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Regular Research Article

Research-Practice Partnership to Develop and Implement Routine Mental Health Symptom Tracking Tool Among Older Adults During COVID-19

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ABSTRACT

Objective: Older adults are disproportionately impacted by the COVID-19 pandemic, causing a mental health crisis in late life, due to physical restrictions (e.g., quarantine), limited access to services, and lower literacy and access to technology. Despite established benefits, systematic screening of mental health needs of older adults in community and routine care settings is limited and presents multiple challenges. Cross-disciplinary collaborations are essential for identification and evaluation of mental health needs and service delivery. **Methods:** Using a research-practice partnership model, we developed and implemented a routine mental health needs identification and tracking tool at a community-based social services organization. Repeated screenings were conducted remotely over 5 months and included depression, anxiety, perceived loneliness, social support, and related domains such as sleep quality, resilience, and trauma symptoms linked to COVID-19. We examined symptomatic distress levels and associations between different domains of functioning. **Results:** Our project describes the process of establishing a research-practice partnership during the COVID-19 pandemic. We collected 292 screenings from 124 individuals; clients were mildly to moderately depressed and anxious, reporting large amounts of time alone and moderate levels of loneliness. Those reporting

Editorial accompaniment, please see page 338.

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*higher depressive symptoms reported higher anxiety symptoms, poorer sleep quality, lower quality of life, lower capacity to adapt to challenging situations, and greater trauma symptoms due to COVID-19. **Conclusion:** Our routine screening tool can serve as a blueprint for case management agencies and senior centers nationwide, beyond the pressing mental health crisis due to COVID-19, to continue identifying needs as they emerge in the community. (Am J Geriatr Psychiatry 2023; 31:326–337)*

Highlights

- **What is the primary question addressed by this study?**

How can a research-practice partnership be implemented to address unmet mental health needs among older adults?

- **What is the main finding of this study?**

A research-practice partnership during the COVID-19 pandemic resulted in the implementation of routine mental health symptom tracking – identification of mental health needs and subsequent referral to services – among older adults.

- **What is the meaning of the finding?**

Partnered development and implementation of mental health assessment can improve integrated services for older adults, beyond the pressing needs due to COVID-19.

OBJECTIVE

Older adults experience high rates of mental health needs, with approximately 20% of individuals reporting significant psychological distress.¹ There is a shortage of mental health providers trained to work with older adults,² and many older adults, with the greatest need (e.g., suicidal ideation and attempts) remain inadequately treated.^{3,4} Moreover, approximately 80% of older adults have at least one chronic health condition, and 60%–65% have two or more conditions,^{5,6} with higher rates of anxiety and depression among those with cognitive disorders.⁷ Case managers and community center staff, who have frequent and consistent interaction with older adults, often lack training to systematically identify mental health needs and make a referral that results in mental health service engagement.⁸ Mental health screening can help identify mental health needs and facilitate appropriate referrals.⁹ When mental health screening is integrated into routine care in late life, it reduces the risk of mortality, acute hospitalization, and other adverse health outcomes.^{10,11} Development of brief and simple needs identification tools that can be administered remotely

and tailored to the needs of older adults and agency staff can improve detection and treatment.

Academic-community partnerships can improve implementation of needs identification by developing feasible systems that fit unique community settings, offering provider education, identifying and overcoming discontinuities in care, and improving workflow.^{12,13} For example, as a result of a partnership, we trained elder abuse service providers to routinely screen for depression and suicide risk and refer to mental health care.¹⁴ Such partnerships can also advance clinical research that is informed by community members, address clinical gaps,^{15,16} and advance health in late life.^{17–19} Barriers to successful partnerships include lack of trust in researchers among community members, limited resources, and procedural challenges (e.g., recruitment, compensation).²⁰

The importance of academic-community partnerships has increased in the face of the severe acute respiratory syndrome coronavirus 2 disease (SARS-CoV-2; COVID-19) pandemic, an evolving crisis that requires rapid response to increasingly high mental health needs. Older adults are disproportionately affected by COVID-19, due to pre-existing vulnerabilities and increased risk of contracting and becoming severely ill with COVID-19.^{21,22} The pandemic has

contributed to increased prevalence of psychiatric distress, decreased quality of life, and increased anxiety symptoms in this population.^{23–25} Moreover, access to mental health supports was reduced due to prolonged closures of senior centers. Low literacy and limited access to technology (which became a primary method of connection) also contributed to social isolation,^{26–28} which is associated with psychological and medical problems among older adults.^{29,30}

The aim of this project was to develop a research-practice partnership to collaboratively design and implement a *remote* mental health needs identification, tracking, and referral tool into the care offered by a social services organization. This tool was designed to standardize mental health identification as part of routine care provided by case managers to increase detection of mental health needs.

To ensure the utility and relevance of the mental health needs identification tool, it was developed through an iterative process with our community partners and revised based on their feedback. Community partners identified specific areas of concerns for their older adults: depression, anxiety, perceived loneliness, social support, sleep quality, resilience, and trauma symptoms linked to the spread of COVID-19. Previous literature supports these areas as prevalent and linked with long-term negative psychological and medical outcomes.^{31–34} We hypothesized that the tool would be integrated into the community organization. Further, based on emerging data, we predicted that older adults would report moderate to high levels of anxiety (GAD-7), depression (PHQ-9), and distress during the pandemic. We expected that clients with higher symptomatic distress would report higher loneliness and lower resilience. Since our data was collected cross-sectionally, we did not make hypotheses regarding causality.

METHODS

The collaborative project was implemented in a three-phase process from March to November 2020. The first phase involved building a working relationship with the organization's leadership, characterizing the setting, establishing the tool, and providing training. The second phase included a larger "roll-out," having staff utilize the tool with the broader client base. The last phase focused on the transfer of the tool

to the organization. Data was collected during five months from June 6th to November 6th of 2020.

Phase 1: Characterizing Setting, Establishing the Tool, and Providing Training

The Setting

A community advocate, aware of both organizations' goals, introduced Weill Cornell staff to Hudson Guild (HG), a 125-year-old multi-service community agency that serves older adults and has an internally housed mental health clinic. The advocate proposed that Weill Cornell help HG address the increasing challenges in identification and treatment of mental health needs during the pandemic by developing a standardized method to identify mental health needs that could be integrated into HG's case management system. Prior to this project, there was no collaboration between the Weill Cornell team and HG staff. Over three months, the Weill Cornell and HG team met for bi-weekly meetings to review current operations and areas of need/gaps in mental health screening and to identify mutual goals.

HG's Adult Services program includes educational programs aimed at facilitating physical and mental health among older adults aged 55 and older. In the fiscal year preceding the study, Hudson Guild served about 1,500 people, offering a wide range of services that are designed to help recipients live independently and within their shared community. Based on discussions with the organization's leadership, we targeted the implementation of the screening tool within the HG case management system. Case managers (CM) have frequent and consistent interaction with older adults who, compared to the rest of the population served, require higher levels of support. Often, these services include home meal delivery, transportation, and assistance with benefit enrollment or housing recertification; it was established that this population would benefit most from a systematic mental health needs identification and potential provision of referrals. Prior to this tool, there was no standardized screening tool nor schedule to evaluate mental health needs; CMs used open-ended questioning used to classify a perceived "risk level", Low (nominal needs and stressors, sufficient supports); Moderate (some needs and stressors, insufficient supports); or High (unmanaged needs, insufficient supports).

TABLE 1. Descriptions of Outcome Variable Measures

Measure	Number of Items	Frequency of Screening	Scoring Range	α
Patient Health Questionnaire – 9 (PHQ-9)	9	Biweekly	“0” (not at all) – “3” (nearly every day)	0.85
Generalized Anxiety Disorder – 7 (GAD-7)	7	Biweekly	“0” (not at all) – “3” (nearly every day)	0.90
Duke Social Support Index – Social Interaction and Social Network Subscales (DSSI)	5	Biweekly	“0” (none) – “7” (seven times or more) for social interaction	0.35
Sleep Quality Scale (SQS)	1	Biweekly	“0” (very poor) – “4” (excellent)	N/A
Three-Item Loneliness Scale	3	Monthly	“1” (hardly ever) – “3” (often)	0.90
Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)	5	Monthly	Yes/No	0.66
Connor-Davidson Resilience Scale – 2 (CD-RISC-2)	2	Monthly	“0” (not true at all) – “4” (true nearly all of the time)	0.87

Note. α = Cronbach’s alpha. N/A = not applicable.

For this project, participants included 17 CMs, identified mostly as female ($n = 15$), six Caucasian, two as African American, two Asian, one multi-racial, and six as “other”; eight Latinx. Eleven CMs had a Bachelor’s degree and six had a Master’s degree (primarily in Social Work). Mean experience with older adults was 9.6 years [$SD = 6.2$]. Eight CMs were bilingual (Spanish; Cantonese; French; Italian; Russian).

Establishing the Symptom Tracking Tool

We selected items for the tool based on identified areas of need, ease of administration, and evidence on prevalence of depression, anxiety, stress, and loneliness,^{1,35–37} sleep quality^{38,39} and resilience,⁴⁰ especially during COVID-19.⁴¹ We selected well-validated and brief items, tested in similar community settings⁴² (Table 1).

Depression was assessed using the Patient Health Questionnaire-9 (PHQ-9)^{43–45} (Cronbach’s $\alpha = 0.85$ in this sample). Anxiety was assessed using the Generalized Anxiety Disorder-7 (GAD-7)^{46,47} (Cronbach’s $\alpha = 0.90$). The Sleep Quality Scale⁴⁸ is a single item screening quality of sleep.

The three-item subscale of The Duke Social Support Index – Social Interaction Subscale⁴⁹ captured the size of social networks and amount of time spent socializing. Internal consistency for the five items was low (Cronbach’s $\alpha = 0.34$). The 3-item version of the Revised UCLA Loneliness Scale^{50,51} assessed feelings of loneliness and social isolation (Cronbach’s $\alpha = 0.90$).

The Primary Care Post-Traumatic Stress Disorder (PTSD) Screen for DSM-5⁵² assessed exposure to traumatic events and identified respondents with probable PTSD, (Cronbach’s $\alpha = 0.66$). The Connor-Davidson Resilience Scale-2 (CD-RISC-2)⁵³ is a 2-item version of the Connor-Davidson Resilience Scale, designed to assess “bounce-back” and adaptability.

The instruments were imported into an online survey administered via Qualtrics Software. Community partners, even those previously unfamiliar with Qualtrics, reported that the software was user-friendly and visually pleasing. It allowed for automated instrument scoring and efficient data exports; moreover, it facilitated the eventual transfer of the tool, as the survey build was easily imported by the new users.

The frequency of screening was determined in collaboration with staff and based on case managers’ workload and anticipated needs. Low risk clients would be screened monthly; and Moderate risk clients would be screened bi-weekly. Case managers were encouraged to use clinical judgment and increase/decrease frequency based on clients’ progress and ongoing needs.

Case Managers’ Training

Three CMs voluntarily participated in the pilot phase. Brief (2 hour) training included education on the importance of routine mental health needs identification, an overview of the tool, and a role play demonstration of screening conduct. We asked CMs to contact 2–3 clients, test the tool, and provide feedback. Based on this

feedback, we modified the tool to increase acceptability, adding a visual calendar, clearer text fields and questions, as well as use of language more common in community settings (e.g., “an attempt to contact client” instead of “repeated measure”). Based on feedback on difficulty tracking clients and maintaining frequency of screening, we added automatic email reminders that included outcome of previous attempts to contact. Finally, we prepared a brief “implementation guide” with tips and step-by-step instructions on the tool’s use.

Phase 2: Complete “Roll-Out”

The second phase included training on the revised tool for all CMs. Three weeks after launching, all staff met to discuss challenges that emerged, potential solutions, and overall feedback from providers. One major change that was implemented as a result, for example, was real-time automatic scoring of PHQ-9 and GAD-7 to reduce burden on CMs and assist in immediately identifying symptomatic clients.

Phase 3: Transfer of the Tool

The Cornell team conducted extensive training with HG supervisors on data collection, management, and reporting, discussed potential implementation barriers, and completed transfer of the tool. The community partners purchased Qualtrics software and were eager to take over.

Data Analysis

We conducted periodic audits of data throughout the project. Our data manager conducted weekly checks of data validity and quality (e.g., missing data, out of range scores, etc.). In cases where potential errors were detected, the study team contacted CMs to clarify and correct errors. HG supervisors also followed up with CMs regarding data issues and provided re-training as needed.

We used descriptive statistics to assess demographic and clinical characteristics of the sample. We tested the association among clinical measures at baseline using Pearson correlation matrix. To examine associations between COVID-related stressors (e.g., staying at home) and other clinical measures, we conducted a series of one-way ANOVA tests. Given the low internal consistency of the Duke social support measure, we did not

include it in our analysis. Finally, to test change over time in PHQ-9 and GAD-7, we used mixed effects regression models with a random intercept for subject and fixed effect for time for the first three time points.

RESULTS

System Implementation

HG supervisors and CMs were engaged during training and responsive to the screening procedures. Although designed to be efficient and minimally burdensome, some case managers noted concerns about the length and repetitive nature of longitudinal screenings. The Cornell team provided psychoeducation regarding the importance of routine tracking and structured recommendations to increase client engagement during screening. At the end of the implementation period, HG adopted the tool as part of their routine procedures and, at this time, continue to use it. Based on patterns of scores and clinical utility, they have since excluded the Duke Social Support Index – Social Interaction Subscale and the UCLA Loneliness Scale, adding the Columbia-Suicide Severity Scale. They have also decreased the frequency of screening to every 12 weeks.

Participants

During the 5-month active collaboration, we collected 292 screenings from 124 individuals (see Tables 2 and 3). The average time between screenings

TABLE 2. Number of Screenings Per Time Point by Risk Level

Time Point	Total	Low	Risk Level Moderate	Severe
1 – Baseline	124 (100)	78 (62)	38 (31)	4 (3)
2	80 (64)	52 (65)	25 (31)	3 (4)
3	30 (24)	17 (57)	17 (57)	0 (0)
4	14 (11)	3 (21)	11 (79)	0 (0)
5	12 (10)	0 (0)	12 (100)	0 (0)
6	10 (8)	0 (0)	10 (100)	0 (0)
7	8 (6)	1 (12)	7 (88)	0 (0)
8	6 (5)	1 (17)	5 (83)	0 (0)
9	5 (4)	1 (20)	4 (80)	0 (0)
10	3 (2)	0 (0)	3 (100)	0 (0)

Note. Table shows number of participants and percentage in parenthesis who completed each number of screenings (total and in each risk level). The recommended frequency of screening was monthly for Low risk, bi-weekly for Moderate risk, and weekly for Severe risk.

TABLE 3. Sociodemographic Characteristics of Client Sample at Baseline

Baseline Characteristic	n	%
Gender		
Man	36	24.3
Woman	85	57.4
Missing	27	18.2
Race		
White	43	34.7
Black or African American	22	17.7
American Indian or Alaska Native	1	0.8
Asian	18	14.5
Native Hawaiian or Pacific Islander	0	0
Other	31	25.0
Bi-racial	2	1.6
Black or African American	1	0.8
Missing	6	4.8
Employment		
Employed full time	1	0.8
Employed part time	3	2.4
Unemployed looking for work	2	1.6
Unemployed not looking for work	3	2.4
Retired	94	75.8
Student	0	0
Disabled	13	10.5
Other	2	1.6
Missing	6	4.8
Education		
Less than high school	49	39.5
High school graduate	35	28.2
Some college	14	11.3
2 year degree	15	12.1
4 year degree	5	4.0
Professional degree	0	0
Doctorate	0	0
Missing	6	4.8
Language		
English	53	42.7
Spanish	47	37.9
Cantonese	14	11.3
Mandarin	3	2.4
Other	1	0.8
Missing	6	4.8
Ethnicity		
Mexican	0	0
Puerto Rican	35	27.4
Cuban	0	0
Other Hispanic	24	19.4
Non-Hispanic	59	47
Missing	6	4.8

Note. Total N = 124. Missing indicates percentage of individuals who refused or opted out of the demographic questionnaire.

was 2.64 weeks. Most clients identified as women (66.6%), and the majority (75.8%) were retired. Mean age was 75.4 years old (SD = 8.43). Six participants opted out of the demographic questions; thus, those data are missing. The sample was diverse with broad representation of older adults across race, ethnicity, and primary language. It was also representative of the population served by Hudson Guild.

TABLE 4. Descriptive Statistics for Scores on Clinical Measures at Baseline

Measure	Mean	SD	Median	Range
PHQ-9	3.63	4.20	3.00	0–18
GAD-7	2.34	4.10	1.00	0–19
Quality of life	7.49	1.73	8.00	2–10
DSSI	7.19	1.54	7.00	4–11
SQS	2.47	0.99	3.00	0–4
Loneliness scale	4.12	1.73	3.00	3–9
PC-PTSD-5	0.77	1.10	0.00	0–4
CD-RISC-2	6.11	1.72	6.00	0–8

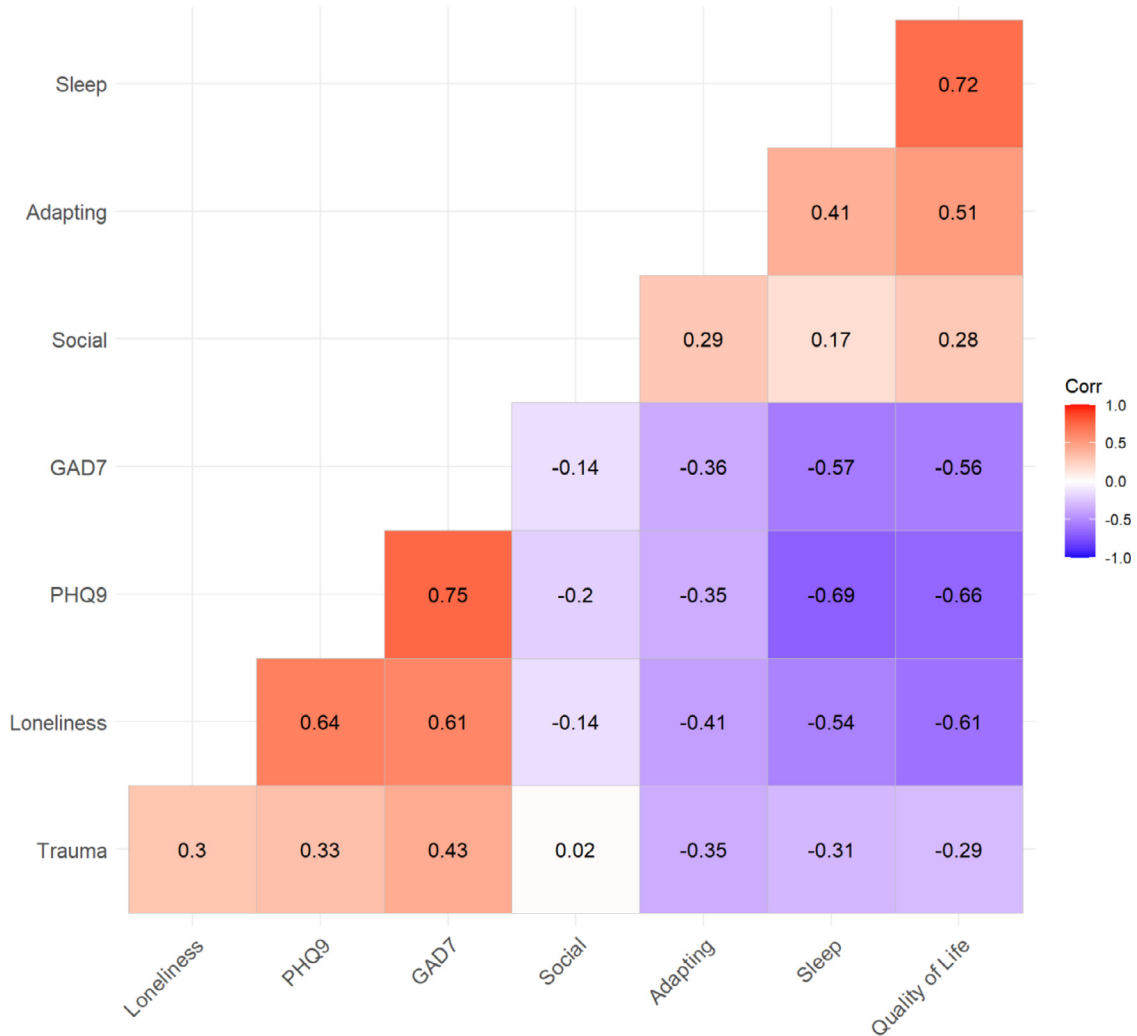
Note. PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7; Quality of Life = Quality of Life Scale; DSSI = Duke Social Support Index; Social Interaction Subscale; SQS = Sleep Quality Scale; Loneliness Scale = Three-Item Loneliness Scale; PC-PTSD-5 = Primary Care PTSD Screen for DSM-5; CD-RISC-2 = Connor-Davidson Resilience Scale-2.

Mental Health Need

Clients in this sample were mildly to moderately depressed, with a low average level of depressive symptoms overall as measured by the PHQ-9 (M = 3.63; SD = 4.20). Twelve clients (2.5%) met criteria for clinically significant depression (PHQ \geq 10) at the baseline screening and 21 clients (6%) across all time points. At baseline, the average GAD-7 score was 2.34 (SD = 4.10), with only eight clients (6.6%) reporting significant anxiety (GAD-7 \geq 10) at baseline, and 13 clients (4.5%) across all screenings. Most clients (186; 65%) reported “good” or “excellent” sleep with only a third who reported “fair” sleep (67; 23%) or poor sleep (35; 12%). See Table 4 for clinical measure descriptive statistics at baseline. Mixed effects models showed significant reduction in anxiety (F [2,122] = 5.15, p = 0.007) and depressive symptoms (F [2,120]=10.11, p <0.001) over three time points (Table 5; Fig. 2).

Clients reported a high degree of social isolation, with 71.2% reporting they spoke to at most one person by telephone over the course of the week and 31.4% reporting they saw no one outside of their home. A small subgroup of clients (12%) reported they did not stay home at all; 26% stayed home for a few days; 48% stayed home most days and 13% stayed home every day. Clients reported moderate levels of loneliness (M = 4.12; SD = 1.72). However, most (75%) reported high levels of resilience, indicating that they were “able to adapt when changes occur” often or nearly all of the time. Similarly, 71% reported

FIGURE 1. Correlation matrix for measures of symptomatic distress at baseline. Note. Darker hues indicate stronger associations, with red colored tiles indicating positive correlations, and purple tiles indicating negative correlations.



they "tend to bounce back after illness, injury, or other hardships" often or nearly all of the time.

COVID-19 Related Stressors

Very few clients (4/176) reported being diagnosed with COVID-19. Fifteen clients (9%) reported family member being hospitalized with COVID-19; 14 clients (8%) had a family member die from COVID-19. We found low trauma symptoms in the context of the COVID-19 pandemic, with a mean of 0.77 (SD =1.10) on the PC-PTSD-5. However, a subgroup of clients

was struggling to manage the impact of COVID. At baseline, 30% of the sample "tried to avoid thoughts about the COVID virus" and 26% reported being "constantly on guard, watchful or easily startled." Only 10% of clients said that they "had nightmares, felt numb, or felt guilty."

We examined the impact of COVID-19 related stress using one-way ANOVA tests, examining whether staying at home (4 levels: none of the days, a few days, most days, or every day) was associated with symptomatic distress. We found that clients who stayed at home more days reported higher levels

TABLE 5. Descriptive Statistics for Scores on Clinical Measures Over Time

Time Point	1	2	3
PHQ-9			
n	121	114	53
Mean	3.48	2.20	0.96
SD	3.98	4.31	2.92
Range	0-18	0-20	0-19
GAD-7			
n	121	114	53
Mean	2.27	1.32	0.68
SD	4.02	2.98	2.17
Range	0-19	0-18	0-12

Note. PHQ-9 = Patient Health Questionnaire-9; GAD-7 = Generalized Anxiety Disorder-7.

of depressive symptoms ($F[3,170] = 4.22; p < 0.01$), anxious symptoms ($F[3,170] = 3.47; p = 0.02$), and COVID-19 trauma symptoms ($F[3,170] = 3.96; p < 0.01$). They also reported lower poorer sleep quality ($F[3,170] = 7.85; p < 0.001$).

Associations Between Clinical Assessments

See Figure 1 for correlation matrix for a sample of 118 clients with complete data across all measures at

baseline. As predicted, clients with higher depression symptoms on the PHQ-9 also reported higher anxiety symptoms ($r = 0.75; p < 0.001$), more loneliness ($r = 0.64; p < 0.001$), greater trauma symptoms in the context of COVID-19 ($r = 0.33; p < 0.001$), and lower quality of life ($r = -0.66; p < 0.001$). Results were equivalent for the relationships between GAD-7 and these measures.

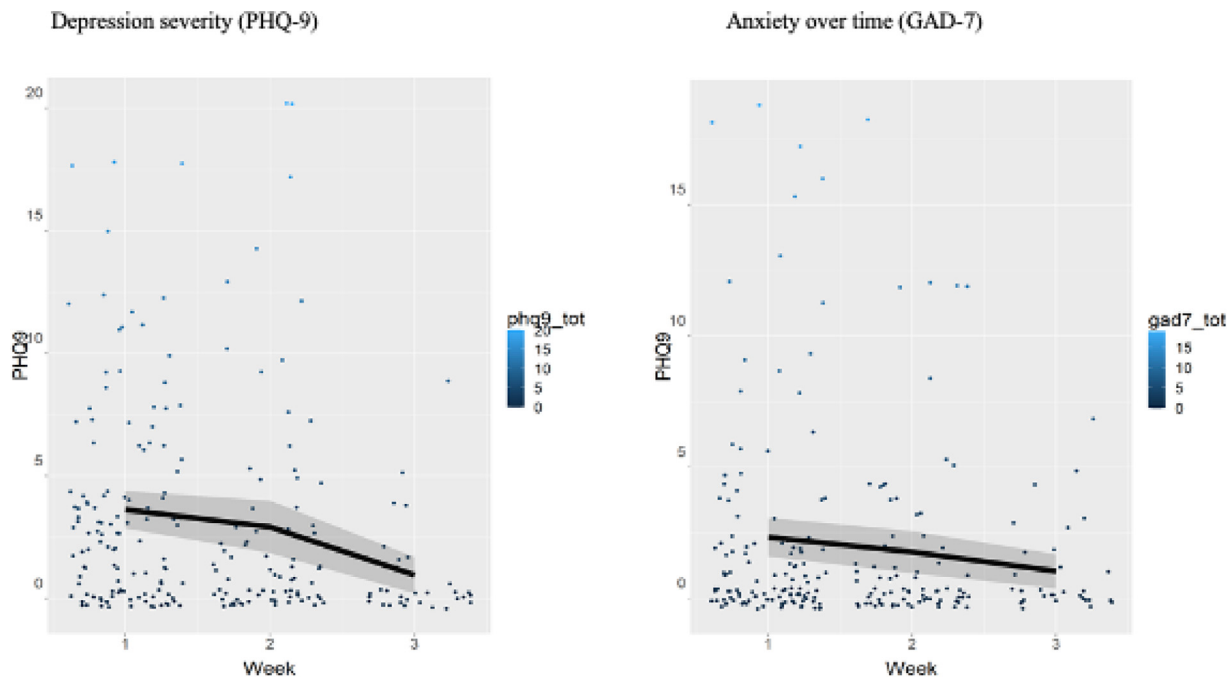
Clients with lower resilience scores also reported higher anxiety ($r = -0.36, p < .001$) and depression ($r = -0.25, p < .001$) symptoms, higher COVID-19 trauma symptoms ($r = -0.35, p < 0.001$), and more loneliness ($-0.41, p < 0.001$).

Lastly, we found that clients with poor sleep quality were more likely to report higher anxiety ($r = -0.57, p < 0.001$) and depression ($r = -0.69, p < 0.001$) symptoms, higher COVID-19 trauma symptoms ($-0.31, p < 0.001$), more loneliness ($r = -.55; p < 0.001$), and lower quality of life ($r = 0.72; p < 0.001$).

Referrals

Sixty-five referrals were offered to 39 clients over the course of data collection (31% of clients

FIGURE 2. Reduction in anxiety and depression over time.



evaluated), with some clients receiving offers at multiple time points. Out of the referrals offered, 9 (14%) were accepted and 56 (86%) declined. Compared to clients who rejected referrals, clients who accepted a referral showed higher, but not significantly different, severity of depression (PHQ-9: Mean accepted = 8.00; SD = 2.00, Mean declined=5.36; SD=5.15; $t(21)=-1.83$, $p = 0.08$) or anxiety (GAD-7: Mean accepted = 9.00; SD = 4.72, Mean declined = 3.10; SD = 6.26; $t(7) = -2.12$, $p = 0.07$). Those who accepted an offer for a referral were referred to mental health services within the same agency. Out of the 56, 11 (20%) declined offers were due to the client already being engaged with mental health services, and 45 (80%) due to clients refusing services.

CONCLUSIONS

We described the process of building a research-practice partnership to develop and implement a remote routine mental health screening for community-dwelling older adults tailored to clients' and CMs' needs and preferences. The collaborative nature of the partnership allowed us to identify barriers to implementation and brainstorm solutions (e.g., enforcing automated email reminders). We encourage the leveraging of available resources (including that of utilized software) and the use of practical solution-focused strategies to facilitate the integration of any similar tool into existing workflow. High compliance among the staff, as well as the partnering agency's adoption and continued utilization of the tool support the potential for implementation in other community settings even under highly restrictive conditions. Routine screening in this project was conducted remotely, which increased scalability and the tool's reach. It could potentially be expanded to other vulnerable populations who may not have access to mental health services, such as homebound older adults or those residing in remote areas.^{54,55}

Clients in this sample presented with mild to moderate depression and low anxiety, higher levels of social isolation and loneliness, and higher levels of resilience. Emerging data suggests a wide range of clinical distress levels among older adults during COVID-19.^{56–58} The rates in this sample are comparable to some recent reports.^{59,60} However, the results may have been impacted by selection bias as case

managers screened existing clients who were engaged and cooperative. Nonetheless, we identified a vulnerable subsample who reported more difficulty adapting and demonstrated higher levels of trauma and depressive symptoms; screening allowed providers to identify those clients and provide mental health referrals.

Clients reported few trauma symptoms related to the pandemic. As expected, we found that clients stayed home most days; those who reported more days staying at home also reported higher levels of COVID-19 trauma symptoms. This sample had a low positive rate of COVID-19 during the data collection period, and we recommended that screening continue as rates of illness increase. Moreover, it is possible that since our tool was implemented early in the pandemic, we were unable to capture delayed trauma responses, which could occur months after the initial surge.²³ Those working with older adults ought to be aware of the potential impact of COVID-19 and related factors, such as isolation, and be proactive in mitigating the adverse effects of this pandemic.⁶¹

Despite relatively low severity of symptomatic distress in this sample, we found that those clients who reported symptomatic distress were more likely to experience high rates of loneliness, as well as difficulty adapting to the stressful conditions of the pandemic. These results align with recent research demonstrating that the pandemic has detrimental effects on older adults who were already vulnerable and experiencing mental health difficulties at the outset of the pandemic.^{21,62,63} Interventions can focus on targeting modifiable factors such as reducing loneliness and increasing resilience in this population.^{64,65}

Our findings showed a higher rate of client rejection of mental health services; further work may be needed to help clients accept a mental health referral – this may include additional case manager training, a more streamlined referral process, and/or extension of services offered (e.g., early intervention). The lack of data regarding reasons for rejection of services is a limitation, and future efforts can continue to identify and address any potential barriers to accepting mental health services. However, the impact of factors like stigma, race, and fear of discrimination, on the willingness of older adults to access mental health services is well-documented,⁶⁶ and likely to have impacted the clients in this sample, as well. Emerging data related to COVID-19 has also suggested

increased fear of and stigmatizing attitudes toward older adults.⁶⁷

Routine screening of mental health is essential in preventing the escalation of psychological conditions, optimizing outcomes of treatments, and facilitating appropriate referrals in the community.^{68–70} Our data demonstrated substantial client attrition rates after the initial three visits, perhaps suggesting clients' apprehension toward repeated measures. Implementing mental health screening in community and/or low-resource settings has been shown to be challenging, facing not only higher attrition rates, but also stigma, and low levels of cognitive proficiency.⁷¹ Future RPPs may consider addressing stigma more directly, adjusting clinical measures to create more simplified screening, and/or incorporating more narrative- or qualitative-based data.

Limitations of this project include single agency implementation. Not all clients under the case managers' care were screened, which may have biased our findings. The scope of the project prevented us from examining clients' follow-up on mental health referrals; future work should collect data on clients' connection to and utilization of services. Further, as highlighted in other implementation models, the clients' perspective is key in development novel service systems.⁷² Our study did not include data collection of clients' impressions of the tool and should be incorporated in future studies. Finally, frequency of screenings in this sample was lower than expected based on our recommendations to CMs. However, CMs were encouraged to determine frequency based on their clinical judgment of the client's response and need. Thus, we were unable to accurately assess attrition rates that may have been attributed to provider's adherence or client compliance.

In sum, partnered development and implementation of a tool to evaluate, monitor, and refer older adults with mental health needs can improve

integrated health services for older adults. The iterative process allowed us to create a tool organic to the agency and to facilitate sustainability. This tool can serve as a blueprint for case management agencies and senior centers nationwide, beyond the pressing mental health crisis due to COVID-19. Future work can examine the usefulness of this tool adapted to other agencies and ongoing steps to integrate aging support and mental health services.

AUTHOR CONTRIBUTIONS

NS and JAS designed the study with input from AS, MPC, LS, JG, KJ, and RW. AAU, NS, and JAS collected the data. NS, LSS, JAS, and AAU analyzed the data. AAU, NS, LSS, and JAS wrote the first draft of the manuscript. All authors provided revisions and comments on the final version.

DATA STATEMENT

The data has not been previously presented orally or by poster at scientific meetings.

DISCLOSURES

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