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Identification of Veterans Experiencing Symptoms of Mental Illness for the First Time
after COVID-19 Diagnosis

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Abstract

There has been a general increase in psychiatric symptoms since the COVID-19 pandemic began. Literature that has been published since the start of the pandemic has indicated there is an increased risk of depression, insomnia, altered mental status, new-onset psychosis, neurocognitive syndrome, and anxiety. The military veteran population is at higher risk for psychiatric illness than the general population, and should be screened accordingly. This quality improvement project was developed in collaboration with the mental health clinic at urban medical center in the Midwest to identify new symptoms of mental illness after COVID-19 diagnosis utilizing the PDSA model and descriptive statistics. Veterans were screened via telephone for depression, anxiety, psychosis, PTSD, and dementia utilizing the PHQ-9, GAD- 7, PCCL, PCL-5 and TMMS. A 6% positivity rate for symptoms of new onset mental illness was found in a sample size of 50.

Identification of Veterans Experiencing Symptoms of Mental Illness for the First Time After COVID-19 Diagnosis

There has been a general increase in psychiatric symptoms since the COVID-19 pandemic began, and a high number of veterans at an urban Midwest medical center have been diagnosed with COVID-19. This increase in psychiatric exacerbation falls on several different spectrums of mental illness. Guo et al. (2020) found that direct exposure to COVID-19 increased the risk for depression and insomnia. In a UK-wide surveillance study that focused specifically on neurological and psychiatric complications of COVID-19, altered mental status, new-onset psychosis, neurocognitive syndrome, and affective disorders were identified (Varatharaj et al, 2020). Significant anxiety associated with the pandemic and a positive diagnosis has led to the creation of a coronavirus-specific anxiety scale (Lee, 2020), while case studies of new-onset psychosis while being treated for coronavirus have been published (Boulos et al., 2020). Stigma associated with a positive diagnosis is also affecting mental health; Gunnell et al. (2020) stress the importance of suicide prevention during the pandemic. Brooks et al. (2020) completed a literature review that highlighted the long-lasting psychological impact of quarantine.

These symptoms indicate a need to identify high-risk groups and intervene when possible. Studies completed in China after the initial outbreak suggest that identification of high-risk groups for early psychological intervention can have a positive effect (Wang et al., 2020) and past epidemics have demonstrated that mental health sequelae can have a longer lasting impact (Ornell et al., 2020). Increased screening has been shown to improve access to care for patients with mental illness (Lamontagne-Godwin et al., 2018 & Webb et al., 2016). Additionally, health care advocates have the ability to influence

vulnerable individuals and identify the right type of health care (Thomas et al, 2019).

The military veteran population is at higher risk for psychiatric illness (25%) than the general population (20.6%) (Kessler et al., 2014 & National Institute of Mental Health, 2021), and at the time of this study, there were over 1500 veterans at the medical center who have tested positive for COVID-19. The purpose of this project is to identify veterans experiencing symptoms of psychiatric illness for the first time after COVID-19 diagnosis and refer them to mental health services. The Plan-Do-Study-Act model will be utilized to guide this project. Outcomes to assess include the number of COVID-19 positive veterans with no past psychiatric history who have significant symptoms of mental illness, the number of COVID-19 positive veterans who require a mental health referral after screening for psychiatric symptoms, and the number of veterans who received mental health care after referral at 3 months, including medication management and psychotherapy at the medical center or in the community setting. The goal is to improve care for an already high-risk patient population.

Review of Literature

A literature review (Appendix A) was conducted in July 2020 utilizing the Summon, PsychINFO and CINAHL databases from the last 5 years. Initial terms included “COVID-19” and “mental health.” This identified more than 107,000 articles. The search was further refined to “symptoms,” “coronavirus,” “SARS-COV-2” and “COVID-19 diagnosis.” This search yielded seventeen articles that met inclusion criteria. Articles were considered for inclusion if they addressed symptoms of mental illness in the adult population and their symptom response to COVID-19. Articles were excluded if they only assessed the adolescent population or if they did not identify symptoms present

with a positive COVID-19 diagnosis. Limitations of this initial search include most research has been conducted in Asia and Europe.

The increase in neuropsychiatric symptoms after a positive COVID-19 diagnosis has been described in the literature. Reports suggest that the novel coronavirus is similar to the SARS-CoV-1 virus in its ability to invade neurons causing delirium, psychosis, and persistent cognitive problems (Riordan, 2020). This similarity may also affect long-term vulnerability to neuropsychiatric effects (Riordan, 2020), including biological aspects, which may increase vulnerability to PTSD (Horesha & Brown, 2020). Most recently, it has been found that a COVID-19 diagnosis was associated with increase in psychiatric illness in the following 14- 90 days (Taquet et al., 2020).

In Chinese adults with direct exposure to COVID-19, there was an increase in depression and insomnia (Guo et al., 2020). In the United Kingdom, one in five people with a positive COVID-19 diagnosis developed neuropsychiatric complications (Varatharaj et al., 2020). These included new-onset psychosis, neurocognitive syndrome, and mood affective disorders, in both younger and older populations (Varatharaj et al., 2020). Two case studies from the United States and United Kingdom also describes new-onset psychosis and delusions after COVID-19 diagnosis (Boulos et al., 2020 & Smith et al., 2020). Another case study in China identified manic-like symptoms for the first time after COVID-19 diagnosis (Lu et al., 2020). High levels of anxiety have also been found in patients with COVID-19, to the extent that a Coronavirus Anxiety Scale has been developed to assess for this (Lee, 2020). Gruber et al. (2020) found an increase in anxiety, depression, acute stress disorder, PTSD, and substance use disorders. These

symptoms may also increase the risk of suicide, and measures should be taken to address this (Gunnell et al., 2020).

Several studies suggest that identification of high-risk groups is necessary. In an initial study published in February 2020, Wang et al., stress the importance of identifying high-risk groups with the goal of earlier psychological intervention. Ornell et al. (2020) echo this, stating that multidisciplinary mental health teams should be included to develop these strategies to establish safe psychological counseling services. In a longitudinal study conducted in Spain by Gonzalez-Sanguino et al. (2020), the need to identify vulnerable groups over the course of the pandemic was identified. Lamontagne-Goodwin, et al., (2018) and Webb et al., (2016) found that an increase in screening increased access to mental health services in people with mental illness and improved outcomes. In addition, it has been found that ‘health service brokers’ or advocates are able to identify vulnerable patients and link them to appropriate health care services (Thomas et al., 2019). It has also been documented that Black Americans experience higher COVID-19 rates, and PTSD rates are already higher among Black Americans (Novacek et al., 2020). Novacek et al. (2020) recommend early identification and treatment for PTSD for this patient population.

The psychological impact of quarantine has also been discussed in the literature. The term “pandemic fear” has been used in the past during epidemics when talking about the mental health side effects. Ornell et al. (2020) and Gruber et al. (2020) refer to the defense mechanisms fear and anger during life-threatening events, the ensuing allostatic load, and how this can contribute to the development of various psychiatric disorders in chronic states. In the first few weeks following the outbreak in China, more than half of

the participants in one study reported the psychological impact of the pandemic and ensuing quarantine as moderate-to-severe (Wang et al., 2020). Brooks et al. (2020) conducted a literature review and further identified the following stressors related to quarantine: long duration, fear of infecting others, frustration, boredom, inadequate information, financial concerns, and stigma.

The Plan-Do-Study-Act (PDSA) model was selected to guide this project for its focus on quality improvement (Scoville & Little, 2014). By breaking down the steps into plan, do, study, and act, this model breaks down the thinking process into steps so that the outcome can be evaluated, improved, and tested again (Scoville & Little, 2014). The planning stage involved meeting with the members of the mental health clinic to determine the scope of the project.

The increase in neuropsychiatric symptoms after COVID-19 is being established in the literature. The long-term impact of these symptoms has yet to be seen. These symptoms range from mood, anxiety, psychosis, and PTSD, all which could also lead to suicidal behaviors. The impact of quarantine after diagnosis is also significant, and may contribute to these symptoms. Veterans already have an increased incidence of mental illness, and are a vulnerable population. Screening veterans without a history of mental illness may improve access to care and improve health outcomes long-term.

Method

Design

This project was initially identified by the clinic lead in the mental health clinic at the medical center after reading early reports of people developing symptoms of mental illness after COVID-19 diagnosis. Preliminary conversations with stakeholders within the mental health clinic established the need for further evaluation of this patient population.

There is no current process to further assesses veterans for symptoms of mental illness after COVID-19 diagnosis. A study design was created with the assistance of the medical center liaison for this project.

This quality improvement project was conducted utilizing a cohort design following the PDSA model. A retrospective chart query was conducted to identify patients with a positive COVID-19 diagnosis without a documented history of mental illness. Data was queried from March 2020 to March 2021. The initial interview was conducted by phone and included the veteran self-reporting responses to questions within the screening tools. The 30 day follow up was conducted via chart review.

Setting

This project took place in the Midwest, at an urban medical center with two campuses. This medical center provides inpatient and ambulatory care in a two-division facility for veterans living in the Midwest and surrounding areas (U.S. Department of Veterans Affairs, 2015). To be eligible for services at this medical center, a veteran must provide proof of service, usually an Armed Forces Report of Transfer or Discharge (U.S. Department of Veterans Affairs, 2015).

Sample

This purposeful sample was veterans with a positive COVID-19 diagnosis in the project's medical center. Veterans were identified utilizing a retrospective chart review with the electronic medical record. Inclusion criteria was no documented history of mental illness, male or female, ages 18 through 89, and receiving health care services at the medical center. Exclusion criteria was age < 18 or > 89, a documented history of mental illness, including major depressive disorder, generalized anxiety disorder, panic

disorder, adjustment disorder, post-traumatic stress disorder, schizophrenia, unspecified psychosis, bipolar I or II disorder, suicide attempts, schizoaffective disorder, or dementia in the electronic medical record. ICD-9 and ICD-10 codes were used to identify exclusion criteria (Appendix B). A second review of the veteran's face sheet in the electronic medical record was completed to identify additional diagnoses. If no previous mental illness was documented, the veteran was then be screened for mental illness.

Data Collection/Analysis

Data that was collected and analyzed included the following (Appendix C): the number of COVID-19 positive veterans with no past psychiatric history who have significant symptoms of mental illness as indicated by the Patient Health Questionnaire (PHQ)-9, Generalized Anxiety Disorder Scale (GAD)-7, PTSD Check List (PCL)-5, The Early Detection Primary Care Check List (PCCL) and Mini Mental Status Exam (MMS); the number of COVID-19 positive veterans who require a mental health referral after screening for psychiatric symptoms; the number of veterans who received mental health care after referral at 30 days, including medication management and psychotherapy at the medical center; and the number of veterans who received mental health care after referral at 30 days, including medication management and psychotherapy in the community setting.

The PHQ-9 is screening tool for depression intended for use in primary care. The PHQ-9 has nine questions that the patient answers using a Likert scale, with one additional question to be answered if one of the first nine questions was positive (Kroenke et al., 2001). A score of 10- 14 indicates mild depression. A score of 15- 19 indicates moderately severe major depression, and a score greater than 20 indicates

severe major depression (Kroenke et al., 2001). A cut-off score of 10 will be utilized for this project as this indicates mild depressive symptoms. In three recent studies, the PHQ-9 performed well to identify symptoms of depression ($\alpha = .87$) (Beard et al., 2015, Levis et al., 2019 & Manea et al., 2015).

The GAD-7 is screening tool for anxiety utilized in primary care. The GAD-7 is a 7-item self-report measure. Scores between 5-9 indicate mild anxiety, 10- 14 moderate anxiety, and scores greater than 15 severe anxiety (Spitzer et al., 2006). A cut-off score of 10 will be used for this project. This tool was recently evaluated and found to be a psychometrically sound instrument (sensitivity 0.83 and specificity 0.84) to identify patients with anxiety disorders (Jordan et al., 2017 & Plummer et al., 2015).

The PCCL is a 20-item tool that assesses general functioning, psychological and social contexts, hallucinations, delusions, and disorganized speech and thinking (Addington et al., 2015). This tool has demonstrated an 89% sensitivity and a 60% specificity (Addington et al., 2015). A screen would be considered positive if the score was 20 or greater or endorsement of any of the five key indicators (Addington et al., 2015 & French et al., 2012). For this project, the same criteria will be utilized.

The PCL-5 is a screening tool for PTSD for the civilian and military population. It is a 20-item self-report that assesses a person's response to a distressing event over the past month (Weathers et al., 2013 & Wortman et al., 2016). In 2016, the PCL-5 was found to be psychometrically sound ($\alpha = .91$) with high internal consistency (Wortman et al., 2016). PTSD should be considered when a person endorses a severity of at least two in each cluster (Wortman et al., 2016), and this will be the criteria for this project.

The MMSE was originally designed as a 30-point in-person exam to measure cognitive impairment (Tariq et al., 2006). The maximum score is 30; a score of <24 is considered abnormal (Hunt et al., 2017). Due to the telehealth approach of this project, a literature review was conducted to determine the validity of administering this exam via telehealth. In a study by Ciemens et al. (2009), the traditional in-person MMSE was compared to telehealth delivered MMSE and was found to have a 90% correlation between the two delivery methods. Newkirk et al. (2004) corroborated this finding, demonstrating a .88 correlation. The adapted 23-point exam will be utilized for this project, with a score of <21 considered abnormal and prompting referral.

Potential risks for veterans include loss of confidentiality and distress from the sensitive nature of the questions asked, with protections as outlined below. Benefits of participation include accessing the appropriate resources for mental health care. Participation in this quality improvement project took approximately 15 minutes of the veteran's time.

Participants' data was securely saved in a password-protected folder, derived from chart information in previous admissions. Participants medical information was protected via a coded system and stored on a password protected limited-access medical center server. Identifiers were coded, and the coded list kept in a separate limited-access, password protected file (Appendix D). The linked code between data and identifiers will be kept for 6 years after the end of the fiscal year the study was completed or as long as bound by other federal requirements in compliance with RSC 10-1. Passwords for this file will maintain minimum standard requirements as endorsed by the medical center for strong passwords. Removal of access to study data will be performed for study personnel

when they are no longer part of the research team. Descriptive statistics will be used for analysis.

Approval Process

The approval process began by determining if this was a QI/QA project through the medical center Research Office. The medical center ACOS determined this project was quality improvement. A further review of the project was conducted by the medical center institutional review board, and was determined to be a quality improvement project. This project was also reviewed by the university institutional review board and was acknowledged as a quality improvement project.

Procedures

A query report was utilized to identify veterans with a positive COVID-19 diagnosis. At the time of this study, there were over 1500 veterans with a positive COVID-19 diagnosis. Once identified, a query report determined if the veteran has been previously diagnosed with a mental illness. Veterans were contacted in April 2021 until a sample size of 50 was reached.

The veteran with no previous mental illness was then screened via telephone. Verbal consent (Appendix E) was obtained at the beginning of the conversation to alert the veteran that assessment questions contained sensitive information. The Doximity smartphone application was utilized to protect veteran and investigator privacy. The number was linked to the medical center liaison's office phone number, where secure messages can be left. Three attempts were made to contact the veteran. After the first attempt, a voice mail message was left stating when the next call will be made or to return the phone call (Appendix F). If a return call was not received after one week, a

second attempt was made. The same applied for the third phone call. If after three attempts to reach the veteran, contact was not made, then no additional attempts occurred.

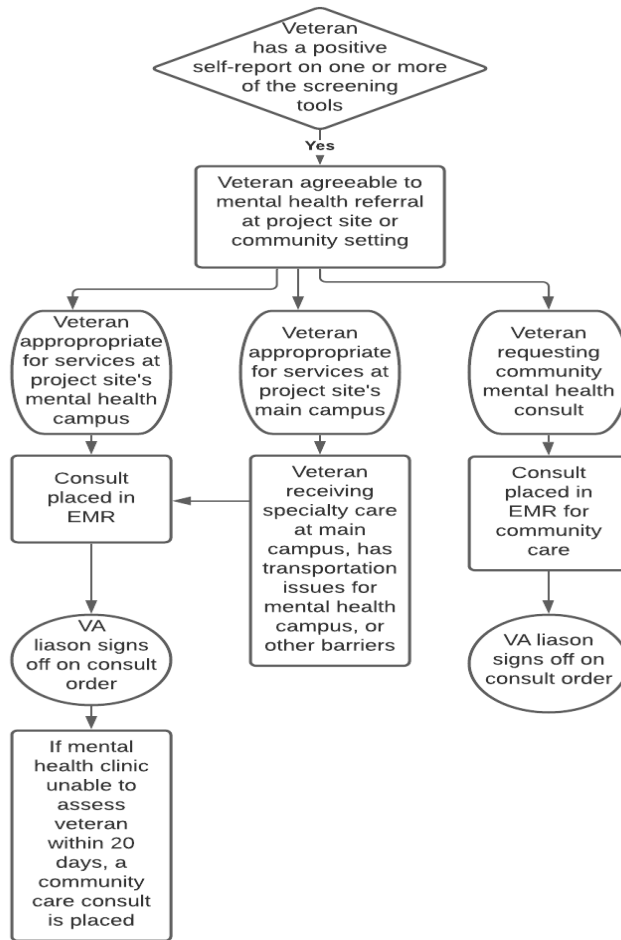
Initially, the veterans were screened for symptoms of depression and anxiety using the PHQ-9 and GAD-7. Further assessment for PTSD using the PCL-5 and psychosis using the PCCL was completed. To complete the screening, a MMSE was performed. Once the screening was completed and a positive value on any of the five tools was found, the veteran determined if he/she is amenable to a mental health clinic referral for further care (Figure 1). If so, the veteran was referred to the mental health clinic for further care and a referral was placed in the electronic medical record. If the veteran declined mental health referral, the number for the medical center crisis line was given to the veteran. If the PHQ-9 or PCL- 5 indicated suicidality during the assessment, a licensed independent practitioner at the mental health clinic was available to assess the veteran within 24 hours per the medical center standard operating procedure. The study team planned to collaborate with local Psychiatric Emergency Services and/ or the participant's primary care provider to develop a treatment plan that adequately addresses the suicidal thoughts or behavior if identified. A note (Appendix G) was placed in the veteran's electronic medical record that screening was completed, along with the results. The note was coded with diagnostic code Z13.9 (encounter for screening, unspecified) and procedure code 96127 (brief behavioral assessment). This note was co-signed by the medical center liaison for this project.

Once the mental health clinic received the referral, an appointment was made for a full mental health intake assessment and initiation of an appropriate treatment plan.

After 30 days, the medical record was reviewed to validate if a mental health clinical appointment had been made, and what treatment plan was initiated.

Figure 1

Process for Mental Health Clinic Referral

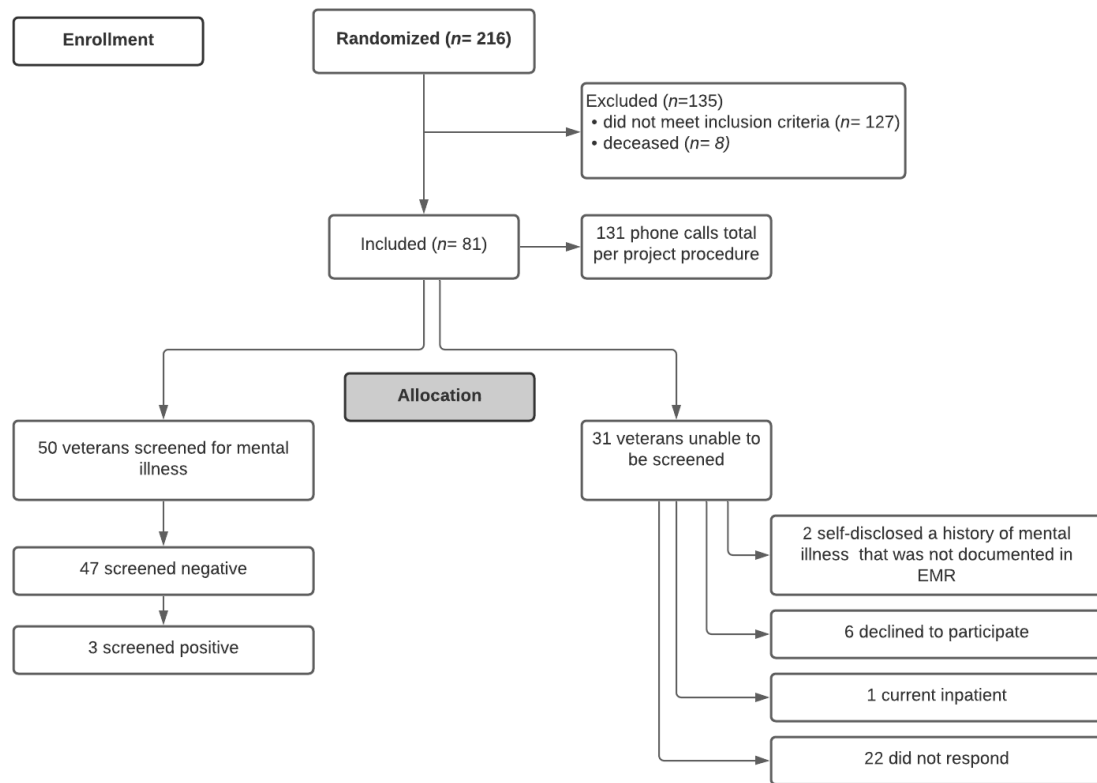


Results

When this project was conceived, there were approximately 300 veterans in the medical center with a positive COVID-19 diagnosis. At the time of project implementation, 1,513 veterans in the medical center had tested positive for COVID-19. From this data, 216 charts were reviewed utilizing a random number generator (Figure 2). In this initial chart review, 127 of the veterans were excluded because of a previous mental health diagnosis, representing 59% of the veterans in the randomized group selected for screening for inclusion in the project.

Figure 2

CONSORT Flowchart of Participants



When contact was made, each phone call lasted between 10- 20 minutes, depending on veteran responses. Three veterans had positive screens, and two had mental health clinic referrals placed. One veteran declined the mental health clinic referral and the appropriate resources were provided to the patient. One patient was assessed by the mental health clinic and a treatment plan was implemented. This veteran opted for individual psychotherapy at the medical center, and deferred medication management. One veteran did not return the phone calls from the mental health clinic to schedule an appointment. This resulted in a 6% positivity rate for new symptoms of mental illness for this project.

In this sample, 94% (47) of the veterans were male; 6% (3) veterans were female. The average age was 63.1 years (range 30- 88). The average time since COVID-19 diagnosis was 140.48 days (range 51- 178). The average score of each instrument is shown in Table 1. The PHQ-9 assesses for depressive symptoms and a score of 10- 14 indicates mild depression. The mean value of participants was 2.34 (range 0- 13). The GAD-7 assesses for anxiety; scores between 10- 14 indicate moderate anxiety. The mean value of participants was 1.76 (range 0- 15). The PCCL is a tool used to assess for symptoms of psychosis; a score of 20 or greater is considered positive. The mean value of participants was 1.44 (range 0- 14). The PCL-5 is tool to assess for PTSD; the PCL-5 is considered positive when a person endorses a severity of 2 in each cluster. The mean value of participants was 1.44 (range 0- 14). There were no participants who endorsed a severity of 2 each cluster that met the criteria for PTSD. The MMSE was designed to measure cognitive impairment and for this project, the tele MMSE was utilized. The max

score is 23; a score less than 21 was considered positive. The mean value for participants was 22.5 (range 11- 23).

Table 1

Instrument Analysis

Scale	Clinical Cut Off Score	Positive Screens	Mean Value	Standard Deviation	Range
PHQ-9	10	3	2.34	3.05	0- 13
GAD- 7	10	2	1.76	3.04	0- 15
PCCL	20	0	1.44	3.15	0- 14
PCL- 5	6	0	1.04	2.83	0-13
TMMS	20	2	22.5	1.80	11-23

Discussion

The most recent statistics show a 12.84% estimated incidence of developing a psychiatric diagnosis for the first time after COVID-19 diagnosis (Taquet et al., 2021). That study had a sample size of 236,379 patients (Taquet et al., 2021). This quality improvement project found 6% of veterans with symptoms of mental illness in sample size of 50. This number may be lower than expected because the project population has an overall higher incidence of mental illness. Additionally, the veterans that screened positive were all greater than 100 days since their COVID-19 diagnosis; this may be useful for further use. Although in place, no one screened needed an immediate referral to the mental health clinic.

Making phone contact with veterans was easier than anticipated. The use of the Doximity smart phone application may have increased the likelihood that the phone was answered; the caller ID showed the project site. Thirty-three veterans (66%) answered the phone on the first attempt. Eleven veterans answered the phone on the second attempt and six answered on the third attempt.

Many veterans screened during this project expressed gratitude for the contact and screening. Several veterans shared how appreciative they were for the phone call, and how they felt valued by the medical center. One veteran further elaborated that this screening may present an opportunity for veterans to speak more candidly about their mental health in the setting of COVID-19 versus their military experience. The six veterans that declined to participate indicated there was nothing wrong with their mental health and did not feel the need to participate.

Limitations of this project include a small, mostly male sample size. Screening for depression, anxiety, psychosis, PTSD, and dementia was also time intensive. Initially, this project sought to identify veterans experiencing depression and anxiety. During the literature review, an increased incidence of psychosis, PTSD, and neurocognitive symptoms was also identified. This evidence suggested further screening may be beneficial, and the PCCL, PCL-5, and TMMS were included in the screening questions. The addition of these screening tools increased the length of time for screening. While time intensive, it was important to include these tools for this small, more vulnerable population. In analyzing the data, it was observed that no one screened positive for psychosis, PTSD, or dementia without having a positive screen for depression or anxiety.

It is beyond the scope of this quality improvement project to determine if the 59% of COVID-19 positive veterans with an established history of mental illness have experienced an exacerbation of symptoms since their diagnosis. This does demonstrate the importance of screening this vulnerable population for mental illness since veterans have higher baseline of mental illness than the general population.

Recommendations

If beneficial for veterans and the mental health clinic, as determined by the mental health clinic leadership team, a policy or practice guideline for screening in veterans positive for COVID-19 with no previous mental illness will be established for continued use. Based upon the results of this project, it is recommended that initial screening of veterans utilizing the PHQ-9 and GAD-7 for depression and anxiety. Screening for psychosis, PTSD, and dementia would only occur if the veteran screened positive for depression or anxiety. It was also noted that the veterans who did screen positive did so 100 days or more after their COVID-19 diagnosis; this may be a useful number to flag patient's charts for screening. This is also consistent with data found in the literature review. This specific screening after COVID-19 diagnosis may also identify veterans with symptoms who may not have verbalized them before. Given the incidence of mental illness after COVID-19 diagnosis, it may be prudent to screen the veterans that were not included in this quality improvement project. The veterans included in this project did not have a history of mental illness; screening did not occur with the veterans with an established history of mental illness for exacerbation. Additional studies may be beneficial to identify exacerbations of mental illness after COVID-19 diagnosis.

Conclusion

This quality improvement project highlights the importance of screening the veteran population for mental illness after a diagnosis of COVID-19. There was an increase in the number of COVID-19 cases from 300 to over 1,500 in a little over six months. This shows the importance of screening veterans efficiently after their COVID-19 diagnosis. The project site currently has a process in place to contact veterans after COVID-19 diagnosis to assess their physical health; adding the PHQ-9 and GAD-7 to this phone call would be beneficial. Military veterans do have a higher incidence of mental illness; continued screening after COVID-19 diagnosis could continue to identify vulnerabilities in an already vulnerable population.

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Appendix A

Reference Matrix

CITATION Author(s), Date, Title, Journal Information, doi	PURPOSE / BACKGROUND Purpose & Outcome Measures or Goals (Aims)	PARTICIPANTS / SETTING Sample & Setting	METHODS / DESIGN Study Design & Interventions	RESULTS / LIMITATIONS / RECOMMENDATIONS Results, Strengths/Weaknesses, Limitations, & Recommendations
Brooks, S., Webster, R., Smith, L., Woodland, L., Wessely, S., Greenberg, N., & Rubin, J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. <i>The Lancet</i> , 395, 912-920. https://doi.org/10.1016/S0140-6736(20)30460-8	To identify the psychological impact of quarantine and how to reduce it.	24 studies were included in this review	Review of psychological impact of quarantine using MEDLINE, PsycINFO, and Web of Science	Most studies reported negative psychological effects including PTSD, confusion, and anger. Stressors and long-lasting effects were identified. Communication is key to when quarantine is imposed.
Boulos, N., Newman, B., & Newman, W. (2020). New-onset psychosis while being treated for coronavirus. <i>Current Psychiatry</i> , 19(7), 40- 44.	Case study of a patient who developed psychosis while being treated for COVID-19.	56-year-old male patient brought to ED with symptoms of psychosis after testing positive for COVID-19	Case report	Neuropsychiatric symptoms may manifest from delirium, viral infection, host immune response, or adverse reactions to experimental treatments.
Gonzalez-Sanguino, C., Ausin, B., Castellanos, M., Saiz, J., Lopez-Gome, A., Ugidos, C., & Munoz, M. (2020). Mental health consequences of the Coronavirus 2020 pandemic in Spain: a longitudinal study. <i>Frontiers in Psychiatry</i> , 11. 1-	To report the psychological impact of COVID-19 over time in the Spanish population	3480 participants living over the age of 18 living in Spain during the COVID-19 emergency	Longitudinal study using a snowball sampling	The impact of the pandemic is sustained over time, even increasing in depression, and vulnerable groups that need greater psychological health support could be identified.

<p>6. https://doi.org/10.3389/fpsy.2020.565474</p>				
<p>Gunnell, D., Appleby, L., Arensman, E., John, A., Kapur, N., Khan, M., O'Connor, R., & Pirkis, J. (2020). Suicide risk and prevention during the COVID-19 pandemic. Royal College of Psychiatrists. https://doi.org/10.1016/S2215-0366(20)30171-1</p>	<p>Identification of suicide risk and prevention during the COVID-19 pandemic</p>	<p>Editorial comment</p>	<p>Essay</p>	<p>Suicide risk may be increased due to stigma to infected individuals and their families. The mental health effects of the coronavirus disease pandemic might be profound and there are some suggestions that suicide rates will rise. Preventing suicide needs urgent consideration. There is some evidence that deaths by suicide increased in the USA during 1918-19 influenza pandemic and among older people in Hong Kong during the 2003 SARS epidemic. Suicide risk might also be increased because of stigma towards individuals with COVID-19. Others might develop new mental health problems.</p>
<p>Guo, J., Feng, X., Wang, X., & Ijzendoorn, M. (2020). Coping with COVID-19: Exposure to COVID-19 and negative impact on livelihood predict elevated mental health problems in Chinese adults. <i>International Journal of Environmental Research and Public Health</i>, 17, 1- 18.</p>	<p>Few studies have examined sleep problems, depression, and post traumatic symptoms among the general health population during the COVID-19 outbreak, and little is known about coping behaviors.</p>	<p>2993 Chinese citizens aged 18 or older</p>	<p>Online survey conducted in China from February 1 to February 10, 2020.</p>	<p>Findings suggest the significant role of direct exposure to COVID-19 to mental health. Increased mental health problems were also associated with more intense exposure through the media. Direct exposure elevated the risk for depression. Limitations include a cross-sectional design without experimental manipulation, and was only conducted in China.</p>

<p>Lamontagne-Godwin, F., Burgess, C., Clement, S., Gasston-Hales, M., Greene, C., Manyande, A., Taylor, D., Walters, P., & Barley, E. (2018). Interventions to increase access to or uptake of physical health screening in people with severe mental illness: a realist review. <i>BMJ Open</i>, 8, 1- 8. https://doi.org/10.1136/bmjopen-2017-019412</p>	<p>To identify and evaluate interventions aimed at increasing uptake of, or access to, physical health screening by adults with severe mental illness and to examine why these interventions might work.</p>	<p>22 studies met inclusion criteria</p>	<p>Systemic review of studies that included any intervention to promote access to, or uptake of screening utilizing MEDLINE, Embase, CINAHL, PsycINFO, and the Cochrane database</p>	<p>A range of interventions may be effective, but better-quality research is needed to determine any effect size. Identified barriers to successful implementation of tools to facilitate screening can be clustered into resource constraints, environmental barriers, unclear boundaries around professional role and a perceived lack of professional skills and training.</p>
<p>Gruber, J., Prinstein, M. J., Clark, L. A., Rottenberg, J., Abramowitz, J. S., Albano, A. M., Aldao, A., Borelli, J. L., Chung, T., Davila, J., Forbes, E. E., Gee, D. G., Hall, G. C. N., Hallion, L. S., Hinshaw, S. P., Hofmann, S. G., Hollon, S. D., Joormann, J., Kazdin, A. E., ... Weinstock, L. M. (2020). Mental health and clinical psychological science in the time of COVID-19: Challenges, opportunities, and a call to action. <i>American Psychologist</i>. https://doi.org/10.1037/amp0000707</p>	<p>COVID-19, the illness produced by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has been associated with some of the greatest social, economic, and medical challenges of the 21st century. Between November 2019, when the outbreak began, and early May 2020, over 4.6 million people worldwide tested positive for infection with the virus, and more than 300,000 have died.</p>			<p>Understandably, the first response phase focused on reducing infection rates, thereby preserving hospital resources (i.e., “flattening the curve.” As such, the initial contribution of clinical psychological science was attenuated relative to such fields as virology, epidemiology, and public health. Increasingly, however, it is becoming clear that the pandemic confers grave and potentially long-term mental health implications for the nation.</p>
<p>Lee, S. (2020). Coronavirus anxiety score: a brief mental health screener for COVID-19 related anxiety. <i>Death Studies</i>, 44(7), 393- 401. https://doi.org/10.1080/07481187.2020.1748481</p>	<p>To develop and evaluate the properties of the Coronavirus Anxiety Scale (CAS), which is a brief mental health screener to identify probable cases of dysfunctional anxiety</p>	<p>Online survey data from 775 adults were collected in March 2020.</p>	<p>Participants answered assessment questions using a 5-point time anchored scale</p>	<p>Results support the use of the CAS as a useful mental health screener with 90% sensitivity and 85% specificity.</p>

	associated with the COVID-19 crisis.			
Lu, S., Wei, N., Jiang, J., Wu, L., Sheng, J., Zhou, J., Fang, Q., Chen, Y., Zheng, S., Chen, F., Liang, T., & Hu, S. (2020). First report of manic-like symptoms in a COVID-19 patient with no previous history of psychiatric disorder. <i>Journal of Affective Disorders</i> , 227. 337- 340. https://doi.org/10.1016/j.ad.2020.08.031	Case report of a male patient who developed manic-like symptoms after COVID-19 diagnosis	51-year-old male with no previous psychiatric disorders	Case report	On illness day 17 (hospital day 13), patient appeared excited, talkative, irritable, energetic, with delusions of grandeur. Patient required intramuscular injections of antipsychotics to stabilize his mood.
Novacek, D., Hampton-Anderson, J., Ebor, M., Loeb, T., & Wyatt, G. (2020). Mental health ramifications of the COVID-19 pandemic for black Americans: clinical and research recommendations. <i>Psychological Trauma: Theory, Research, Practice and Policy</i> , 12(5), 449- 451. https://dx.doi.org/10.1037/tra000096	To prepare for the needs of Black Americans who have been disproportionately affected by the COVID-19 virus			Black Americans are at higher risk for PTSD, and early assessment and identification should take place.
Ornell, F., Schuch, J., Sordi, A., & Kesser, F. (2020). “Pandemic fear” and COVID-19: mental health burden and strategies. <i>Brazilian Journal of Psychiatry</i> , 42(3), 232- 235. https://doi.org/10.1590/1516-4446-2020-0008	Editorial	Editorial	Essay	3 main factors should be considered when developing mental health strategies: multidisciplinary mental health teams, clear communication of updates, and establishing safe psychological counseling services. Authors also recommend strategies for individuals and vulnerable

				groups during pandemics and large-scale disasters.
Smith, C., Komisar, J., & Kincaid, B. (2020). COVID-19-associated brief psychotic disorder. <i>BMJ Case Reports</i> , 13. Doi: 10.1136/bcr-2020-236940	Case presentation on a 36-year-old woman with a acute, rapid change in her behavior 4 days after a positive COVID-19 diagnosis.	36-year-old female	Case report	Patient presented with acute, rapid, behavior changes 4 days after diagnosis, requiring an involuntary admission to the hospital.
Taquet, M., Luciano, S., Geddes, J., & Harrison, P. (2020). Bidirectional associations between COVID-19 and psychiatric disorder: retrospective cohort studies of COVID-19 cases in the USA. <i>The Lancet Online</i> , DOI: https://doi.org/10.1016/S2215-0366(20)30462-4	Literature review to identify if a COVID-19 diagnosis was associated with an increase in psychiatric diagnosis	62,354 patients with COVID-19 diagnosis in the United States	TriNetX Analytics Network database	In patients with no previous history of psychiatric illness, a diagnosis of COVID-19 was associated with increased incidence of first psychiatric diagnosis in the following 14-90 days.
Thomas, L., Parker, S., Song, H., Gunatillaka, N., Russell, G., & Harris, M. (2019). Health service brokerage to improve primary care access for populations experiencing vulnerability or disadvantage: a systemic review and realist synthesis. <i>BMC Health Services Research</i> , 19(269), 1- 17. https://doi.org/10.1186/s12913-019-4088-z	This review aims to identify whether a health service broker working with health and social services providers in the community can identify individuals experiencing vulnerability who may be benefit from improved access to quality primary care and link these individuals with an appropriate primary care provider for enduring, appropriate primary care.	Eleven studies were included in the review	Six databases were searched for studies published between January 2008 and August 2015 that evaluated health service broker intervention linking adults experiencing vulnerability to primary care	While specific mechanisms behind the interventions could not be identified, it is suggested that individual advocacy may be a key element in the success of these types of interventions; health service brokers are able to help people identify their need for care and to access, navigate, and interact with services. Limitations include the small number of studies identified in the review and the varying methodological quality of the studies.
Varatharaj, A., Thomas, N., Ellul, M., Davies, N., Pollack, T., Tenorio, E., Sultan, M....	To create an online network of secure rapid-response case report notification	153 with COVID-19 in the UK	N/A	Broad clinical syndromes associated with COVID-19 were classified as CVA, altered

<p>(2020). Neurological and neuropsychiatric complications of COVID-19 in 153 patients: a UK-wide surveillance study. <i>Lancet Psychiatry</i>. https://doi.org/10.1016/S2215-0366(20)30287-x</p>	<p>portals across the spectrum of major UK neuroscience bodies</p>			<p>mental status, peripheral neurology, or other. 43% of patients with neuropsychiatric disorders had new-onset psychosis, 26% had neurocognitive syndrome, and 17% had an affective disorder.</p>
<p>Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C., & Ho, R. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. <i>International Journal of Environmental Research and Public Health</i>, 17, 1- 25.</p>	<p>Survey the general public in China to better understand their levels of psychological impact, anxiety, depression, and stress during the initial stage of the COVID-19 outbreak.</p>	<p>Conducted from January 31 to February 2, 2020 included 1210 respondents from 194 cities in China</p>	<p>Online survey using snowball sampling techniques</p>	<p>Health authorities need to identify high-risk groups based on sociodemographic information for early psychological intervention. Data suggests that females are at risk for greater psychological impact. Limitations include snowball sampling due to time sensitivity.</p>
<p>Webb, M., Kauer, S., Ozer, E., Haller, D., & Sancu, L. (2016). Does screening for and intervening with multiple health compromising behaviors and mental health disorders amongst young people attending primary care improve health outcomes? A systemic review. <i>BMC Family Practice</i>, 17(104), 1- 12. https://doi.org/10.1186/s12875-016-0504-1</p>	<p>Investigate whether screening and subsequent interventions for multiple health compromising behaviors and mental health disorders in primary care settings improves the health outcomes of young people.</p>	<p>5051 articles were identified, and 9 studies fulfilled the inclusion criteria</p>	<p>Using the Preferred Reporting Items for Systemic Reviews and Meta-Analysis guidelines, literature searches were conducted in Medline, PsycINFO, Scopus, and Cochrane Library databases. Eligible studies included had to include a measure of health outcome, use a screening tool that assessed more than one health domain, and be conducted</p>	<p>There is some evidence that the use of screening and intervention in young people for mental health disorder or compromising behaviors in clinical settings improves health outcomes. Further studies are needed to strengthen this evidence. Limitations include a small sample size, a self-selected sample, insufficient length of follow-up time and a non-random design.</p>

			within a primary care setting	
Tool Validation				
Addington, J., Stowkowy, J., & Weiser, M. (2015). Screening tools for clinical high risk for psychosis. <i>Early Intervention in Psychiatry</i> , 9, 345- 356. Doi: 10.1111/eip.12193	To review existing screening instruments that could be used to identify individuals who may be at increased risk for psychosis and to determine the suitability of these instruments	17 screening instruments were identified	Medline and PubMed search for peer-reviewed articles published in English	The PCCL was developed for use in primary care settings. High sensitivity was achieved of 89% and specificity of 60%.
Beard, C., Hsu, K.J., Rifkin, L., Busch, A., & Bjorgvinsson, T. (2016). Validation of the PHQ-9 in a psychiatric sample. <i>Journal of Affective Disorders</i> , 193, 267- 273. https://dx.doi.org/10.1016/j.jad.2015.12.075	Examine the full range of psychometric properties of the PHQ-9 in patients with a range of psychiatric disorders.	1023 patients completed the PHQ-9 upon admission and discharge from a partial hospital stay		Using a cut-off of >13, the PHQ-9 demonstrated good sensitivity (0.83) and specificity (0.72). Limitations include no clinician-rated measure of improvement, and the sample lacked ethnorracial diversity.
Ciemins, E., Holloway, B., Coon, P., McClosky-Armstrong, T., & Min, S. (2009). Telemedicine and the mini-mental status examination: assessment from a distance. <i>Telemedicine and e-HEALTH</i> , 15(5). 476- 478. https://dx.doi.org/10.1089/tmj.2008.0144	The objective of this study was to determine the reliability of the MiniMental State Examination (MMSE) administration via telehealth with a focus on the auditory and visual test components. R	73 patients; average age was 61; all had type 2 diabetes	Item by item analysis with <i>t</i> -test comparison	Utilizing slightly different methods, this study clearly demonstrated a high correlation between in-person and remote recording of individual MMSE items. Mean differences in scores were well below those demonstrated in past studies,6 and were not significantly different from zero. While it did not affect the results, the word “quarter” was not always understood by the telemedicine patient. The authors suggest substituting a different word, as permitted by the instrument creators.

<p>French, P., Owens, J., Parker, S., & Dunn, G. (2012). Identification of young people in the early stages of psychosis: validation of a checklist for use in primary care. <i>Psychiatry Research</i>, 200. http://dx.doi.org/10.1016/j.psychres.2012.07.040</p>	<p>Establish the concordant validity of the Early Detection Primary Care Checklist</p>	<p>176 people, aged 14- 34 in the United Kingdom</p>	<p>Logistic regression model</p>	<p>The checklist was found to have a sensitivity of 96% but a low specificity of 17%.</p>
<p>Jordan, P., Shedden-Mora, M., & Lowe, B. (2017). Psychometric analysis of the Generalized Anxiety Disorder scale (GAD-7) in primary care using modern item response theory. <i>PLoS ONE</i> 12(8), e0182162. https://doi.org/10.1371/journal.pone.0182162</p>	<p>This study analyzed the GAD-7 with respect to its psychometric properties and its implications for scoring using the Item Response Theory.</p>	<p>3404 primary care patients (60% female, mean age 52)</p>	<p>A graded response model using a Bayesian approach was used to evaluate nonparametric statistics. The model fit was evaluated by using posterior predictive p-values</p>	<p>The analysis indicated no deviations of the GAD-7 scale from unidimensionality and a decent fit of a graded response model. The first four items of the survey discriminated better than the last three with respect to latent anxiety. It should be used to detect anxiety disorders. Limitations include that no other measure of anxiety was used to validate the scale.</p>
<p>Hunt, H., Van Kampen, S., Takwoingi, Y., Llewellyn, D., Pearson, M., & Hyde, C. (2017). The comparative diagnostic accuracy of the mini mental state examination (MMSE) and the general practitioner assessment of cognition (GPCOG) for identifying dementia in primary care: a systemic review protocol. <i>Diagnostic and Prognostic Research</i>, 1(14). https://dx.doi.org/10.1186/s41512-017-0014-1</p>	<p>Compare the diagnostic test accuracy of the Mini Mental State Examination (MMSE) to the General Practitioner Assessment of Cognition (GPCOG) against the best available reference standard when used within a family practice setting.</p>	<p>Adults aged 18 or over recruited from primary care; 13 systemic reviews were included</p>	<p>Systemic review using pragmatic search strategy</p>	<p>Improve existing evidence on how the diagnostic accuracy of MMSE and GPCOG compares when used to identify dementia within the family practice setting. We also aim to make clinical practice recommendations based upon the variations in diagnostic accuracy identified between the MMSE and GPCOG.</p>

<p>Levis, B., Benedetti, A., & Thombs, B. (2019). Accuracy of Patient Health Questionnaire-9 (PHQ-9) for screening to detect major depression: individual participant data meta-analysis. <i>British Medical Journal</i>, 365. https://dx.doi.org/10.1136/bmj.11476</p>	<p>To determine the accuracy of the PHQ-9 for screening major depression.</p>	<p>72 eligible studies were identified with a patient n of 17,357.</p>	<p>Individual participant data meta-analysis using Medline, Medline In-Process, PsycINFO, and Web of Science</p>	<p>A cut-off score of 10 or above maximized combined sensitivity and specificity.</p>
<p>Manea, L., Gilbody, S., & McMillan, D. (2015). A diagnostic meta-analysis of the Patient Health Questionnaire-9 (PHQ-9) algorithm scoring method as a screen for depression. <i>General Hospital Psychiatry</i>, 37, 67- 75. https://dx.doi.org/10.1016/j.genhosppsy.2014.09.009</p>	<p>The depression module of the PHQ-9 is a widely used depression screening instrument in the nonpsychiatric setting. This study summarizes the diagnostic accuracy of the PHQ-9.</p>	<p>27 validation studies were found that validated the algorithm scoring method of the PHQ-9 in various settings.</p>	<p>A systemic review of diagnostic accuracy studies of the PHQ-9 using the algorithm scoring method to detect major depressive disorder. Meta-analytic methods to calculate summary sensitivity, specificity, likelihood ratios and diagnostic odds ratios for diagnosing MDD of the PHQ-9 were completed.</p>	<p>If the scale is utilized using the algorithm method, there is a low sensitivity of predicting MDD. The standard cut-off point of > 10 of the summed-item scoring method had a better sensitivity (0.77) and maintained good specificity (0.85). Limitations include study selection and data extraction was performed by one author.</p>
<p>Newkirk, L., Kim, J., Thompson, J., Tinklenberg, J., Yesavage, J., & Taylor, J. (2004). Validation of a 26-point telephone version of the mini-mental state examination. <i>Journal of Geriatric Psychiatry and Neurology</i>, 17(2). 81- 87. https://dx.doi.org/10.1177/0891988704264534</p>	<p>The objective of this study was to assess the convergent validity of a 26-point Telephone Mini-Mental State Examination (MMSE) in a. Hearing impairment and education level did not significantly affect telephone-based performance.</p>	<p>Longitudinal cohort of 46 Alzheimer's disease (AD) patients</p>	<p>Paired in-person and telephone MMSE observations were collected within 35 days of each other. The 30-point Folstein MMSE was administered in-person, and a 26-point telephone version of the MMSE.</p>	<p>The Telephone MMSE can be used to validly estimate in-person MMSE scores of patients with AD. Use of this practical measure can enhance reassessment if returning to the clinic is difficult or if a change in the patient's medical condition merits a check of mental status by telephone. Total scores for the in-person and telephone MMSE versions</p>

				correlated strongly (Pearson's $r = .88, P < .001$).
Plummer, F., Manea, L., Trepel, D., & McMillan, D. (2016). Screening for anxiety disorders with the GAD-7 and GGeAD-2: a systemic review and diagnostic metanalysis. <i>General Hospital Psychiatry, 39</i> , 24- 31. https://dx.doi.org/10.1016/j.genhosppsy.2015.11.005	To systemically review the accuracy of the GAD-7 and GAD-2 questionnaires for identifying anxiety disorders	A total of 12 samples were identified involving 5223 participants, aged 16 or older in any setting	Systemic review of literature utilizing Embase, MEDLINE, PsycINFO, CINAHL, and the Cochrane Library	At the cutoff score of 10, the pooled estimate of sensitivity in the current review is 0.74. If using the GAD-7, clinicians may wish to consider cutoff points of 8 or 9, which appear to have increased sensitivity. Limitations include that two independent researchers were not used to select studies and extract data. Bias could also be found in the selective reporting of cutoff points on the scale.
Tariq, S., Tumosa, N., Chibnall, J., Perry III, M., & Morley, J. (2006). Comparison of the St. Louis University mental status examination and the mini-mental state examination for detecting dementia and mild neurocognitive disorder- a pilot study. <i>American Journal of Geriatric Psychiatry, 14</i> (11). 900- 910.	The objective of this study was to compare SLUMS and the MMSE for detecting dementia and mild neurocognitive disorder (MNCD) using Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria	702 veterans at the VA Geriatric Research, Education, and Clinical Center in St. Louis, MO with normal cognitive functioning, MNCD, or dementia based upon DSM-V criteria	Prospective recruitment using statistical analysis	These results suggest that the SLUMS and MMSE have comparable sensitivities, specificities, and area under the curve in detecting dementia
Wortman, J., Jordan, A., Resick, P, Foa, E., Yarvis, J., Mintz, J., Litz, B., Weathers, F., Dondanville, K., Hall-Clark, B., Young-McCaughan, Hembree, E., & Peterson, A. (2016). Psychometric analysis of the PTSD checklist-5 (PCL-5) among treatment-seeking military service members. <i>Psychological Assessment,</i>	Evaluate the effectiveness of the PCL-5 with the new diagnostic criteria for PTSD from the DSM-5	912 veterans in Fort Hood, TX	Descriptive statistics to evaluate convergent relationships	The PCL-5 was found to be psychometrically with a high internal consistency. Limitations of this study include that order effects of the presentation of the PCL versions could not be evaluated.

28(11). 1392- 1403. http://dx.doi.org/10.1037/pas0000260				
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Appendix B

ICD-9 and ICD-10 Codes for Exclusion Criteria

Diagnosis	ICD-9	ICD-10
Major depressive disorder	296.2	F33
Generalized anxiety disorder	300.02	F41.1
Panic disorder	300.01	F41.0
Obsessive-compulsive disorder	300.3	F42.9
Adjustment disorder	309	F43.20
Post-traumatic stress disorder	309.81	F43.10
Schizophrenia	295.0	F20.9
Unspecified psychosis	298.9	F29
Bipolar I disorder	296.0	F31
Bipolar II disorder	296.8	F31.81
Suicide attempts	950.9	Z91.5
Schizoaffective disorder	295.7	F25.9
Dementia	290	F30.91

Appendix C

Screening Tool for Mental Illness after COVID-19 Diagnosis

Identification Code: _____

Age/Gender: _____

Date of Diagnosis: _____

Over the last 2 weeks:		Not at All	Severa l Days	More Than Half Days	Nearl y Ever y Day	
Little interest or pleasure in doing things	PHQ- 9	0	1	2	3	
Feeling down, depressed or hopeless		0	1	2	3	
Trouble falling asleep, staying asleep, or sleeping too much		0	1	2	3	
Feeling tired or have little energy		0	1	2	3	
Poor appetite or overeating		0	1	2	3	
Feeling bad about yourself		0	1	2	3	
Trouble concentrating on things		0	1	2	3	
Moving or speaking too slowly, or the opposite, being fidgety or restless		0	1	2	3	
Thoughts that you would be better off dead		0	1	2	3	
Column Totals						
Added Totals						
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?		Not difficult at all	Some what difficu lt	Very difficult	Extre mely diffic ult	
Feeling nervous, anxious, or on edge	GAD- 7	0	1	2	3	
Not being able to stop or control worrying		0	1	2	3	
Worrying too much about different things		0	1	2	3	
Trouble relaxing		0	1	2	3	
Being so restless that it's hard to sit still		0	1	2	3	
Becoming easily annoyed or irritable		0	1	2	3	
Feeling of afraid as if something awful might happen		0	1	2	3	
Column Totals						
Added Totals						
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?		Not difficult at all	Some what difficu lt	Very difficult	Extre mely diffic ult	
		Yes	No			
Spending more time alone	PCCL	1				
Arguing with family or friends		1				
The family is concerned		1				
Excess use of alcohol		1				
Use of street drugs (including cannabis)		1				
Sleep difficulties		2				
Poor appetite		2				
Depressive mood		2				
Poor concentration		2				
Restlessness		2				
Tension and nervousness		2				
Less pleasure from things		2				
Feeling people are watching you		3				

Feeling or hearing things that others cannot		3				
Ideas of reference		5				
Odd beliefs		5				
Odd manner of talking or speech		5				
Inappropriate affect		5				
Odd behavior or appearance		5				
First-degree family history of psychosis plus increased stress or deterioration of functioning		5				
Total Score						
		Not at all	A little bit	Moderately	Quite a bit	Extremely
Repeated, disturbing, and unwanted memories of the stressful experience?	PCL-5	0	1	2	3	4
Repeated, disturbing dreams of the stressful experience?		0	1	2	3	4
Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?		0	1	2	3	4
Feeling very upset when something reminded you of the stressful experience?		0	1	2	3	4
Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?		0	1	2	3	4
Avoiding memories, thoughts, or feelings related to the stressful experience?		0	1	2	3	4
Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?		0	1	2	3	4
Trouble remembering important parts of the stressful experience?		0	1	2	3	4
Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted; the world is completely dangerous)?		0	1	2	3	4
Blaming yourself or someone else for the stressful experience or what happened after it?		0	1	2	3	4
Having strong negative feelings such as fear, horror, anger, guilt, or shame?		0	1	2	3	4
Loss of interest in activities that you used to enjoy?		0	1	2	3	4
Feeling distant or cut off from other people?		0	1	2	3	4
Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people)		0	1	2	3	4

close to you)?						
Irritable behavior, angry outbursts, or acting aggressively?		0	1	2	3	4
Taking too many risks or doing things that could cause you harm?		0	1	2	3	4
Being "super alert" or watchful or on guard?		0	1	2	3	4
Feeling jumpy or easily startled?		0	1	2	3	4
Having difficulty concentrating?		0	1	2	3	4
Trouble falling or staying asleep?		0	1	2	3	4
Total Score						

		Patient's Score	Max Score
"What is the year? Season? Date? Day of the week? Month?"	TMMSE		5
"Where are we now: State? County? Town/city? Hospital? Floor?"			5
The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response issued for scoring. The examiner repeats them until patient learns all of them, if possible. Number of trials:			3
"I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, ...) Stop after five answers. Alternative: "Spell WORLD backwards." (D-L-R-O-W)			5
"Earlier I told you the names of three things. Can you tell me what those were?"			3
"Repeat the phrase: 'No ifs, ands, or buts.'"			1
"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)			1
Total Score			

	Score
PHQ-9	
GAD-7	
PCCL	
PCL-5	
TMMSE	

	Yes	No
Veteran agreeable to mental health referral		
Appropriate for Jefferson Barracks		
Need to be seen at John Cochran		
Preference for community setting		
Consult placed in CPRS		

Appendix E

Informed Consent Verbal Script

You are invited to participate in a research study conducted by Britannia Phillips and Anne Thatcher. The purpose of this research is identify veterans who may be at risk for mental illness and refer them to the appropriate care.

You are consenting to participate in a quality improvement project about the development of mental illness symptoms after COVID-19 diagnosis. There is evidence that suggest that people without a history of mental illness are developing symptoms of mental illness after contracting COVID-19, including symptoms of depression, anxiety, PTSD, and psychosis. Your participation in this voluntary. If you choose, you will be screened for depression, anxiety, PTSD, psychosis, and neurocognitive disorders. If these symptoms are present, then you will receive a referral to the mental health clinic at the VA or a communicatory resource. Reasonable, foreseeable risks or discomforts may include the sensitivity of questions asked. Reasonable, expected benefits include accessing appropriate care for the symptoms you may be experiencing.

Your participation will involve answering verbal questions using standardized assessment tools over the phone. This will take approximately 15 minutes. You were identified to be included based upon your COVID-19 diagnosis and past medical history.

Approximately 100 veterans may be involved in this research at the St. Louis VA.

There are no known risks associated with this research (other than the potential for mild boredom or fatigue). The possible benefits to you from this research are accessing mental health care for symptoms you are experiencing.

Your participation is voluntary and you may choose not to participate in this study or withdraw your consent at any time. You will NOT be penalized in any way should you choose not to participate or withdraw.

We will do everything we can to protect your privacy. As part of this effort, your identity will not be revealed in any publication that may result from this study. In rare instances, a researcher's study must undergo an audit or program evaluation by an oversight agency (such as the Office for Human Research Protection) that would lead to disclosure of your data as well as any other information collected by the researcher.

Federal agencies such as the Office for Human Research Protection (OHRP), the Government Accounting Office (GAO), Office of Research Oversight (ORO), St. Louis VAHCS Institutional Review Board, VA Audit Committees and accrediting agencies will have access to the records and records are subject to audit or inspection by a funding agency or sponsor. A copy of this consent form will be filed in your medical records, and for your safety, your medical records may be flagged to alert other healthcare providers that you are participating in the study. Your medical records will include a note that you have consented to participate in the study.

As a VA study participant, the VA (not you or your insurance) will provide necessary medical treatment should you be injured by being in this study. You will be treated for the injury at no cost to you. This care may be provided by the VASTLHCS or arrangements may be made for contracted care at another facility. You have not released this institution from liability for negligence. In case of research related injury resulting from this study, you should contact your study team. If you have questions about compensation and medical treatment for any study related injuries, you can call the Research & Education Service at VSATLHCS at 314-289-6333

If you have any questions or concerns regarding this study, or if any problems arise, you may call the Investigator, Britannia Phillips or the Faculty Advisor, Anne Thatcher at (314) 652-4100 x64656. You may also ask questions or state concerns regarding your rights as a research participant to the Office of Research at the University of Missouri- St. Louis, at (314) 516-5897.

Appendix F
Voicemail Script

Principal Investigator:

Hello, this is [insert name], calling from the St. Louis VA John Cochran. I was calling to see how your health has been, and to ask you a few follow up questions. I will attempt to call you again on [specific date] or you may reach me at (314) 652-4100 x 53313. If I do not answer, please leave a message and I will return your call.

Appendix G

Note Template for CPRS (EMR)

Veteran Name

The above veteran was screened for symptoms of mental illness using the PHQ-9, GAD-7, PCL-5, PCCL, and MMSE. This screening was conducted as part of a quality improvement project through the mental health services.

PHQ-9

Little interest or pleasure in doing things:

Feeling down, depressed or hopeless:

Trouble falling asleep, staying asleep, or sleeping too much:

Feeling tired or have little energy:

Poor appetite or overeating:

Feeling bad about yourself:

Trouble concentrating on things:

Moving or speaking too slowly, or the opposite, being fidgety or restless:

Thoughts that you would be better off dead:

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

PHQ-9 results:

GAD-7

Feeling nervous, anxious, or on edge:

Not being able to stop or control worrying:

Worrying too much about different things:

Trouble relaxing:

Being so restless that it's hard to sit still:

Becoming easily annoyed or irritable:

Feeling of afraid as if something awful might happen:

If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people:

GAD-7 results:

PCL-5

Repeated, disturbing, and unwanted memories of the stressful experience:

Repeated, disturbing dreams of the stressful experience:

Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it):

Feeling very upset when something reminded you of the stressful experience:

Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating):

Avoiding memories, thoughts, or feelings related to the stressful experience:

Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations):

Trouble remembering important parts of the stressful experience:

Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted; the world is completely dangerous):

Blaming yourself or someone else for the stressful experience or what happened after it:

Having strong negative feelings such as fear, horror, anger, guilt, or shame:

Loss of interest in activities that you used to enjoy:

Feeling distant or cut off from other people:

Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you):

Irritable behavior, angry outbursts, or acting aggressively:

Taking too many risks or doing things that could cause you harm:

Being “super alert” or watchful or on guard:

Feeling jumpy or easily startled:

Having difficulty concentrating:

Trouble falling or staying asleep:

PCL-5 results:

PCCL

Spending more time alone:

Arguing with family or friends:

The family is concerned:

Excess use of alcohol:

Use of street drugs (including cannabis):

Sleep difficulties:

Poor appetite:

Depressive mood:

Poor concentration:

Restlessness:

Tension and nervousness:

Less pleasure from things:

Feeling people are watching you:

Feeling or hearing things that others cannot:

Ideas of reference:

Odd beliefs:

Odd manner of talking or speech:

Inappropriate affect:

Odd behavior or appearance:

First-degree family history of psychosis plus increased stress or deterioration of functioning:

PCCL results:

MMSE

“What is the year? Season? Date? Day of the week? Month?”

“Where are we now: State? County? Town/city? Hospital? Floor?”

The examiner names three unrelated objects clearly and slowly, then asks the patient to name all three of them. The patient's response issued for scoring. The examiner repeats them until patient learns all of them, if possible.

Number of trials: _____

"I would like you to count backward from 100 by sevens." (93, 86, 79, 72, 65, ...)
Stop after five answers.

Alternative: "Spell WORLD backwards." (D-L-R-O-W)

"Earlier I told you the names of three things. Can you tell me what those were?"

"Repeat the phrase: 'No ifs, ands, or buts.'"

"Make up and write a sentence about anything." (This sentence must contain a noun and a verb.)

MMSE results:

The veteran was/was not amenable to a mental health clinic referral. A consult has been placed if appropriate. The veteran has been supplied with the number for the crisis line and resources provided.

