
	49.0 - 5th	1.2 - 5th	2.0 - 5th	6.5 - 5th
% Clinical Experience	96.0	78.3	75.5	84.8
% Gero Experience	29.4	15.7	34.7	30.4

Table 2. Demographic Associations with Discipline

	χ^2	*F*
Gender	48.839**	
Age		17.48**
Year in Program	91.228**	
Gero Experience	7.65	

Note: **$p < .001$.

Social Work, and Nursing). These disciplines were included in this study because of their potential to work in settings where older adults are routinely encountered and their training involving identifying and assessing mental disorders such as depression.

Dependent Variable

Each participant was presented with the eight randomized vignettes described above. After reading each vignette, they were asked to "Please rate the likelihood that you would do each of the following in this scenario." While the main outcome for analysis was screening for depression, this item was hidden among a list of five options: continue to monitor the symptoms at the next appointment, screen the patient for depression, refer the client to another health professional, recommend depression treatment for the patient, and provide education on depression. A five-point rating scale was provided for each decision, ranging from 5 = very likely to 1 = very unlikely.

Procedures

The Clinical Decision-Making Survey was created on the online platform Qualtrics. Ten clinical psychology students from the University of Louisville piloted the survey. These pilot data showed sufficient variability in the responses to likelihood of screening to suggest that there would be valid results from a larger sample. The pilot respondents also provided feedback to the author regarding the clarity of instructions and the realistic nature of the vignettes.

The first author contacted nursing, psychology, medicine, and social work program leaders via e-mail regarding the study's aim and protocol. Recruitment occurred online locally through e-mailing an Institutional Review Board (IRB)-approved recruitment letter to medical student listservs, directors of school programs, and graduate student newsletters and daily e-mails. If a school administration/program leader approved, a faculty member or administrator shared our IRB-approved recruitment letter via e-mail, which included the survey hyperlink, to their students. The recruitment letter was also posted on the message boards of two national organizations (Gerontological Society of America, American Psychiatric Nurses Association), e-mailed to directors of programs at universities across the country, and other colleagues, asking them to share the recruitment letter with their graduate programs. Recruiting from medical students occurred mostly from the University of Louisville, while other disciplines had participants from more than one institution. Informed consent was via survey preamble. Respondents were given the chance to enter a drawing to win an Apple iPad. Participants who chose to provide identifying information for the drawing were taken to a separate online survey form, where their information could not be connected to their responses on the Clinical Decision-Making Survey. The length of time to complete the survey was typically 15 to 20 min.

The online survey presented each participant with all eight vignette conditions in a randomized order to control for carry-over effects (see Supplementary Material for vignettes). After reading each vignette, the participants rated each of five outcomes. Participants were forced to respond to all items in order to proceed to the next item in the survey and were not able to go back and change answers to their screening likelihood ratings.

The Institutional Review Board of the University of Louisville reviewed and approved this study. IRB#16.1197.

Data Analyses

Data were analyzed using IBM's SPSS 24.0. Descriptive statistics were calculated for all study variables to examine normality and outliers, while analysis outcomes were checked to ensure all assumptions of a Mixed analysis of variance (ANOVA) were met. Incomplete surveys or surveys with missing data were not included in the analyses. Chi square tests examined the effects of disciplines and demographic data. A two-tailed alpha was set at .05 for all tests.

A Mixed ANOVA was used to analyze the three hypotheses that there would be main effects of time pressure, patient difficulty, and symptom level on the likelihood of screening for depression. The Mixed ANOVA included clinical discipline as the between-subjects factor and the likelihood of screening for the eight vignettes as a within-subjects, repeated variable since each participant rated all eight vignettes. The likelihood of screening responses were negatively skewed; no transformation was applied because of the lack of a true zero in the data. Post hoc analyses were conducted using Scheffe's criteria. A Mixed ANOVA was chosen based on the ability to analyze both within and between-subjects effects, robustness in handling Likert-type data, the ability to fully cross the three within-subjects factors, and because there were no missing data.

Results

Sample Characteristics

There were 364 surveys attempted, with 229 of those surveys completed. Two people marked "no" at the consent page and their surveys ended. The 229 completed surveys were from 83 medical students, 51 psychology students, 49

nursing students, and 45 social work students. The complete sample had a median age of 28, and was 72.1% female. Graduate student participants were working towards PhD (34.1%), MD (33.2%), MSW (14.4%), MSN (14.0%), PsyD (1.7%), MS/MA (1.7%), and DNP (0.9%) degrees. Most participants were in their first (27.1%), second (25.8%), or third (23.1%) years of study; fewer participants were in their fourth (10.9%) or fifth (13.1%) years of study. The majority (83%) of the participants said they had had some clinical experience with a patient or client during their graduate training, and 25.8% of the participants said they had received specialty training in gerontology. See Table 1 for a breakdown of sample characteristics by clinical discipline.

There was a significant association between discipline and gender of participants χ^2 (6) = 48.839, p < .001. There were more men in the medicine discipline than expected, and fewer men than expected in psychology, nursing, and social work. There was a significant association between discipline and year in one's program χ^2 (12) = 91.228, p < .001; psychology students were more likely than other disciplines to be in their fifth year of training. There were fewer psychology participants in earlier years of study. There were no social work participants in their fourth year of study (see Table 2).

There was no significant association between discipline and whether a participant had specialty experience in gerontology χ^2 (3) = 7.350, p = .062, though the result approached significance due to the number of medical students who reported having no specialty training in gerontology. A Brown-Forsythe test revealed a significant difference in age among disciplines, F(3,119.408) = 17.48, p < .001. Follow-up Games-Howell means comparisons revealed that medical students were significantly younger than participants in the other three disciplines, and psychology students were significantly younger than nursing students. There was no significant association between age and likelihood of screening, however. Because there were some first-year students who had already seen clients, and a few upper-class students who had not, we ran a Mixed ANOVA examining at the dichotomous variable of whether or not people had seen a client and found that it was not significantly related to a decision to screen, F(1,227) = .729, p = .394. Because of these findings, clinical experience and age were not controlled for in the main analysis.

Likelihood of Screening for Depression

A four-way mixed ANOVA (one between-subjects factor, three within-subjects factors) tested the hypotheses of main effects for clinical discipline, time pressure, patient difficulty, and level of symptoms on the likelihood of screening for depression. Table 3 shows the results of the likelihood of screening analyses.

Main Effects

Means indicated that all disciplines were likely to screen for depression (Table 3). There was no significant main effect of clinical discipline. There was a significant main effect of time pressure and pairwise comparisons indicated that participants were more likely to screen when time pressure was low compared to when it was high, t = 6.297, p < .001. There was no significant main effect of patient difficulty, as participants rated their likelihood of screening about the same whether the patient was more or less difficult. There was a significant main effect of symptom level, and pairwise comparisons indicated participants were more likely to screen when patients presented with more symptoms than when there were fewer symptoms, t = 7.14, p < .001.

Table 3. Main Effects of Discipline and Barriers on Likelihood of Screening

Between Subjects	
Clinical discipline	F(3,225) = 1.327, r = .08
	Means
Psychology	4.24
Medicine	4.04
Nursing	4.26
Social Work	4.08
Within Subjects	
Time pressure	F(1,225) = 40.705, r = 0.39**
	Means
Low	4.27
High	4.04
Patient difficulty	F(1,225) = .272, r = .03
	Means
Less	4.16
More	4.14
Symptom level	F(1,225) = 51.006, r = .43**
	Means
More	4.28
Fewer	4.03

Note: **p < .001.

Interaction Effects

The four-way interaction of discipline, time pressure, patient difficulty, and symptom level was not significant, F(3,225) = .035, p = .991. There was a significant three-way interaction of discipline, patient difficulty, and symptom level, F(3,225) = 3.149, p =.026. For post hoc analysis of this interaction a new F critical value of 8.04 was calculated using the Scheffe criteria. To further investigate this significant interaction, we ran factorial repeated measures analyses for each discipline. There was a significant patient difficulty × symptom level interaction for social work students, F(1,45) = 11.531, p = .001, r = .45. Marginal means showed that when not being difficult, patients endorsing fewer symptoms were less likely to be screened

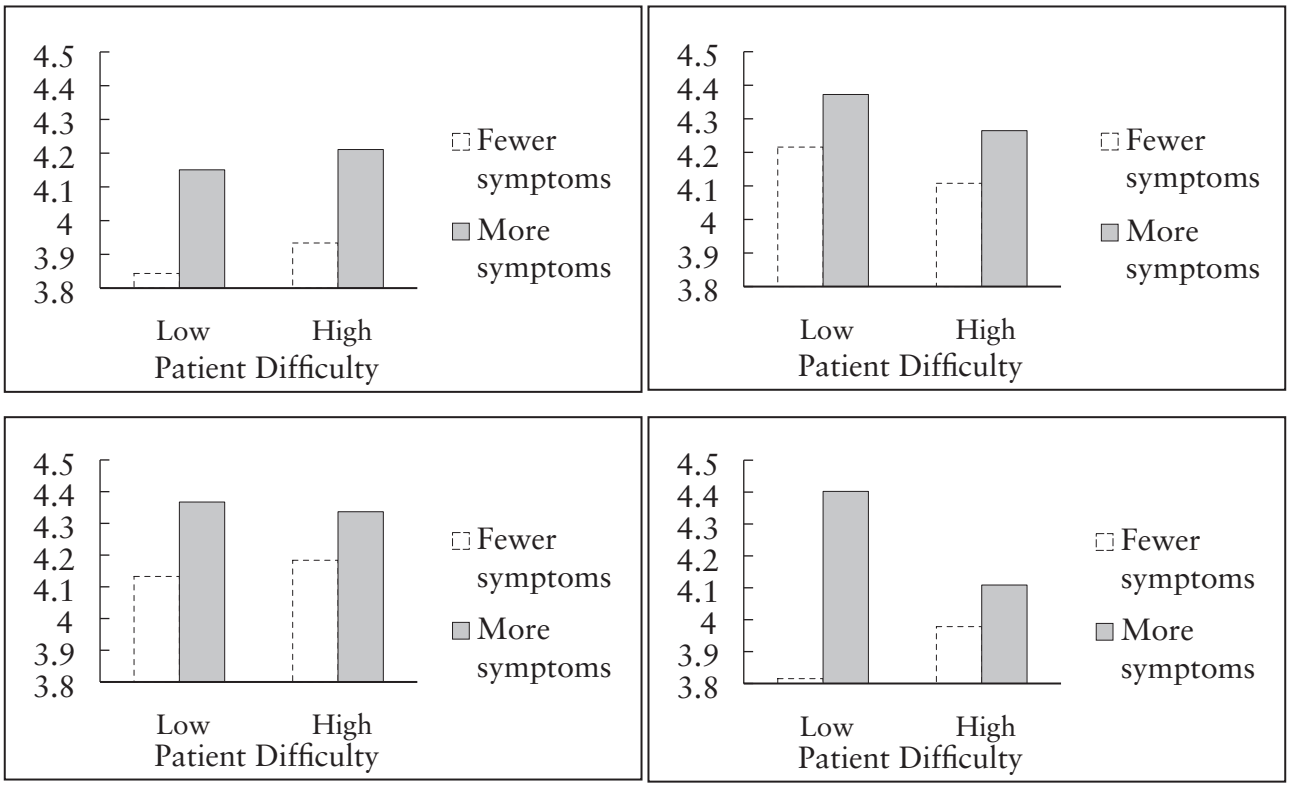

Figure 1. Plot of the marginal means for the likelihood of screening at the patient difficulty × symptom level interaction. Clockwise from top left: medicine, psychology, social work, and nursing.

than those endorsing more symptoms (M = 3.815 for fewer symptoms and M = 4.402 for more symptoms). However, when the patient was being more difficult, symptoms were not as important to the social work students (M = 3.978 for fewer symptoms and 4.109 for more symptoms (Figure 1). For social work students, more patient symptoms increased the likelihood of screening only when the patient was not being very difficult.

The three-way interaction was also influenced by the fact that other disciplines had different patterns in their likelihood of screening ratings related to patient difficulty and symptoms. Medical students on average showed a greater likelihood of screening when patients were difficult, regardless of how many symptoms they presented. Psychology students on average were less likely to screen difficult patients, regardless of symptoms presented. Finally, nursing and social work students had similar likelihood of screening except that nursing students' likelihood ratings were less affected by higher patient difficulty than social work student ratings (Figure 1).

There was also a significant two-way interaction between patient difficulty and symptom level across all disciplines, $F(1,225) = 6.182$, $p = .014$, $r = .16$ (Figure 2). When patients were more difficult, participants overall indicated that they would be less likely to screen those with more symptoms (M = 4.323–4.230), but more likely to screen those with fewer symptoms (M = 4.002–4.051).

Discussion and Implications

Previous research indicated that older adults are likely to visit primary care for both mental and physical health needs, but that physicians often did not adequately identify or screen for mental illness such as depression (Gallo, Rabins, & Iliffe, 1997; Glasser & Gravdal, 1997; Mitchell, Rao, & Vaze, 2010; Pfaff & Almeida, 2005; Shah, McNiece, & Majeed, 2001; Tai-Seale et al., 2005). The purpose of this study was to address under-screening for depression in older adults by exploring barriers to screening identified in the literature. We examined the influence of time pressure, patient difficulty, and symptom severity on clinical trainees' decisions to screen for depression in older adults. We also explored characteristics of depression screening by clinical disciplines who typically work in primary care settings.

Clinical Barriers and Likelihood of Screening

The hypothesis that time pressure would affect participants' likelihood of screening for depression was supported: respondents were less likely to screen for depression when responding to scenarios where time was short. This finding is consistent with previous findings that physicians often used time pressure as a main reason for avoiding screening (Callahan et al., 1992; Glasser & Gravdal, 1997; Glied, 1998; Loftis & Salinsky, 2006; Scogin & Shah, 2006; Solberg et al., 1999). This study adds to the literature by

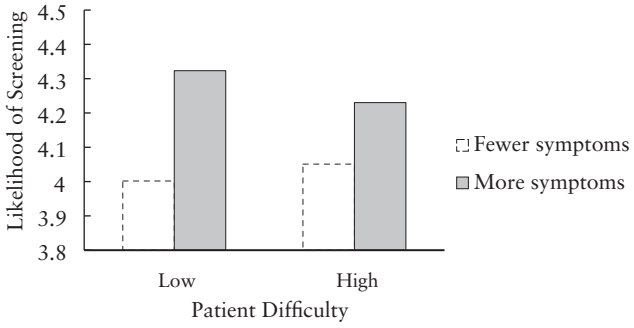

Figure 2. A plot of the marginal means for likelihood of screening for depression at the patient difficulty × symptom level interaction for all participants across the four disciplines.

confirming an effect of time pressure on a clinical decision and showing that this effect occurs similarly across several disciplines.

The hypothesis that patient difficulty would affect participants' likelihood of screening for depression was not directly supported. Prior research with physicians suggested that older people do not like to be screened, or that older people were more difficult to deal with, that screening would be less likely under those circumstances (Scogin & Shah, 2006; Solberg, Korsen, Oxman, Fischer, & Bartels, 1999). The nonsignificant main effect in our study is qualified by interactions showing that the disciplines reacted differently to difficult patients. When encountering more difficult patients, medical and nursing students were slightly more likely to screen for depression, while psychology and social work students were less likely to screen for depression. These findings do not support the previous literature stating that physicians may not screen older adults because they are more difficult. One possible explanation of this finding is that physicians and nurses encounter patients who present with more general health needs (i.e., a checkup or a hospital), whereas a psychologist or a social worker may be more likely to encounter a patient who presents to them for a specific purpose related to mental health. Thus, a more difficult patient could be less likely to be screened by psychology or social work students because they may be relying more on clinical judgment. Although the disciplines' decision to screen varied with more or less difficult patients, overall the trainees in this study were positive toward screening.

The hypothesis that patients' symptom severity would affect participants' likelihood of depression screening was supported. There was no previous research directly addressing this question, although Solberg and colleagues (1999) mentioned that patient mention of symptoms was required to prompt a depression screen. The idea behind this hypothesis was to test whether trainees would choose to screen when fewer symptoms were presented, to check for more symptoms, or whether they were more likely to screen for depression with several symptoms mentioned. One could make the argument that screening might be unnecessary if a patient reports a certain number of symptoms, as a diagnosis could be made or treatment implemented without the screening. Our findings suggest that when a patient presents more symptoms, trainees are more likely to screen than when a patient presents fewer symptoms. Respondents seemed to see the presence of depressive symptoms as a reason to conduct further screening. This finding has implications for implementing a policy of screening each patient for depression at the initial clinical visit, regardless of barriers present. Many of the symptoms of depression can present as somatic in nature, such as fatigue, psychomotor retardation, weight loss/gain, or affected sleep. According to the finding from this sample, if a patient reports only two of the symptoms, they are less likely to be screened. Patients who do not report several symptoms, particularly if they are known to the provider from previous encounters, could be in danger of having their depression overlooked. A policy of always screening and educating trainees to be more aware of all symptoms of depression may be most effective for case identification, especially given research demonstrating under-recognition of depression (Park & Unützer, 2011), stigma (Conner et al., 2010), and the acceptance of screening by older adults (Wood et al., 2002).

Relationships among patient difficulty, patient symptom reports, and likelihood of screening differed by discipline. Medical students were more likely to screen difficult patients regardless of number of symptoms. Psychology students were less likely to screen difficult patients, regardless of number of symptoms. Social work and nursing students responded differently when patients were more difficult. If patients were cooperative, those with fewer symptoms were much more likely to be screened than those with more symptoms. When patients were difficult, the *difference* in likelihood of screening based on symptoms was much less. With no previous literature on how these factors affect clinical decisions, we can only speculate on the reasons for these disciplinary differences. Psychology students may expect to encounter difficult patients less often, because patients in the outpatient setting for mental health reasons are typically there by choice. Medical students may expect to encounter difficult patients who may not prefer to be asked about topics outside of their reason for a health visit. Both social work students and nursing students work in multiple settings, so their varying ratings based on the difficulty of the patient may have to do more with their knowledge of depression and whether screening is necessary. The idea that a difficult patient endorsing more symptoms of depression may not need to be screened makes sense if a provider is forming a treatment plan for depression and does not feel screening is needed to confirm the diagnosis. This finding illustrates that differences in the way disciplines choose to screen are complex, suggesting the need for an individualized approach to education on screening by discipline, especially in varied clinical settings. Individualized training may include practice-based didactics and real-time screenings in

applicable settings with feedback from an expert such as a geropsychologist, geriatrician, geriatric social worker, or geriatric nurse. Park and Unützer (2011) also discussed the merits of all disciplines learning interdisciplinary team care to prepare for a future of more collaborative models.

The study involved a convenience sample of graduate students who are studying to conduct clinical work. Psychology and social work students were closer to the mean in age, with medical students being significantly younger than other disciplines and nursing students being significantly older. Age was not associated with a greater likelihood of screening. Psychology students in this sample were significantly more advanced in their training years, while medical, nursing, and social work students were more balanced across the first three years of their training. Being further along in one's program was not associated with a greater likelihood of screening. All disciplines had some gerontology experience, but medical students had less than the other disciplines and the difference was not significant. All disciples were over 75% female except for medical students, who were 55% male. None of the medical student participants reported specializing in psychiatry or geriatrics. It is possible that the majority of medical students had not chosen a specialization at the time of this survey.

Limitations

The survey measure with clinical vignettes created for this study was not previously validated. Although research has shown that using vignettes can be a valid replacement for measuring actual behaviors (see Evans et al., 2015), it is difficult to know whether these participants acted as they would have in the "real-world." Using vignettes also increases the chance for bias in responding. The study attempted to reduce bias in clinical decisions through randomizing vignettes for each participant, masking the dependent variable of interest among other clinical decisions, randomizing the order in which clinical decision choices were presented after each vignette, and using neutral pronouns and descriptors of the hypothetical patient in the vignette. The vignettes were only piloted with clinical psychology students and none of the other disciplines.

Likert and self-report data tend to be negatively skewed when most participants show high likelihood ratings. Such data are difficult to transform without a valid reason due to lack of a true zero. The authors made a judgment not to transform the data due to the robustness of a mixed ANOVA analysis. The negative skew was also expected given the nature of responses in the survey.

The results can be generalized to graduate students engaged in clinical training, and possibly to early-career health professionals in psychology, nursing, medicine, and social work. It is unclear whether the results can be generalized to established health professionals in these disciplines. Although data were collected across the United States, it is unclear to what extent this sample is representative of clinical trainees nationally. The majority of the medical student sample came from the University of Louisville, while most other disciplines were recruited from more than one institution. There was also potential for volunteer bias during sampling. Participants who completed this survey may have been more interested in research, had more flexible schedules or leisure time, been more interested in depression screening or treatment, or more influenced by incentives than individuals who chose not to participate in this study. Future research could study trainee comfort asking about depression or explore how cultural background or race factors into screening decisions.

The sample size for medical students was larger than the other disciplines, which may have made some of the assumption tests overly sensitive, especially Box's test. We interpreted the mixed ANOVA results with this assumption violated. Though participants rated themselves on average as "likely" or "very likely" to screen, it is difficult to measure the external validity of such ratings. Participants may have been attempting to appear good or participants may not have even considered a choice such as "unlikely" for any of the vignettes. The means were high for many of the effects, indicating a possible ceiling effect.

Conclusion

The focus of this study was on the relationship between clinical barriers and clinical trainees' decision to screen an older person for depression. Time pressure and symptoms endorsed significantly predicted likelihood of screening, suggesting that addressing these barriers warrant further attention in clinical practice. In the absence of a national recommendation on when to screen for depression, clinicians' decisions may be more subject to their judgment and more affected by the barriers in this study. Clinical trainees should be educated and trained to screen on first contact with a patient especially when there is little time, a difficult patient, or only one symptom endorsed. Trainees should also be aware that depressed older adults may present with more agitation or somatic symptoms as a result of comorbid illness (Haigh, Bogucki, Sigmon, & Blazer, 2018), and that they may be more difficult due to negative affect expressed as irritability, thus patient difficulty may in fact be a representation of depression. Manipulating barriers may not be possible in a real clinical setting, and therefore implementing a strict screening policy with increased education and training may best improve care. Awareness of how clinical practice barriers affect one's decision to screen will be helpful in making education and training more effective.

Funding

None reported.

Conflict of Interest

None reported.

References

Akincigil, A., & Matthews, E. B. (2017). National rates and patterns of depression screening in primary care: Results from 2012 and 2013. *Psychiatric services*, 68, 660–666. doi:10.1176/appi.ps.201600096

Allan, C. E., Valkanova, V., & Ebmeier, K. P. (2014). Depression in older people is underdiagnosed. *The Practitioner*, **258**, 19–22.

Callahan, C. M., Nienaber, N. A., Hendrie, H. C., & Tierney, W. M. (1992). Depression of elderly outpatients: Primary care physicians' attitudes and practice patterns. *Journal of General Internal Medicine*, **7**, 26–31. doi:10.1007/bf02599097

Conner, K. O., Copeland, V. C., Grote, N. K., Koeske, G., Rosen, D., Reynolds, C. F. 3rd, & Brown, C. (2010). Mental health treatment seeking among older adults with depression: The impact of stigma and race. *The American Journal of Geriatric Psychiatry*, **18**, 531–543. doi:10.1097/JGP.0b013e3181cc0366

Evans, S. C., Roberts, M. C., Keeley, J. W., Blossom, J. B., Amaro, C. M., Garcia, A. M.,…Reed, G. M. (2015). Vignette methodologies for studying clinicians' decision-making: Validity, utility, and application in ICD-11 field studies. *International Journal of Clinical and Health Psychology*, **15**, 160–170. doi:10.1016/j.ijchp.2014.12.001

Gallo, J. J., Rabins, P. V., & Iliffe, S. (1997). The 'research magnificent' in late life: Psychiatric epidemiology and the primary health care of older adults. *International Journal of Psychiatry in Medicine*, **27**, 185–204. doi:10.2190/JF9W-9Q87-KV0F-YCY4

Glasser, M., & Gravdal, J. A. (1997). Assessment and treatment of geriatric depression in primary care settings. *Archives of Family Medicine*, **6**, 433–438. doi:10.1001/archfami.6.5.433

Glied, S. (1998). Too little time? The recognition and treatment of mental health problems in primary care. *Health Services Research*, **33**, 891–910.

Harman, J. S., Veazie, P. J., & Lyness, J. M. (2006). Primary care physician office visits for depression by older Americans. *Journal of General Internal Medicine*, **21**, 926–930. doi:10.1111/j.1525-1497.2006.00497.x

Haigh, E. A. P., Bogucki, O. E., Sigmon, S. T., & Blazer, D. G. (2018). Depression among older adults: A 20-year update on five common myths and misconceptions. *The American Journal of Geriatric Psychiatry*, **26**, 107–122. doi:10.1016/j.jagp.2017.06.011

Harris, M., Walmer, M., Nwogu, C. A., Peraza-Smith, G. B., & Cacchione, P. Z. (2017). Basic considerations for the treatment of geriatric depression in primary care. *Geriatric Nursing*, **38**, 258–261. doi:10.1016/j.gerinurse.2017.05.011

Kessler, R. C., Birnbaum, H., Bromet, E., Hwang, I., Sampson, N., & Shahly, V. (2010). Age differences in major depression: Results from the national comorbidity survey replication (NCS-R). *Psychological Medicine*, **40**, 225–237. doi:10.1017/S0033291709990213

Klap, R., Unroe, K. T., & Unützer, J. (2003). Caring for mental illness in the united states: A focus on older adults. *The American Journal of Geriatric Psychiatry*, **11**, 517–524. doi:10.1097/00019442-200309000-00006

Lacruz, M. E., Emeny, R. T., Haefner, S., Zimmermann, A. K., Linkohr, B., Holle, R., & Ladwig, K. H. (2012). Relation between depressed mood, somatic comorbidities and health service utilisation in older adults: Results from the KORA-age study. *Age and Ageing*, **41**, 183–190. doi:10.1093/ageing/afr162

Loftis, C. W., & Salinsky, E. (2006). *Medicare and mental health: The fundamentals*. National Health Policy Forum. Retrieved from http://sss.nhpf.org/library/background-papers/BP_McareMentalHlth_11-27-06.pdf

Maust, D. T., Sirey, J. A., & Kales, H. C. (2017). Antidepressant prescribing in primary care to older adults without major depression. *Psychiatric Services (Washington, D.C.)*, **68**, 449–455. doi:10.1176/appi.ps.201600197

Meeks, T. W., Vahia, I. V., Lavretsky, H., Kulkarni, G., & Jeste, D. V. (2011). A tune in "a minor" can "b major": A review of epidemiology, illness course, and public health implications of subthreshold depression in older adults. *Journal of Affective Disorders*, **129**, 126–142. doi:10.1016/j.jad.2010.09.015

Mitchell, A. J., Rao, S., & Vaze, A. (2010). Do primary care physicians have particular difficulty identifying late-life depression? A meta-analysis stratified by age. *Psychotherapy and Psychosomatics*, **79**, 285–294. doi:10.1159/000318295

Mojtabai, R. (2017). Universal depression screening to improve depression outcomes in primary care: Sounds good, but where is the evidence? *Psychiatric Services (Washington, D.C.)*, **68**, 724–726. doi:10.1176/appi.ps.201600320

NIH Consensus Conference. (1992). Diagnosis and treatment of depression in late life. *JAMA*, **268**, 1018–1024. doi:10.1001/jama.1992.03490080092032

Noël, P. H., Williams, J. W. Jr, Unützer, J., Worchel, J., Lee, S., Cornell, J.,…Hunkeler, E. (2004). Depression and comorbid illness in elderly primary care patients: Impact on multiple domains of health status and well-being. *Annals of Family Medicine*, **2**, 555–562. doi:10.1370/afm.143

O'Byrne, P., & Jacob, J. D. (2018). Screening for depression: Review of the Patient Health Questionnaire-9 for nurse practitioners. *Journal of the American Association of Nurse Practitioners*, **30**, 406–411. doi:10.1097/jxx.0000000000000052

Palmer, S. C., & Coyne, J. C. (2003). Screening for depression in medical care: Pitfalls, alternatives, and revised priorities. *Journal of Psychosomatic Research*, **54**, 279–287. doi:10.1016/s0022-3999(02)00640-2

Park, M., & Unützer, J. (2011). Geriatric depression in primary care. *The Psychiatric Clinics of North America*, **34**, 469–87, ix. doi:10.1016/j.psc.2011.02.009

Pfaff, J. J., & Almeida, O. P. (2005). A cross-sectional analysis of factors that influence the detection of depression in older primary care patients. *The Australian and New Zealand Journal of Psychiatry*, **39**, 262–265. doi:10.1080/j.1440-1614.2005.01563.x

Reynolds, K., Pietrzak, R. H., El-Gabalawy, R., Mackenzie, C. S., & Sareen, J. (2015). Prevalence of psychiatric disorders in U.S. Older adults: Findings from a nationally representative survey. *World Psychiatry*, **14**, 74–81. doi:10.1002/wps.20193

Robins, L. N., & Regier, D. A. (1991). *Psychiatric disorders in America: The epidemiologic catchment area study*. New York, NY: Free Press. doi:10.5860/choice.28–5931

Samuels, S., Abrams, R., Shengelia, R., Reid, M. C., Goralewicz, R., Breckman, R.,…Adelman, R. D. (2015). Integration of geriatric mental health screening into a primary care practice: A patient satisfaction survey. *International Journal of Geriatric Psychiatry*, **30**, 539–546. doi:10.1002/gps.4180

Scogin, F., & Shah, A. (2006). Screening older adults for depression in primary care settings. *Health Psychology*, **25**, 675–677. doi:10.1037/0278-6133.25.6.675

Seitz, D., Purandare, N., & Conn, D. (2010). Prevalence of psychiatric disorders among older adults in long-term care homes: A systematic review. *International Psychogeriatrics*, **22**, 1025–1039. doi:10.1017/S1041610210000608

Shah, A., Scogin, F., Pierpaoli, C. M., & Shah, A. (2018). Older adults' attitudes toward depression screening in primary care settings and exploring a brief educational pamphlet. *International Journal of Geriatric Psychiatry*, **33**, e40–e48. doi:10.1002/gps.4713

Shah, R., McNiece, R., & Majeed, A. (2001). General practice consultation rates for psychiatric disorders in patients aged 65 and over: Prospective cohort study. *International Journal of Geriatric Psychiatry*, **16**, 57–63. doi:10.1002/1099-1166(200101)16:1%3C57::aid-gps273%3E3.0.co;2-#

Siu, A. L., Bibbins-Domingo, K., Grossman, D. C., Baumann, L. C., Davidson, K. W., Ebell, M., ... & Krist, A. H. (2016). Screening for depression in adults: US Preventive Services Task Force recommendation statement. *JAMA*, **315**, 380–387. doi:10.1001/jama.2015.18392

Smithson, S., & Pignone, M. P. (2017). Screening adults for depression in primary care. *The Medical Clinics of North America*, **101**, 807–821. doi:10.1016/j.mcna.2017.03.010

Solberg, L. I., Korsen, N., Oxman, T. E., Fischer, L. R., & Bartels, S. (1999). The need for a system in the care of depression. *The Journal of Family Practice*, **48**, 973–979.

Tai-Seale, M., Bramson, R., Drukker, D., Hurwicz, M. L., Ory, M., Tai-Seale, T.,…Cook, M. A. (2005). Understanding primary care physicians' propensity to assess elderly patients for depression using interaction and survey data. *Medical Care*, **43**, 1217–1224. doi:10.1097/01.mlr.0000185734.00564.c1

Unützer, J., Patrick, D. L., Simon, G., Grembowski, D., Walker, E., Rutter, C., & Katon, W. (1997). Depressive symptoms and the cost of health services in HMO patients aged 65 years and older. A 4-year prospective study. *JAMA*, **277**, 1618–1623. doi:10.1001/jama.277.20.1618

Wood, F., Pill, R., Prior, L., & Lewis, G. (2002). Patients' opinions of the use of psychiatric case-finding questionnaires in general practice. *Health Expectations*, **5**, 282–288. doi:10.1046/j.1369-6513.2002.00186.x