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Telemental Health Versus Face-to-Face Treatment: An Examination of Operation
Enduring Freedom and Operation Iraqi Freedom Veterans' Preferences for Mental Health
Services

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Abstract

Despite high estimated prevalence rates of PTSD, depression, and alcohol use disorder, Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) veterans exhibit relatively low rates of engagement in mental health treatment. Research shows that OEF/OIF veterans' treatment-seeking is affected by attitudes towards mental illness and meant health treatment, logistical barriers to care, and severity of illness, thus providing support for Andersen's proposed model of health service utilization. Previous literature has suggested that telemental health (TMH) has the potential to address some of the factors that make treatment-seeking challenging for OEF/OIF veterans. However, little is known about the degree to which these individuals are open to TMH. This study aimed to enhance our understanding of the factors that influence OEF/OIF veterans' treatment-seeking and to determine how these individuals view TMH in comparison to traditional face-to-face (FTF) treatment. A sample of 422 OEF/OIF veterans provided information about stigma towards mental illness, attitudes towards mental health treatment, preferences for mental health treatment, logistical barriers to care, and mental illness symptomatology. Moreover, they stated their preference between FTF treatment and TMH. Results revealed a robust preference for FTF treatment across the sample. No differences emerged between veterans preferring FTF treatment and those preferring TMH treatment across the whole sample. Notably, women veterans preferring TMH were more skeptical of treatment, had more barriers to care, and had more severe clinical symptoms. Findings indicate a clear preference for FTF treatment among OEF/OIF veterans, although some do perceive TMH as addressing stigma-related and logistical barriers to treatment.

A significant percentage of U.S. veterans who served in Operation Enduring Freedom and/or Operation Iraqi Freedom (OEF/OIF) exhibit mental illness. Among the most common psychological diagnoses are posttraumatic stress disorder (PTSD), depression, and alcohol use disorders (i.e., abuse or dependence). Estimates are that about 20% of these individuals suffer from PTSD as defined in the DSM-IV-TR, between 24% and 37% suffer from depression, and as many as 27% demonstrate hazardous drinking patterns that likely indicate an alcohol use disorder (APA, 2000; Elbogen et al., 2013; Vogt, Fox, & Di Leone, 2014).

Despite high rates of mental illness, a disproportionately low number of OEF/OIF veterans receive mental health treatment. For example, one study screened 2,623 recently deployed OEF/OIF veterans for anxiety disorders, excessive alcohol use, depression, and interpersonal problems such as increased aggression and relationship difficulties (Kim et al., 2011). Of the 33.7% of soldiers that met criteria for at least one of these disorders or problems post-deployment, only 19.2% of these individuals had received treatment in the past three months (Kim et al., 2011). Moreover, when veterans do seek treatment, adherence is often an issue. Psychological treatment dropout rates are as high as 43% for PTSD, 32% for depression, and 27% for substance abuse (Curran, Stecker, Han & Booth, 2009; Deviva, 2013; Karlin et al., 2012). This is not for a lack of viable treatment options, as cognitive processing therapy (CPT) and prolonged exposure (PE) have demonstrated efficacy in treating veterans with PTSD, cognitive behavioral therapy (CBT) has demonstrated efficacy in treating veterans with depression, and motivational interviewing (MI) has demonstrated success in reducing levels of hazardous drinking for veterans (Forbes et al., 2012; Goodson, Lefkowitz, Helstrom, & Gawrysiak, 2013; Karlin

et al., 2012; McDevitt-Murphy, et al., 2014).

Factors Influencing Treatment-Seeking

As a means of predicting and explaining healthcare utilization in general (i.e., emergency room care, dental care, mental health care, etc.), Ronald Andersen (1968) proposed the Behavioral Model of Health Services Use. The model posits that three individual-level factors with various subcategories determine treatment utilization: (a) predisposing characteristics (i.e., demographics, social status, attitudes towards illness and healthcare); (b) enabling resources (i.e., social support, financial situation, availability of care in the community); (c) perceived and evaluated need for treatment (Andersen, 1968). The model emphasizes factor mutability as a means of improving the likelihood of treatment utilization (Andersen, 1995). For example, demographics have low mutability, since factors such as age and gender cannot be altered to improve utilization rates. Health beliefs have medium mutability, as opinions can sometimes be altered and lead to subsequent behavioral change (i.e., treatment-seeking). Enabling resources are deemed highly mutable, since concrete changes (e.g., cost reductions) can significantly improve the feasibility of engaging in treatment (Andersen, 1995).

Previous research has confirmed that the three factors within Andersen's (1968) model affect mental health treatment utilization within the veteran population. It is notable that research on OEF/OIF veterans suggests that demographic factors do not appear to strongly influence mental health treatment-seeking, as differences in treatment utilization across gender and ethnicity have not been found (Davis, Deen, Fortney, Sullivan, & Hudson, 2014; De Luca et al., 2016; Fox, Meyer, Vogt, 2015). However, other predisposing characteristics, such as attitudes toward mental illness and treatment,

appear to influence mental health treatment utilization. For example, self-stigma, which is

defined as the negative beliefs, attitudes, and impressions about mental illness that an

individual holds, bears significant weight on veterans' decisions about using treatment.

Public stigma, defined as the negative beliefs, attitudes, and impressions about mental

illness that an individual believes the general population holds, is similarly influential

(Bein, 2011; Brown et al., 2010; Corrigan & Watson, 2002). Research directly and

indirectly confirms that stigma influences treatment-seeking behaviors within the military

population through the following mechanism: mentally ill individuals become aware of

the stigmatizing views of their peers (i.e., perceive public stigma), view these

stigmatizing beliefs as valid and internalize them (i.e., develop-self-stigma), resulting in

worsened self-esteem and a diminished likelihood of seeking treatment for problems

(Britt, 2000; Brown & Bruce, 2016; Green-Shortridge et al., 2007; Held & Owens, 2012;

Kim et al., 2010; Link et al., 1999; Mechanic, McAlpine, Rosenfield & Davis, 1994).

     In addition to stigma, other predisposing beliefs negatively impact treatment

utilization for veterans. Negative attitudes towards treatment-seeking are also influential,

as Vogt et al. (2014) found these viewpoints (e.g., "I would prefer to deal with mental

health problems myself") to be associated with a lower likelihood of service use for

veterans with probable PTSD, probable depression, and probable alcohol abuse. Similar

results have also been reported elsewhere (Fox et al., 2015; Zinzow et al., 2013). These

findings not only highlight the significance of predisposing beliefs about treatment, they

also suggest that rates of effective engagement in treatment might improve if certain

beliefs were changed.

     Enabling resources, broadly defined as institution-level or individual-level

characteristics that impact veterans' abilities to seek mental health treatment in concrete

ways, have also been shown to influence treatment utilization (Andersen, 1968; Garcia et

al., 2014; Ouimette et al., 2011; Valenstein et al., 2014). A lack of enabling resources is

often referred to as a "logistical barrier" in the literature; this language will be used to

describe enabling resources throughout the remainder of this paper (Garcia et al., 2014;

Ouimette et al., 2011; Valenstein et al., 2014). Veterans in previous studies have

endorsed the following logistical barriers associated with seeking treatment: dearth of

local care providers, inadequate options for transportation, difficulty getting time off of

work for treatment, and insufficient childcare (Kim et al., 2011; Valenstein et al., 2014).

Again, these findings suggest that veteran rates of treatment utilization might be

increased if certain obstacles were removed.

Finally, research also indicates that mental illness symptomatology plays a role in

determining veterans' utilization of services. While Andersen (1968) suggested that

greater severity of problems would result in greater likelihood of treatment utilization,

this is not the trend for OEF/OIF veterans suffering from mental illness. Rather, past

research indicates that OEF/OIF veterans with various mental illnesses are at a reduced

likelihood of seeking treatment or remaining in treatment, given that certain

manifestations of psychopathology interfere with these processes.

For example, Blais et al. (2014) sought to determine which PTSD symptoms, if

any, most influence treatment use for OEF/OIF veterans. Overall, greater severity of

avoidance symptoms predicted lower rates of utilization, while greater severity of re-

experiencing symptoms predicted higher rates of utilization. Previous treatment outcome

literature on PTSD has noted the importance of clients engaging with (i.e., actively

thinking about) their traumatic memories in-session, a process with which avoidance is proposed to directly interfere (Meier, 2012; Resick, Monson & Chard, 2008). Thus, it is likely that failure to seek treatment, as well as premature dropout, are manifestations of strategic avoidance on the part of individuals suffering from PTSD (Gloth, Unpublished).

Similarly, Mohr et al. (2010) investigated why depressed individuals rarely seek out psychotherapeutic treatment after being given a referral. The authors found that 78% of individuals with depression identified a significant logistical barrier to psychotherapy, compared with just 49% of non-depressed individuals. As an explanation for this finding, the authors proposed that certain symptoms, such as a lack of motivation, might inherently increase perceived barriers to treatment for depressed individuals.

Finally, Harpaz-Rotem & Rosenheck (2011) found that veterans diagnosed with PTSD were more likely to drop out of treatment if they had a comorbid alcohol use disorder (AUD). Moreover, civilian research supports the notion that higher alcohol consumption is associated with increased probability of treatment dropout (Lopez-Goni, Fernandez-Montalvo, & Arteaga, 2011). Similar to depression, authors have suggested that individuals struggling with AUDs may experience difficulties with overcoming certain logistical barriers to treatment (e.g., payment, transportation, etc.; Lopez-Goni et al., 2011; Palmer, Murphy, Piselli & Ball, 2009). Overall, while OEF/OIF veterans presenting with severe PTSD, depression, and/or AUDs may be in significant need of treatment, their symptoms may prohibit them from effectively utilizing treatment. Additional efforts may be necessary in order to connect veterans presenting with these forms of mental illness with applicable treatment options.

Telemental Health as a Solution

One mechanism through which treatment utilization in the veteran population could potentially be increased is via telemental health (TMH). TMH is the provision of psychological services by a therapist to a client using telecommunication technologies (American Psychological Association, 2013). In terms of psychotherapy, TMH may consist of using telephones, videoconferencing software, or even instant messaging to put a therapist and client in contact with one another (Cartreine, Ahern, & Locke, 2010). Telephone- and videoconference-based therapies will be the areas of focus in this study.

Telephone-based psychotherapy (TBP) and videoconference-based psychotherapy (VBP) are the two most heavily researched modalities of TMH intervention. At a minimum, TBP requires that both the therapist and the client have either a landline or a cellular phone with which to contact one another. VBP requires that the therapist and client each have a computer/tablet equipped with a webcam and a high-speed Internet connection capable of sustaining a live video stream (Lovell et al., 2006; Yuen, Goetter, Herbert, & Forman, 2012). Some studies have required veterans to present to a nearby facility to access psychotherapy via telephone or webcam, while others have employed a home-based TMH model in which the veteran received webcam equipment to install in their home or used their own telephone for psychotherapy.

There is reason to believe that TMH modalities may be more suited to address some of the established barriers to treatment for OEF/OIF veterans than traditional face-to-face psychotherapy (FTF). TMH may address the issue of predisposing beliefs (e.g. stigma about mental health treatment) given that this modality may be perceived as a more private treatment experience. For instance, Cartreine et al. (2010) suggested that

TMH might address stigma by reducing the embarrassment related to seeking out help, as contact will typically not be made in person. Similarly, Lu et al. (2014) and Pruitt et al. (2014) have suggested that TMH modalities address stigma by increasing anonymity and reducing public visibility when utilizing mental health services. It has been suggested that home-based TMH might be best for addressing veterans' concerns about stigma and embarrassment, as this delivery method is a more private process than facility-based TMH.

Some recent findings examining civilian populations support these hypotheses. A study examining health-related Internet use within a large national sample found that when compared to individuals with non-stigmatized illnesses (e.g., cancer), individuals with mental illness were significantly more likely to seek out information about treatment in confidential ways, such as via the Internet, rather than in ways that required face-to-face interaction (Berger, Wagner, & Baker, 2005). Moreover, in a study researching attitudes towards TMH modalities for individuals living in rural areas, results demonstrated a significant relationship between positive views about TMH treatments and decreases in hometown population size (Reed et al., 2014). The authors attributed this finding to rural individuals being more aware of TMH's capability of overcoming various barriers to treatment, including stigma. This study is particularly salient given the high percentage of veterans residing in rural areas (Hassija & Gray, 2011; Tanielian & Jaycox, 2008). The combination of these investigations indicates that OEF/OIF veterans' concerns about stigmatization are likely to be ameliorated by TMH psychotherapies, given the unique potential to create a more private treatment experience. If true, this

would support Andersen's (1995) assertion that predisposing beliefs are a mutable barrier to treatment.

Many researchers have also stated the potential for TMH modalities to circumvent issues related to logistical barriers (Acierno et al., 2016; Cartreine et al., 2010; Egede et al., 2015; Osenbach et al., 2013; Yuen et al., 2012; Yuen et al., 2015). Distance to provider is a common logistical barrier, as an estimated 40% of veterans live in rural areas and are often at a disadvantage for accessing evidence-based mental health treatment (Hassija & Gray, 2011; Tanielian & Jaycox, 2008). This issue can also occur in more densely populated areas if there is no provider on hand with relevant or necessary training (e.g., experience working with PTSD; Osenbach et al., 2013). TMH offers an excellent solution to this abundance of logistical barriers, as it effectively negates the need for having a provider within one's immediate area (Andersen, 1968; Cartreine et al., 2010; Morland et al., 2014; Osenbach et al., 2013; Yuen et al., 2012).

OEF/OIF veterans have also cited issues with scheduling psychotherapy sessions, such as being unable to take time off work or having insufficient childcare options (Elbogen et al., 2013; Garcia et al., 2014; Hoge et al., 2004; Kim et al., 2011; Valenstein et al., 2014). These obstacles are particularly pertinent for OEF/OIF veterans in comparison to veterans from previous eras, as they are more likely to be in the workforce and have young children (Garcia et al., 2014). TMH modalities can minimize the complications associated with these situations by enabling veterans to engage in psychotherapy at home, thereby eliminating the need to alter work schedules or seek out additional childcare (Pruitt et al., 2014; Yuen et al., 2012). Additionally, Pruitt et al. (2014) also suggested that offering these clients TMH options conveys a client-centered

approach to psychotherapy that could increase treatment adherence, as clients will feel that their practical concerns about treatment utilization have been validated.

In endorsing cost as a logistical barrier to treatment, veterans may be referring to a number of factors associated with being able to afford psychotherapy; specifically, expenses related to treatment may include paying for therapy, commuting to appointments, loss of income due to taking time off of work during appointments, and spending money on childcare (Gamm & Van Nostrand, 2003; Jones et al., 2013; Pignatiello et al., 2011). Again, by allowing veterans to engage in psychotherapy at a preferred time and location, TMH has the ability to reduce the aforementioned costs associated with mental health treatment. For example, travel costs may be eliminated by negating the need to commute to appointments (Cromartie & Bucholtz, 2008; Jones et al., 2013; Pignatiello, et al., 2011). Thus, TMH modalities have the potential to provide services to individuals facing a host of logistical barriers, supporting Andersen's (1995) belief that logistical barriers possess the highest degree of mutability.

Finally, as described, symptomatology of PTSD, depression, and AUD interferes with effective treatment utilization (Blais et al., 2014; Harpaz-Rotem & Rosenheck, 2011; Mohr et al., 2010). With regard to Andersen's model of treatment utilization, TMH modalities may improve engagement for OEF/OIF veterans with severe symptomatology by eliminating mental illness-related barriers (Andersen, 1968). For instance, Pruitt et al. (2014) suggested that individuals demonstrating severe avoidance patterns may be less likely to skip TMH sessions than FTF sessions, as they may perceive the therapeutic process associated with TMH to be more approachable than traditional in-person care. Moreover, as previously discussed, TMH modalities may assist individuals exhibiting

depression and/or AUD in treatment engagement by facilitating access to care (Yuen et al., 2012).

Although quite limited, preliminary evidence does indeed suggest that TMH modalities increase overall treatment-seeking and treatment adherence for veterans. One previous study showed that after being exposed to telephone-based mental health assessments, veterans sought psychotherapy services at a greater rate in the following five years, (though it should be noted that much of the subsequent treatment occurred in person; Possemato et al., 2013). Further, recent studies comparing the effectiveness of TMH and FTF psychotherapies have exhibited greater rates of treatment completion for the TMH (i.e., TBP and VBP) groups than the FTF groups (Fortney et al., 2015; Mohr et al., 2012). These results call for more research on this topic, and eventually, greater proliferation of TMH modalities if these trends continue.

Telemental Health outcomes research. The most critical detail regarding TMH treatment's candidacy as a viable option for veterans with PTSD, depression, and/or AUD is whether or not it is efficacious. Research indicates that TMH is an operable solution for treating PTSD, as several studies have compared the effectiveness of FTF and TMH psychotherapies in treating PTSD. For instance, in an effort to disseminate evidence-based treatment for PTSD to a greater number of OEF/OIF veterans, Strachan, Gros, Ruggiero, Lejuez and Acierno (2012) adapted an empirically supported brief behavioral intervention to be used in a home-based VBP format. As predicted, the 31 participants that completed treatment experienced significant therapeutic gains such that the mean post-treatment score on the PTSD symptomology measure would no longer qualify as a probable PTSD diagnosis. No reliable differences emerged between the FTF

and VBP groups in terms of self-reported psychopathology. Similarly, positive results

have occurred in other studies using both home-based and facility-based TMH to treat

veterans and individuals in the general population with evidence-based psychotherapies

for PTSD (Acierno et al., 2016; Fortney et al., 2015; Germain et al., 2009; Morland et al.,

2014; Yuen et al., 2015).

Numerous studies have also examined the effectiveness of treating depression

with TMH. For example, using a sample of civilians recruited from a local hospital, Mohr

et al. (2012) compared the effectiveness of administering evidence-based psychotherapy

for depression FTF versus via TBP. Significantly fewer participants dropped out of the

TBP course of treatment than the FTF course and participants in both groups experienced

clinically significant reductions in depression symptomology post-treatment. Notably, at

6-month follow-up, the TBP group reported significantly greater depression than the FTF

group, suggesting poorer maintenance of treatment gains. Other studies have found

mixed results, with one TBP group demonstrating comparably positive results to the FTF

group and another TBP group failing to show discernible outcome differences from the

treatment-as-usual group (Himelhoch et al., 2013; Lynch, Tamburrino, Nagel, & Smith,

2004; Nelson, Barnard, & Cain, 2003).

The data on treating veterans for depression is mostly encouraging. One study

employing TMH treated a veteran sample for depression and found no differences in

depression scores post-treatment between the TBP CBT group and the treatment as usual

group, which received little psychological care (Mohr et al., 2011). The authors of this

investigation suggested that veterans may be more refractory to treatment than other

populations and thus may need a more rigorous intervention than TMH offers (Mohr et

al., 2011). However, in a more recent study employing home-based TMH, home-based

VBP was compared to FTF treatment for a sample of older veterans ($\geq$ 58 years old) with

depression. Results were favorable, as large percentages of veterans in both treatment

groups no longer met criteria for depression at 12 months post-baseline. Analyses also

revealed no differences in treatment outcomes (i.e., symptoms) or dropout rate (Egede et

al., 2015). Moreover, studies employing evidence-based psychotherapies via TMH to

treat chronic pain and PTSD have produced significant decreases in depression

symptomology for participants (Carmody et al., 2013; Morland et al., 2014). Thus, while

it is possible that an effect exists in which VBP is superior to TBP for veterans with

depression, there is little doubt that depressed veterans can receive effective treatment via

TMH.

Although few studies exist on using TMH psychotherapies to treat alcohol

problems, preliminary findings are mixed and more research is needed. At-risk alcohol

users in rural settings face numerous barriers to care. In order to address this problem,

Staton-Tindall et al. (2014) investigated the effectiveness of administering an evidence-

based psychotherapy for AUD via facility-based VBP. At three-months post-treatment,

no differences existed between the VBP group receiving Motivational Enhancement

Therapy (MET) and the treatment-as-usual group receiving an assessment and referrals.

However, a dosage effect was found such that the 37% of participants in the VBP group

who had three or more MET sessions reduced their likelihood of alcohol use over the

previous three months by 72%. Three or more sessions of VBP MET also predicted less

alcohol-related problems in the three-month follow-up period. Moreover, Helstrom et al.

(2014) found that a brief telephone-based intervention was associated with reductions in

heavy drinking in a sample of 146 veterans, as 40% of participants were no longer

engaging in heavy drinking at follow-up. Once again, this study failed to find a

significant difference between the TBP group and the treatment-as-usual group. While

these findings suggest promise for the use of TMH in treating AUDs, more research must

be conducted with veteran populations and greater treatment adherence should be

targeted.

Veterans' Preferences for Treatment

To date, the majority of existing literature aimed at increasing mental health

treatment utilization for veterans has focused on barriers to care (Crawford et al., 2015).

This research has been crucial, as many of the obstacles proposed by Andersen (1968)

have been established as influencing treatment-seeking and treatment adherence.

However, much less research has been done to determine treatment preferences for

veterans. This trend was noted in a recent study, with the authors suggesting that research

to date has major limitations because of its narrow focus and its perpetuation of a

perception that attaining mental health treatment will be a difficult process for veterans

(Crawford et al., 2015).

Thus, an increased examination of the predisposing beliefs that may make

veterans more likely to seek out and remain in treatment (i.e., their preferences) is

important (Andersen, 1968). It has been suggested that having knowledge of OEF/OIF

veteran preferences for treatment may lead to better clinical outcomes by facilitating

treatment engagement (Schumm, Walter, Bartone, & Chard, 2015). This notion is

supported by previous research, as Swift, Callahan, & Vollmer (2011) found that

matching patients up with preferred treatment is associated with a reduced likelihood of

dropping out of treatment and better outcomes at treatment follow-up. Moreover,

accounting for treatment preferences promotes a patient-centered approach wherein the

mental health care provider communicates that the veteran's practical concerns about

treatment are valid (Crawford et al., 2015; Pruitt, Luxton, & Shore, 2014).

Though limited in number, treatment preference studies on OEF/OIF veterans

have yielded several important findings to date. A study by Reger et al. (2013) examined

preferences for PTSD treatment of 174 soldiers (83% male) that had been previously

deployed to Iraq. Participants were largely partial to Prolonged Exposure (PE) and virtual

reality exposure therapy (VRET) in comparison to medication, as these forms of

treatment were believed to be less shameful, less harmful to one's career, and more

efficacious (Reger et al., 2013). A smaller study involving 28 OEF/OIF veterans (89%

male) examined how veterans view psychotherapy (PE and VRET), peer support groups,

and medication in terms of credibility and stigma (self- and public). Results indicated that

veterans believe their peers have more stigmatizing views towards treatment via

medication than psychotherapy; further, they perceive psychotherapy for PTSD as being

more credible than medication (Gilliam, Norberg, Ryan & Tolin, 2013). These findings

provide additional support for Andersen's (1968) assertion about the influence of

predisposing beliefs in treatment utilization.

Most recently, Crawford et al. (2015) compared treatment barriers and

preferences across previously treated (n = 160) and untreated (n = 119) OEF/OIF

veterans with a probable PTSD diagnosis. Consistent with previous findings, the most

common barriers included avoidance of medication, aversion to talking about war

experiences, and a belief that it is a personal duty to solve one's own problems. Veterans

with and without treatment histories differed in their concerns about privacy, indicating

that utilization may improve through clarification of the differences between Department

of Defense (DoD) privacy protections and those in the VA. With regard to treatment

preferences, veterans most frequently endorsed wanting their VA care to include

assistance with benefits, assistance with physical problems (i.e., dental, eye, and hearing),

and assistance with mental health-related difficulties (i.e., sleep, anger, and stress). The

authors asserted that some VA facilities may increase treatment utilization for veterans

through greater outreach of the Veterans Benefits Administrations, better integration of

mental and physical health services, and better education about potential benefits of

engaging in evidence-based psychotherapies (Crawford et al., 2015; Galovski, Monson,

Bruce, & Resick, 2009).

The current literature on treatment preferences can be expanded upon in several

ways. First, the mental health problems in question can be broadened beyond PTSD. This

would establish treatment preferences for veterans suffering from other common mental

illnesses, such as depression and AUD (Elbogen et al., 2013). Next, TMH options may be

introduced as possible avenues for treatment, thereby allowing VA clinicians to

determine whether or not the groups of individuals hypothesized to benefit from these

services (e.g., people living in rural areas) actually prefer them. It is likely that

preferences for certain aspects of treatment, such as whether to receive both physical

medical services and mental health treatment at the same facility, will differ between

veterans preferring FTF and TMH approaches.

The Current Study

The overarching aim of the current study is to expand our knowledge of the factors determining OEF/OIF veterans' mental health treatment histories and treatment preferences. Previous literature supports Andersen's (1968) proposed model of treatment utilization, as predisposing attitudes towards mental illness and mental health care, logistical barriers to treatment, and mental illness symptomatology have all been shown to influence OEF/OIF veterans' treatment-seeking and treatment adherence (Blais et al., 2014; Lopez-Goni et al., 2011; Mohr et al., 2010; Garcia et al., 2014; Valenstein et al., 2014; Vogt et al., 2014). However, no known study has examined the combined effect of each of these factors, in addition to the impact of preferences for treatment, on overall treatment utilization rates for veterans. This is an important contribution, as efforts towards increasing treatment utilization for this population will require a patient-centered approach wherein barriers and preferences are considered (Crawford et al., 2015; Pruitt et al., 2014).

Several specific barriers to treatment for OEF/OIF veterans have garnered attention. In particular, beliefs about stigmatization, attitudes towards mental health treatment, logistical barriers involving distance, time, and money constraints, and certain mental illness symptoms exert influence on veterans' treatment utilization (Blais et al., 2014; Held & Owens, 2012; Lopez-Goni et al., 2011; Mohr et al., 2010; Garcia et al., 2014; Valenstein et al., 2014; Vogt et al., 2014). In response to these findings, some researchers have hypothesized that TMH treatments may facilitate the process of connecting OEF/OIF veterans with treatment. TMH has the potential to circumvent issues related to stigma, accessibility, and inhibitory symptomatology (Morland et al., 2014;

Pruitt et al., 2014; Yuen et al., 2012). As such, certain veterans may demonstrate

inclinations towards TMH treatments in comparison to FTF treatments.

The current study will extend previous research on the factors affecting OEF/OIF

veterans' treatment histories and treatment preferences. An investigation of the combined

influence of predisposing beliefs (i.e., self-stigma, public stigma, attitudes towards

mental health treatment, and preferences for treatment), logistical barriers, and mental

illness symptomatology (i.e., symptoms of PTSD, depression and alcohol use) on history

of mental health treatment will be conducted. Thus, a comprehensive examination of the

factors deterring and facilitating veteran treatment utilization will be achieved.

Further, our understanding of OEF/OIF veterans' preferences for treatment will

be expanded by measuring mental illness symptomatology other than PTSD. Preferences

for treatment will be established across a wider spectrum of mentally ill veterans,

including those with depression and AUD. Finally, no studies have examined veterans'

treatment preferences according to psychotherapy modality (Reger et al., 2013). This

study will ask veterans to endorse their personal preference between FTF and TMH

treatments, allowing for the examination of whether or not certain factors (e.g., access to

local care) differentially influence preferences for each modality.

Participants will be asked about their prior history of mental health treatment.

Mental illness symptoms will be screened using empirically supported instruments for

PTSD, depression, and alcohol use. Predisposing beliefs about treatment and logistical

barrier endorsement will be measured using scales that have been adapted from previous

studies. Finally, participants' preferences to engage in FTF and TMH treatments will be

determined after participants are exposed to brief descriptions of each treatment modality.

The following hypotheses are proposed for the study:

Hypothesis 1. Predisposing beliefs about treatment (i.e., self-stigma, public

stigma, attitudes towards mental health treatment, preferences for mental health

treatment), logistical barrier endorsement, and mental illness symptomatology

(i.e., PTSD, depression, alcohol use) will predict previous use of mental health

treatment;

Hypothesis 2. Veterans without treatment histories will demonstrate a greater

preference towards TMH approaches than veterans with treatment histories;

Hypothesis 3. A preference for TMH will be associated with the following:

    (a) TMH preference will be associated with higher levels of stigma

        associated with mental illness;

    (b) TMH preference will be associated with more negative attitudes

        towards mental health treatment;

    (c) TMH preference will be associated with a greater preference for

        certain aspects of mental health treatment (e.g., a private setting);

    (d) TMH will be associated with higher levels of logistical barrier

        endorsement;

    (e) TMH will be associated with greater symptomatology across PTSD,

        depression, and AUD

Hypothesis 4. For participants with probable PTSD (i.e., PCL-5 score > 33),

PTSD avoidance symptoms will partially mediate a relationship between other

PTSD symptoms (re-experiencing, negative cognitions, hypervigilance) and a

preference for TMH over FTF treatment.

Hypothesis 5. For participants with probable depression (i.e., BDI-2 score $\geq$ 14),

higher levels of logistical barriers will partially mediate a preference for TMH

over FTF.

Hypothesis 6. For participants with probable AUD (i.e., AUDIT score $\geq$ 8),

higher levels of logistical barriers will partially mediate a preference for TMH

over FTF.

Method

Participants

Participants were comprised of veterans having served in OEF/OIF. Deployment

to either Iraq or Afghanistan was not a requirement for this study. No history of mental

illness was required for participation, nor was a history of mental health treatment. A

total of 634 individuals initiated participation in the study via Craigslist (n = 124) or

MTurk (n = 510). A total of 92 individuals were deemed ineligible based on answering

"No" to one of the three initial screening questions (Craigslist n = 20; MTurk n = 72).

Upon examination of the data, a total of 7 individuals were removed because they

indicated that they were active duty (Craigslist n = 3; MTurk n = 4). An additional 84

individuals were removed from analyses due to missing more than 6% of survey data

(Craigslist n = 52; MTurk n = 32). A total of 26 individuals were removed because they

demonstrated an inconsistent treatment modality preference in their answers, thus

rendering their results unable to be interpreted (Craigslist = 1; MTurk = 25). Finally, a

total of 3 individuals were removed due to univariate and multivariate outliers in their

data (Craigslist = 1; MTurk = 2). The total number of participants in the study sample

was 422 OEF/OIF veterans.

Procedure

Participants were primarily recruited through Amazon MTurk and Craigslist.

Participants were given an eligibility screener after they clicked on the survey link. Once

participants were deemed eligible, they read and agreed to the informed consent, and then

completed a set of measures and questionnaires. The entire battery of measures took

approximately 30-45 minutes to complete. Upon completion of the study, participants

received information about how to get in touch with mental health services if needed. No

identifying information was obtained from participants. As compensation, participants

completing the survey on MTurk received $1. Participants on Craigslist were offered the

option of entering into a raffle for a $100 gift certificate after completing the survey. The

link to provide their information for the raffle was completely separate from that of the

study, so as not to connect any personal information to study results. After data

collection was completed, one veteran was selected and sent a gift card.

Measures

Initial screener. A brief online screener consisting of three questions was used to

determine eligibility for the study. The three questions were as follows: "Have you ever

served in the military?"; "Did you serve in either Operation Iraqi Freedom or Operation

Enduring Freedom?"; and "Are you a veteran (i.e., no longer serving active duty)?" If

the participant answered "yes" to each of these questions, they were transferred to the

informed consent page. If not, they were presented with an information page about how

to get in touch with mental health services.

Demographic and background questionnaire. Information regarding participants' gender, age, race, military branch, and military rank was elicited. Information regarding previous mental health treatment was gathered including past instances of seeking out services, number of sessions attended, and purpose of treatment (i.e., excessive alcohol use). Finally, participants were asked the distance (in commute time) to their closest VA or CBOC.

Self-stigma and public stigma. The Mental Illness Stigma Scale (MISS) was employed to examine self-stigma and public stigma associated with having a mental illness (Brown & Bruce, 2016). The MISS consists of 20 items and is an adapted version of the Generalized Anxiety Stigma Scale (GASS; Griffiths et al., 2011), a self-report scale used to measure the level of self-stigma and public stigma that an individual associates with having an anxiety disorder. The MISS consists of 10 self-stigma items that asked individuals about their own views on mental illness and 10 public stigma items that asked individuals what they believe most people in the military think about mental illness. Individuals were asked to rate their level of agreement on a 5-point Likert scale ranging from 1=*Strongly Disagree* to 5=*Strongly Agree*. For example, individuals are first asked to rate their own level of agreement with the statement "*People with mental illness are unstable*," and are subsequently asked to rate the level of agreement with the statement that they would expect from other individuals in the military.

In a previous study, the correlation between self-stigma and public stigma on the MISS (r = .53, $p < .001$) indicated that two distinct variables were being measured. Each of the items also demonstrated acceptable levels of correlation with their respective factors (from .54 to .86, $p < .001$; Brown & Bruce, 2016). Additionally, the GASS has

demonstrated acceptable levels of reliability and validity. During standardization, factor

loadings ranged from 0.65 to 0.80 for the self-stigma scale, and from 0.57 to 0.77 for the

public stigma scale. No cross loadings exceeded 0.13. The Cronbach alphas for the 10-

item self-stigma scale and 10-item public stigma scale were 0.86 and 0.91, respectively.

Adequate levels of convergent validity with the Devaluation Discrimination Scale (DDS)

were also achieved (Griffiths et al., 2011). Within the current study, the Cronbach's

alphas for the MISS 10-item self-stigma scale and 10-item public stigma scale were 0.90

and 0.92, respectively.

Attitudes towards mental health treatment. Participants' attitudes towards

mental health treatment were examined using a 7-item self-report measure developed by

consulting relevant findings from previous studies (Crawford et al., 2015; Garcia et al.,

2014; Valenstein et al., 2014). The measure asked participants to rate their level of

agreement with statements regarding how they perceive mental health treatment in terms

of privacy, effectiveness, and process. For example, "*Mental health treatment often*

requires treatments that people don't want (e.g., discussing war)." Responses fell on a 5-

point Likert scale ranging from 1=*Strongly Disagree* to 5=*Strongly Agree*. Within the

current study, the Cronbach's alpha for the 7-item Attitudes towards treatment scale was

.81.

Preferences for mental health treatment. Participants' preferences for mental

health treatment were examined using a 12-item self-report measure developed by

consulting relevant findings from a previous study (Crawford et al., 2015). The measure

asked participants to rate their level of agreement with statements that may or may not

reflect their personal preferences for treatment. Areas of inquiry included finances,

physical health, mental health, and family services. For example, "*I would be open to mental health treatment that worked towards relieving sleep difficulties.*" Responses fell on a 5-point Likert scale ranging from 1=*Strongly Disagree* to 5=*Strongly Agree.* Within the current study, the Cronbach's alpha for the 12-item Preferences for treatment scale was .88.

Logistical barriers. Logistical barriers were measured using an 8-item self-report measure developed by consulting relevant findings from previous studies (Crawford et al., 2015; Garcia et al., 2014; Hoge et al., 2004; Valenstein et al., 2014; Vogt et al., 2014). The measure asked participants to rate their level of agreement with statements regarding various barriers to accessing treatment, including lack of availability, lack of time, and lack of money. For example, "*If I were interested in mental health treatment, the significant amount of time it takes me to get to the nearest VA/CBOC would make it difficult for me to engage in therapy.*" Responses fell on a 5-point Likert scale ranging from 1=*Strongly Disagree* to 5=*Strongly Agree*. Within the current study, the Cronbach's alpha for the 8-item Logistical barriers scale was .80.

Posttraumatic stress disorder. The PTSD Checklist for DSM-5 (PCL-5) is a 20-item self-report measure used to screen for PTSD in accordance with the new symptom criteria found in the fifth edition of the Diagnostic and Statistical Manual of Disorders (American Psychiatric Association, 2013; Weathers et al., 2010). Participants' responses are in reference to "stressful military experiences," and fall on a scale between 0 (= "*Not at all*") and 4 (= "*Extremely*"), with scores of 2 or greater being considered positive symptoms. The measure contains items pertaining to each of the four symptom clusters

(i.e., re-experiencing, avoidance, negative cognitions, and hypervigilance). A cutoff score of 33 is currently recommended for probable PTSD diagnosis.

The PCL-5 demonstrated good psychometric properties in a recent study examining veterans seeking care at a VA Medical Center. The measure exhibited good internal consistency ($\alpha = .96$) and test-retest reliability ($r = .84$; Bovins et al., 2016). Moreover, using signal detection analysis with the Clinician Administered PTSD Scale-Fifth Edition (CAPS-5) as a reference point, this same study established that PCL-5 scores ranging from 31 to 33 were optimal for diagnosing PTSD ($k(.5) = .58$; Bovins et al., 2016). Note that the CAPS-5 is considered the gold-standard measure for PTSD diagnosis. Within the current study, the Cronbach's alpha for the PCL was .96.

Depression. The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) is a 21-item self-report measure used to assess the severity of depressive symptoms. Scores on the BDI range from 0 to 63, with higher scores denoting higher levels of symptomatology. Scores from 0-13 indicate minimal depression, 14-19 indicate mild depression, 20-28 indicate moderate depression, and 29 and up indicate severe depression. The BDI-II has demonstrated adequate levels of test-retest reliability (0.93 to 0.96) and internal consistency (0.54 to 0.74) (Arnau, Meagher, Norris, & Bramson, 2001; Beck et al., 1996). Within the current study, the Cronbach's alpha for the BDI-II was .96.

Alcohol Use. The Alcohol Use Disorder Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders & Monteiro, 2001) is a 10-item self-report measure screening for alcohol-related problems. Items pertain to a number of drinking-related events, and are scored between 0 (= *Never*) and 4 (= *4 or more times a week*). For example, "*How often during the last year have you had a feeling of guilt or remorse after drinking*?"

Scores range between 0 and 40, and a score of 8 or more is indicative of hazardous or

harmful alcohol use. Cutoff scores yielded ratings of .71 for sensitivity and .85 for

specificity in a veteran sample (Bradley et al., 2003). Further, a median reliability

coefficient calculated from 18 studies was 0.83 (Reinert & Allen, 2007). Within the

current study, the Cronbach's alpha for the AUDIT was .91.

Face-to-face versus telemental health. Participants were exposed to two brief

vignettes, one describing the typical procedure of evidence-based FTF treatment, and

another describing the typical procedure of evidence-based TMH treatment. After reading

each vignette, they were asked to endorse which treatment experience they would prefer,

as well as the strength of their preference. Strength of preference was measured on an 8-

point scale. A preference for FTF treatment ranged from 1 to 4 with the following

descriptors: "Very Strong preference for FTF treatment" (= 1), "Strong preference for

FTF treatment" (= 2), "Medium preference for FTF treatment" (= 3), "Slight preference

for FTF treatment" (= 4). A preference for TMH treatment ranged from 5 thru 8 with the

following descriptors: "Slight preference for TMH treatment" (= 5), "Medium preference

for FTF treatment" (= 6), "Strong preference for TMH treatment" (= 7), "Very Strong

preference for TMH treatment" (= 8).

Reason for Treatment Modality Preference. Participants were also offered the

opportunity to briefly explain the reason for their treatment modality preference in a few

words, allowing for some qualitative exploratory analyses. When interpretable, this data

was reviewed and coded into several categories of reasons for treatment preference. The

following categories of reasons for treatment modality preference emerged: 1 = It's more

personal; 2 = It's more convenient; 3 = It provides greater privacy; 4 = It's more

effective; 5 = I feel less embarrassed/judged using this method; 6 = Other reasons.

Statistical Analyses

Analyses were conducted using IBM SPSS Statistics. In situations where a

participant was missing a small number of responses, missing data was imputed using the

maximum likelihood (ML) approach. The maximum likelihood approach was used due to

its simplicity and consistency; additionally, it is preferable because it does not have the

effect of reducing variance within the sample's data (Allison, 2012; Meyers, Gamst, &

Guarino, 2013). Finally, prior to conducting the regression analyses, univariate and

multivariate outliers were screened for using z-scores and the Mahalanobis Distance test.

Power analyses were calculated using a combination of the G*Power program, a sample

size calculator for structural equation models (Soper, 2015), and Cohen's (1992) article

on power.

Hypothesis 1. A binary logistic regression was conducted to examine whether or

not self-stigma, public stigma, attitudes towards mental health treatment, preferences for

mental health treatment, logistical barriers to treatment, PTSD symptomatology,

depression symptomatology, and alcohol use symptomatology predicted previous use of

treatment. Results of an omnibus test of model coefficients based on a χ^2 test revealed

whether or not the proposed model was significantly better than the constant-only model.

A sample of about 160 participants was required to conduct this test at $\alpha = .05$ and $\beta =$

.80.

Hypothesis 2. An independent samples *t*-test was conducted to examine whether

a greater preference for TMH existed for veterans without treatment histories than

veterans with treatment histories. Analysis with G*Power indicated that in order to achieve small-to-medium effect size (Cohen's d = 0.35) at α = .05 and β = .80, a sample of 260 participants was required.

Hypothesis 3. A multivariate analysis of variance (MANOVA) was conducted to examine whether self-stigma, public stigma, attitudes towards mental health treatment, preferences for mental health treatment, logistical barriers to treatment, PTSD symptomatology, depression symptomatology, and alcohol use symptomatology differed according to treatment preference (i.e., TMH versus FTF). Results of a Wilk's lambda F statistic revealed whether or not participants preferring TMH differed from participants preferring FTF treatment across the eight variables being measured. Further, examination of F tests for each independent variable determined which variables the groups differed by. Analysis with G*Power indicated that in order to achieve small-to-medium effect size (f^2 = .08) at α = .05 and β = .80, a sample of 188 participants was required.

Hypothesis 4. A single-mediator path analysis examined whether avoidance symptoms partially mediated the relationship between other PTSD symptomatology (re-experiencing, negative cognitions, and avoidance) and a preference for TMH for participants with probable PTSD. This analysis entailed the comparison of two models: one examining other PTSD symptom's ability to predict TMH preference in isolation, and the next examining other PTSD symptoms' and avoidance symptoms' ability to predict TMH preference. It was hypothesized that the value of the coefficient between other PTSD symptoms and TMH preference would be greatly reduced when avoidance symptoms were introduced into the model. Analysis with G*Power indicated that in order to achieve small-to-medium effect size (f^2 = .08) at α = .05 and β = .80, a sample of 124

participants was required. Moreover, to test for significance of the indirect path of other

PTSD symptoms through avoidance symptoms to a preference for TMH, a Sobel *t*-test

was conducted to compare the value of the unmediated coefficient to that of the mediated

coefficient. Analysis with G*Power indicated that in order to achieve small-to-medium

effect size (d = .50) at α = .05 and β = .80, a sample of 128 participants was required.

Hypotheses 5 and 6. A single-mediator path analysis examined whether logistical

barrier endorsement partially mediated the relationship between depression

symptomatology and a preference for TMH for participants with probable depression.

This analysis entailed the comparison of two models: one examining depression

symptomatology's ability to predict TMH preference in isolation, and the next examining

depression symptomatology's and logistical barrier endorsement's ability to predict TMH

preference. It was hypothesized that the value of the coefficient between depression

symptomatology and TMH preference would be greatly reduced when logistical barrier

endorsement was introduced into the model. Once again, a Sobel *t*-test was used to

examine whether the unmediated and mediated coefficient values differed. As described,

a sample of at least 128 participants was required. Note that the same parameters had to

be met when examining whether or not logistical barrier endorsement partially mediated

the relationship between AUD symptomatology and TMH preference.

<div align="center">

Results

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Participant Demographics

Demographic results are presented in Table 1. The sample's average age was 33.4

years old. About three in four participants were men (73.5%). Three quarters of the

sample were white (75.1%), 10.0% were black, and 6.2% were Hispanic (non-white). The

average amount of time spent serving in the military for participants in the sample was 7

years. Half of the participants served in the Army (52.8%), with the other half being split

across the Navy (14.5%), Air Force (12.6%) and Marines (15.9%). A total of 82% of

participants identified their rank as enlisted. Finally, 70.8% of the sample indicated that

they were exposed to combat.

Four in ten participants reported receiving some form of prior mental health

treatment (42.4%), while 55.5% indicated that they had never receiving treatment (Table

1). Of the 179 participants with previous mental health treatment, 21.3% of these

participants sought treatment for PTSD, 26.3% sought treatment for depression, 7.8%

sought treatment for alcohol abuse, 10.2% sought treatment for difficulties readjusting

after military service, and 9.2% indicated that they sought treatment for other issues (e.g.,

couples' therapy, general anxiety, panic attacks). Finally, 68.7% of those having received

treatment endorsed treatment as being helpful, while 31.3% indicated that they found it

unhelpful. It is unknown whether treatment occurred within the VA system or the private

sector.

Missing Data and Outliers

Participants failed to answer a small number of items ($< 1\%$) on the survey. Data

was imputed using the maximum likelihood (ML) approach to calculate composite scores

for various analyses. An insignificant Little's MCAR test ($\chi^2 = 10636.99$, $p = .15$)

determined that the scores were MCAR and that ML imputation was appropriate. Note

that data imputation was only implemented for measures requiring composite scores (i.e.,

self-stigma, public stigma, attitudes towards health treatment, preferences for mental

health treatment, logistical barrier endorsement, PTSD symptoms, depression symptoms, and AUD symptoms).

Outliers were removed due to a high level of sensitivity for certain analyses used. Two participants were removed because their composite score for one of the predictor variables fell outside of the 99.9th percentile. Multivariate outliers were also screened for using the Mahalanobis Distance test, with one case being removed for far exceeding the chi-square cut-off value of 26.12 ($p < .001$). Thus, a total of three individuals were determined outliers and removed.

Treatment Modality Preferences and Reasons for Preferences

The average overall treatment modality preference score was 2.95 (SD = 2.28), indicating that the average participant had a "Medium preference for FTF treatment." A total of 76.1% (N = 321) of participants endorsed a preference for FTF, 23.7% (N = 100) of participants endorsed a preference for TMH, and one participant (0.2%) failed to respond to the question. Of the individuals preferring TMH, 66% preferred telephone-based care and 34% preferred videoconference-based care. Table 2 demonstrates that a preference for FTF treatment was consistently found across various demographic levels (i.e., gender, race, military branch, etc.). Notably, no relationship emerged between commute length to one's nearest VA/CBOC and a preference for TMH.

Participants detailed reasons for their preferred modality of treatment, and this data was interpretable for 92.7% (N = 391) of the sample. Of the 300 veterans preferring FTF treatment whose qualitative data was interpretable, 39.3% preferred it because they believe it is more personal and 41% preferred it because they believe it is more effective. Of the 91 veterans preferring TMH treatment whose qualitative data was interpretable,

52.7% preferred it because they believe it is more convenient and 34% preferred it

because they believe they would feel less embarrassed and/or judged by this form of

treatment. Additional information can be seen in Table 3.

**Hypothesis 1. Predisposing beliefs about treatment (i.e., self-stigma, public stigma,
attitudes towards mental health treatment, preferences for mental health
treatment), logistical barrier endorsement, and mental illness symptomatology (i.e.,
PTSD, depression, alcohol use) will predict previous use of mental health treatment**.

This analysis was conducted using binary logistic regression. The assumption of

an absence of multicollinearity between the predictor variables was met. Outside of

depression and PTSD, which were highly correlated, acceptable rates of tolerance (all >

.40) and VIF (all < 2.5) were found amongst the independent variables.

Results of the logistic analysis found that the eight-predictor model was a

statistically significant predictor of treatment use, χ^2 (8, N = 413) = 55.15, $p < .001$. The

Nagelkerke pseudo R^2 = .168, indicating that the model accounted for about 17% of the

total variance. Hypothesis 1 was supported; the model successfully predicted previous

treatment 65.6% of the time. Moreover, 49.2% of individuals having sought treatment

were successfully categorized, while 78.2% of individuals having not sought previous

treatment were successfully categorized. In comparison, the constant-only model, which

assumed that all participants did not receive previous mental health treatment, was

correct 57.5% of the time.

Table 4 presents statistical data for each predictor. The Wald test indicated that

self-stigma, public stigma, and PTSD symptomatology (i.e., PCL score) were the only

three statistically significant predictors of treatment use. Depression and alcohol use

trended towards significance. PTSD symptomatology demonstrated the strongest

influence; for every single-point increase in PCL score, the odds of having previously

been in treatment were 1.03 times higher after controlling for the other predictor

variables. Self-stigma had the second strongest influence. For every single-point increase

in self-stigma score, the odds of having had treatment were .964 times lower after

controlling for the other predictor variables. Finally, for every single-point increase in

public stigma score, the odds of having had treatment were 1.03 times higher after

controlling for the other predictor variables.

Hypothesis 2. Veterans without treatment histories will demonstrate a greater

preference towards TMH approaches than veterans with treatment histories.

This analysis was tested using an independent samples t-test. The average

treatment modality preference score for participants without a history of mental health

treatment was 3.05 (SD = 2.28), while the average treatment modality preference score

for participants with a history of mental health treatment was 2.85 (SD = 2.31).

Hypothesis 2 was rejected, as results of the independent samples t-test revealed that there

was no significant difference between the two groups' preferences for treatment modality

($t = 0.89$, $p = 0.38$). In practical terms, these results indicate that participants with and

without previous mental health treatment both had a "Medium preference for FTF

treatment".

Hypothesis 3. A preference for TMH will be associated with the following: higher

levels of stigma (self- and public) associated with mental illness, more negative

attitudes towards mental health treatment, greater preference for certain aspects of

mental health treatment, higher levels of logistical barrier endorsement, and greater

symptomatology across PTSD, depression, and AUD.

A two-group between-subjects multivariate analysis of variance (MANOVA) was

conducted to determine whether the eight aforementioned dependent variables differed

according to treatment modality preference. The independent variable was treatment

modality preference (FTF versus TMH). The assumption of sufficient correlation

between the dependent variables was tested with *Bartlett's test of sphericity* and the

required parameters were met ($p < .001$).

The null hypothesis was confirmed, as results demonstrated that the group of

dependent variables were not significantly affected by treatment modality preference,

Wilks' Lambda = .975, $F(7, 421) = 1.53$, $p = 0.16$. As such, Hypothesis 3 was rejected.

Nevertheless, for the purpose of exploration, separate univariate ANOVAs were still

conducted on each dependent variable. A *Bonferroni correction* was made to reduce the

chances of Type 1 error, resulting in a corrected alpha level of (.05/7 =) 0.007. Results of

the univariate ANOVAs are presented in Table 5. Only attitudes towards mental health

treatment (F = 7.56, $p = .006$, $n^2 = 0.018$) was deemed to significantly differ between

groups, with participants preferring TMH demonstrating significantly more negative

attitudes towards treatment (M = 19.87, SD = 5.43) than participants preferring FTF

treatment (M = 18.28, SD = 4.91).

In order to test for the effects of gender, race/ethnicity, military branch, and

military rank, a number of additional MANOVAs were conducted. Notably, results

revealed that the dependent variables significantly differed across treatment modality

preference for the 104 women veterans, as Wilks' Lambda = 0.767, $F(8, 104) = 4.17$, $p <$

0.001. For women veterans within this sample, treatment modality preference explained

about 23.3% of the variance across the eight dependent variables. A series of univariate

ANOVAs were again conducted on each dependent variable in order to investigate which

variables were driving the effect. The results of these univariate ANOVAs are presented

in Table 6. Using the same *Bonferroni corrected* alpha level of (.05/7 =) 0.007,

depression symptomatology (F = 17.45, $p > .001$, $n^2 = 0.15$), attitudes towards mental

health treatment (F = 13.2, $p > .001$, $n^2 = 0.12$), PTSD symptomatology (F = 11.19, $p =$

.001, $n^2 = 0.10$), and logistical barriers (F = 10.4, $p = .002$, $n^2 = 0.09$) were each deemed

to significantly differ between women veterans preferring FTF treatment and women

veterans preferring TMH. Women veterans preferring TMH tended to be more depressed

(M = 15.70, SD = 1.51 versus M = 28.11, SD = 2.55), have more negative attitudes

towards mental health treatment (M = 17.05, SD = 0.54 versus M = 21, SD = 0.92), have

greater PTSD symptomatology (M = 25.48, SD = 2.11 versus M = 39.33, SD = 3.56), and

endorse more logistical barriers to treatment (M = 24.43, SD = 6.78 versus M = 29.15,

SD = 5.81). No other demographic variable revealed a significant effect for treatment

modality preference.

Hypothesis 4. For participants with probable PTSD, PTSD avoidance symptoms will

partially mediate a relationship between other PTSD symptoms (re-experiencing,

negative cognitions, hypervigilance) and a preference for TMH over FTF treatment.

A single-mediator path analysis was employed to test this hypothesis. A total of

192 (45.4%) participants met the inclusion criterion for this analysis (i.e., PCL-5 score $\geq$

33). Assumptions for a mediation analysis were not met. Although other PTSD

symptomatology and avoidance symptomatology were significantly correlated,

significant relationships did not emerge between other PTSD symptomatology and TMH

preference or avoidance symptomatology and TMH preference. See Table 7 for

correlation values. The hypothesis was thus rejected. Given the presence of a gender

effect for hypothesis 3, post hoc analyses were once again conducted. Avoidance

symptomatology was not found to mediate a relationship between other PTSD

symptomatology and TMH preference for male or women veterans with probable PTSD.

Hypothesis 5. For participants with probable depression, higher levels of logistical

barriers will partially mediate a preference for TMH over FTF.

A single-mediator path analysis was employed to test this hypothesis. A total of

252 (59.7%) participants met the inclusion criterion for this analysis (i.e., BDI score $\geq$

14). Assumptions for a mediation analysis were met, as small but significant relationships

existed between depression symptomatology and TMH preference, depression

symptomatology and logistical barrier endorsement, and logistical barrier endorsement

and TMH preference. See Table 8 for correlation values. All necessary assumptions for

multiple regression were met, including a lack of collinearity, acceptable rates of

tolerance (all $> .40$), and acceptable rates of VIF (all < 2.5).

Results of the path analysis are shown in Figure 1. Path 1 established depression

symptomatology as a significant predictor of TMH preference ($t = 2.49$, $p < .015$, Beta $=$

.16, squared semi-partial $= .024$). Path 2 established depression symptomatology as a

significant predictor of logistical barriers ($t = 2.90$, $p = .004$, Beta $= .18$, squared semi-

partial $= .032$). Path 3 revealed that logistical barrier endorsement only trended towards

significance in terms of its ability to predict TMH preference ($t = 1.69$, $p = .09$, Beta $=$

.11, squared semi-partial = .011). Path 4 demonstrated that depression remained a

significant predictor of TMH preference after logistical barrier endorsement was

introduced into the model (t = 2.15, p < .05, Beta = .14, squared semi-partial = .018),

though the strength of its relationship with TMH preference was slightly reduced. A

Sobel test indicated that a significant partial mediation effect was not present (t = 1.44, p

= .15). Thus, logistical barriers did not partially mediate the relationship between

depression symptomatology and TMH preference for participants with at least mild

depression.

A post-hoc analysis examining gender effect was conducted; logistical barrier

endorsement was not found to mediate a relationship between depression

symptomatology and TMH preference for male or women veterans. However, a

moderate-to-strong predictive relationship emerged between depression symptomatology

and TMH preference for women veterans with probable depression, with depression

symptomatology explaining 19% of the variance in treatment modality preference for this

subgroup (N=63, t = 3.78, p < .001, Beta = .44, squared semi-partial = .19).

Hypothesis 6. For participants with probable AUD, higher levels of logistical

barriers will partially mediate a preference for TMH over FTF.

A single-mediator path analysis was employed to test this hypothesis. A total of

175 (41.4%) participants met the inclusion criterion for this analysis (i.e., AUDIT score $\geq$

8). Assumptions for a mediation analysis were not met. Specifically, significant

relationships did not emerge between any of the three variables involved in the analysis.

See Table 9 for correlation values. The hypothesis was thus rejected. A post-hoc analysis

examining gender effect was conducted; logistical barrier endorsement was not found to

mediate a relationship between AUD symptomatology and TMH preference for male or

women veterans.

Discussion

The findings from this study provide further information about the factors that

influence mental health treatment-seeking among OEF/OIF veterans and reveal important

information about this population's preferences for mental health treatment modality. As

expected, additional support for Andersen's Behavioral Model of Health Service Use was

found (Andersen, 1968). Results of a binary logistic regression exhibited that the eight

predictor-variables representing Andersen's three individual-level factors (i.e.,

predisposing characteristics, enabling resources, mental illness symptomatology)

significantly outperformed the constant-only model for predicting previous treatment

utilization. In total, the model explained about 17% of treatment utilization among

OEF/OIF veterans, with self-stigma, public stigma, and PTSD symptomatology being the

strongest predictors. Depression and AUD symptomatology trended towards significance,

while treatment preferences, attitudes towards mental health treatment, and logistical

barriers were not significant predictors of treatment utilization.

Consistent with previous literature, this study found that higher levels of self-

stigma were shown to reduce participants' likelihood of having sought treatment (Hoge et

al., 2004). Self-stigma is believed to deter treatment-seeking behaviors by negatively

affecting veterans' self-esteem and reinforcing a belief that the veteran should be able to

manage mental health problems on their own (Kim et al., 2011; Stecker et al., 2007).

Research has consistently shown that self-stigma is more strongly associated with

negative attitudes towards treatment-seeking than public stigma, and thus it is

unsurprising that self-stigma was shown to negatively affect treatment-seeking while

public stigma was not (Held et al., 2012; Kim et al., 2011). It is also encouraging that

increased PTSD symptomatology was associated with a significantly higher chance of

having sought treatment. This finding contradicts previous literature suggesting that

OEF/OIF veterans with severe PTSD are less likely to seek treatment due to high levels

of avoidance (Blais et al., 2014). That higher levels of public stigma and PTSD

symptomatology were shown to significantly increase the probability of previous

utilization of mental health services suggests that recent initiatives aimed at identifying

OEF/OIF veterans with mental illness and providing them with information about

available treatment avenues might be helping (NAMI, 2013; Straits-Tröster et al., 2011).

Of course, this finding is also contingent upon veterans participating in this study having

properly categorized their previous encounters with mental health providers as

"treatment," as it is routine to have a brief mental health screening following deployment.

      Contrary to our hypotheses, veterans without treatment histories did not exhibit a

greater preference for TMH treatment than their counterparts with previous treatment.

Participants with and without previous mental health treatment both demonstrated a

"Medium preference for FTF treatment." This preference for FTF treatment was robust

across the entire sample; overall, 76.1% of participants preferred FTF treatment, with a

strong preference for FTF treatment remaining consistent across various subgroups (i.e.,

gender, ethnicity, military branch, military rank, etc.). As such, despite researchers

having proposed TMH treatment as a viable option for OEF/OIF veterans who have

difficulty engaging in FTF treatment, the veterans themselves appear to strongly prefer

the FTF modality of treatment (Cromartie & Bucholtz, 2008; Jones et al., 2013;

Pignatiello, et al., 2011; Pruitt et al., 2014; Yuen et al., 2012). This information is critical

given our knowledge that successful accommodation of patients' treatment preferences

leads to more favorable treatment outcomes (Swift et al., 2011).

We failed to find differences between veterans preferring FTF treatment and

veterans preferring TMH treatment. Results of our MANOVA examining whether

veterans preferring TMH endorsed higher levels of self-stigma, public stigma, negative

attitudes towards mental health treatment, preferences for aspects of mental health

treatment, logistical barriers, PTSD symptomatology, depression symptomatology, and

AUD symptomatology than veterans preferring FTF treatment were non-significant.

Univariate analyses revealed that the two groups only differed in terms of negative

attitudes towards mental health treatment, with veterans preferring TMH treatment

having slightly more negative attitudes. This finding is logical given that negative

attitudes towards mental health treatment include concerns about privacy, which TMH

approaches have been proposed to ameliorate (Cartreine et al., 2010; Prutt et al., 2014;

Yuen et al., 2015).

Examination of the reasons veterans stated for preferring either FTF treatment or

TMH did reveal some meaningful differences between the two groups. For veterans

preferring FTF treatment, 39.3% preferred it because they believe it is more personal and

41% preferred it because they believe it is more effective. In comparison, for veterans

preferring TMH treatment, 52.7% preferred it because they believe it is more convenient

and 34% preferred it because they believe they would feel less embarrassed and/or

judged by this form of treatment. These findings suggest that the small number of

OEF/OIF veterans who do prefer TMH believe it would address some of the previously

established barriers to care (e.g., time, distance, negative attitudes about treatment,

stigma), thus providing further support to Andersen's model for the mutability of these

factors influencing treatment-seeking (Andersen, 1995). Importantly, the large majority

of OEF/OIF veterans preferred FTF treatment either because they believe it will be more

personal or more effective, suggesting the need to educate this population about the

comparable outcomes achieved between FTF and TMH treatments for PTSD and

depression.

Within the subgroup of veterans preferring TMH, 66% exhibited a preference for

TBP over VBP. This finding was unexpected given that VBP more closely mirrors

traditional therapy in that it allows for direct visual contact between therapist and patient.

It is possible that this result occurred because these veterans have concerns about the

security of VBP or the reliability of maintaining a sufficient Internet connection.

Regardless, more investigation is necessary, particularly because current data suggests

that VBP may be more effective than TBP in treating depression for OEF/OIF veterans

(Egede et al., 2015; Mohr et al., 2011).

After controlling for the effects of gender, race/ethnicity, military branch, and

military rank on treatment modality preference, a wide disparity was found between

women veterans preferring FTF treatment and TMH treatment. Specifically, the small

subgroup of women preferring TMH were found to have significantly greater levels of

depression, PTSD, logistical barriers to treatment, and negative attitudes towards mental

health treatment than their counterparts preferring FTF treatment. Within women in this

sample, treatment modality preference explained 23.3% of the variance found across the eight dependent variables.

Although the sample size was small, the qualities of women veterans preferring TMH in this study are noteworthy. On average, the women preferring TMH in this sample met criteria for probable moderate-to-severe depression, probable PTSD, and a probable AUD. In comparison, women veterans preferring FTF only met criteria for probable mild depression. Women veterans preferring TMH also had more negative attitudes towards mental health treatment, with the average participant tending to believe that mental health care includes treatments that people do not want and is not a private enough process. Finally, women preferring TMH more readily endorsed lack of transportation and insufficient funds as barriers to treatment.

This information is important for mental health providers of women veterans preferring TMH, as patients with variations of co-occurring PTSD, depression, and AUD tend to exhibit greater severity of clinical symptoms, have more physical health problems (e.g., chronic pain, cardiovascular disease), and report more difficulty navigating relationships than those without high comorbidity (Irwin, Konnert, Wong, & O'Neill, 2014; Schäfer & Najavits, 2007). Mental health treatment outcomes for this highly comorbid population are often worse, as they demonstrate poorer adherence and higher dropout rates than their peers with simpler clinical profiles. Moreover, successful mental health treatment may be a multi-faceted process, as preliminary data suggests that the greatest symptom reductions in this population occur when patients receive treatments for both substance use disorder and trauma, either sequentially or in concert (Haller et al.,

2016; Roberts, Roberts, Jones & Bisson, 2015). This level of care may be beyond the scope of what an individual therapist can provide via TMH.

The average woman veteran preferring TMH in the current study also endorsed current thoughts of suicide. The ethical and legal challenges of providing psychological care from a distance are well documented, as there is an inherently reduced capacity for controlling situations in which the patient or someone else is at risk for harm (Kramer, Kinn, & Mishkind, 2015; Luxton, O'Brien, Pruitt, Johnson, & Kramer, 2014). Recommended strategies for reducing risk include performing ongoing assessment of risk levels, having an explicit plan in place with patients for managing technical, clinical, and medical emergencies, having secondary methods for immediately contacting the patient and/or staff at the site, and having thorough knowledge of the civil commitment and duty to warn/protect laws of the area in which the patient is situated (Kramer et al., 2015; Luxton et al., 2014). Moreover, for patients engaged in home-based TMH, it is recommended that the therapist have a second provider and/or collaborator in the area to contact in case of emergency (Kramer et al., 2015). Thus, while our data suggests that women veterans preferring TMH may be more likely to demonstrate suicidal ideation than women and male veterans preferring FTF treatment, therapists providing TMH should always be evaluating risk and sufficiently preparing strategies for handling emergencies with all of their patients.

It is important to note that women veterans preferring TMH had significantly more negative attitudes towards mental health treatment than their counterparts preferring FTF care, as this is one of the primary reasons that researchers have suggested that TMH is a viable option for addressing low treatment-seeking rates in veterans (Acierno et al.,

2016; Egede et al., 2015; Lu, Woodside, Chisholm, & Ward, 2014; Yuen et al., 2015).

Extant literature suggests that these women's negative attitudes towards mental health

treatment might have been influenced by negative experiences in the VA, as prior

research shows that women veterans' satisfaction with care was diminished by

encountering barriers to treatment (e.g., access and scheduling) and a lack of patient-

centered services (e.g, a lack of a women's-only clinic; Wagner, Dichter, & Mattocks,

2015). TMH might thus be viewed by these women as increasing accessibility of services

by addressing some of these concerns.

A predictive relationship did not emerge between PTSD symptomatology and a

preference for TMH. As such, despite our expectations, we did not find that PTSD

avoidance symptomatology mediated a relationship between other PTSD symptoms (re-

experiencing, negative cognitions, hypervigilance) and a preference for TMH for veterans

with probable PTSD. Consistent with previous literature, participants meeting criteria for

probable PTSD in our sample exhibited disproportionately low rates of previous mental

health treatment utilization (55.7% having received treatment) and participation in mental

health treatment for PTSD (34.4%; Deviva, 2013; Kim et al., 2011). Regardless of the

lack of evidence to suggest that TMH is preferred over FTF treatment, PTSD treatment

via TMH remains an empirically supported solution for any OEF/OIF veteran suffering

from PTSD and significant barriers to care.

As hypothesized, significant relationships emerged between depression, logistical

barriers, and a preference for TMH within veterans meeting probable criteria for at least

mild depression. Depression symptoms accounted for 3% of the variance for logistical

barrier endorsement and 2% of the variance for treatment modality preference. Results of

a mediation analysis did not show that depression and TMH preference was mediated by logistical barrier endorsement. An increased perception of logistical barriers to care thus failed to explain the relationship between depression symptomatology and TMH preference in the current sample. Nevertheless, our findings suggest that depressed OEF/OIF veterans perceive TMH treatment favorably, particularly depressed OEF/OIF women veterans.

Finally, despite our expectations, we failed to find a relationship between AUD symptoms and a preference for TMH. Moreover, no relationship emerged between AUD symptoms and logistical barrier endorsement within this group. This finding was inconsistent with prior research in which individuals struggling with problematic substance use endorsed lack of transportation, geographic isolation, and lack of sufficient funds as barriers to engaging in substance use treatment (Palmer et al., 2009; Priester et al., 2016). Further research is necessary to establish whether TMH is an appropriate treatment for AUD and whether OEF/OIF veterans with AUD would be receptive to this approach.

Limitations

A number of limitations were present within the current study. Although the study's sample population was fairly representative of the United States veterans' ethnic breakdown, the sample had slightly more veterans having served in the Army and significantly less veterans having served in the Air Force and Navy than is representative of current estimates. Further, the percentage of women veterans within the current sample exceeded that of the actual military population (DoD, 2014; Elbogen et al., 2013; NCVAS, 2016).

Another limitation of this study was its restricted range of mental health symptomology screening. This study focused on screening participants for symptoms related to PTSD, depression, and AUD, but OEF/OIF veterans have been shown to present with a number of other mental health concerns that were not addressed in the current study. Future studies should examine other diagnoses including generalized anxiety disorder, panic disorder, anger, sexual dysfunction, and interpersonal difficulties in order to determine whether there are particular conditions for which OEF/OIF veterans are more comfortable seeking care via FTF treatment or TMH.

This study was also limited in its measurement of treatment modality preference. Specifically, participants were only presented with short vignettes describing the basic procedures of FTF and TMH approaches. It is unclear to what extent the participants truly understood the similarities and differences that exist between these two treatment modalities. It is possible that participants' stated preferences might change if they knew more about TMH, including information about its treatment outcomes and/or the strong therapeutic alliances that are found between therapists and patients. Further, veterans might be more partial to VBP over TBP if they knew more about the security measures taken and the assistance provided with navigating the technology. Future studies might educate participants about the fact that TMH treatments for PTSD and depression demonstrate comparable outcomes to FTF treatments in order to examine whether this increases the appeal of TMH approaches for some OEF/OIF veterans.

Similarly, information regarding a veteran's stated preference for treatment modality could be expanded. For example, if a veteran stated a preference for one treatment modality, we cannot state whether they were unwilling to engage in the

alternative treatment modality if that were their only option. Thus, future studies should

attempt to determine the level of overall willingness that OEF/OIF veterans have to

engage in TMH treatments, as this may be the only available option for some individuals

based on their geographical location.

Conclusion

Despite its limitations, the current study offers a number of new insights about the

nature of treatment-seeking and treatment preferences for OEF/OIF veterans.

Specifically, further support was provided for Andersen's Behavioral Model of Health

Service Use, with participants' self-stigma and public stigma levels (i.e., predisposing

characteristics) and mental health symptoms (i.e., need for care) predicting previous

treatment-seeking. Self-stigma towards mental illness continues to deter individuals from

treatment-seeking, however, higher levels of public stigma and PTSD symptomatology

increased individuals' likelihood of having sought treatment, perhaps indicating a

positive shift in how OEF/OIF veterans perceive mental health treatment.

Our findings also indicate that despite comparable clinical outcomes in recent

studies, OEF/OIF veterans overwhelmingly prefer FTF mental health treatment to TMH.

Further, the large majority of these veterans stated that their preference for FTF treatment

was based on a belief that it is more effective and/or personal than TMH. Thus, although

prior research has shown that people who are unfamiliar with or lack confidence in TMH

still exhibit good treatment outcomes, our findings suggest that individuals' preconceived

notions about TMH's efficacy may impact them from initiating TMH altogether (Price &

Gros, 2014). Greater education about the encouraging empirical support for TMH is

suggested to combat this issue. Importantly, the small number of veterans preferring

TMH stated that their preference was based on a belief that it is more convenient and/or less embarrassing than FTF treatment, providing clear support for previous postulations that TMH could address certain stigma-related and logistical barriers to mental health treatment.

Results demonstrated notable differences between women veterans preferring FTF treatment and women veterans preferring TMH. Women veterans preferring TMH appear to hold more negative views towards mental health treatment and endorse more significant mental health symptoms. This information is important for providers, as these cases will require careful treatment planning and thorough knowledge of risk management when employing TMH. Overall, this study supports the continued examination and dissemination of TMH, as it appears a viable option in addressing various barriers to treatment for OEF/OIF veterans.

Tables and Figures

Table 1. Participant Demographics (n = 422)

Age	M = 33.43 SD = 7.23	**Average Years** **Served**	M = 7.01 SD = 5.5
Gender		**Previous Mental**	
Male	310 (73.5%)	**Health Treatment**	
Female	104 (24.6%)	*Yes*	179 (42.4%)
Agender	1 (0.2%)	*No*	234 (55.5%)
Race/Ethnicity		**Concerns Addressed**	
White	317 (75.1%)	**in Treatment**	
Black	42 (10%)	*PTSD*	90 (21.3%)
Hispanic	26 (6.2%)	*Depression*	111 (26.3%)
Asian	12 (2.8%)	*Alcohol Abuse*	33 (7.8%)
Multi-Ethnic	13 (3.1%)	*Readjustment*	43 (10.2%)
Other	5 (1.2%)	*Other*	39 (9.2%)
Military Branch		**Found Treatment**	
Army	223 (52.8%)	**Helpful**	
Navy	61 (14.5%)	*Yes*	123 (68.7%)
Air Force	53 (12.6%)	*No*	56 (31.3%)
Marines	67 (15.9%)		
Other	1 (0.2%)		
Military Rank			
Enlisted	346 (82%)		
Officer	68 (16.1%)		

Note. Missing data accounts for percentages not summing to 100.

Table 2. Demographics by Treatment Modality Preference (n = 421)

Variable	FTF (N = 321)	TMH (N = 100)
Gender		
Men	237 (76.5%)	73 (23.5%)
Women	77 (74%)	27 (26%)
Ethnicity		
White	244 (77%)	73 (23%)
Black	29 (69%)	13 (31%)
Hispanic	22 (84.6%)	4 (15.4%)
Asian	8 (66.7%)	4 (33.3%)
Multi-Ethnic	9 (69.2%)	3 (30.8%)
Other		
Military Branch		
Army	170 (76.2%)	53 (23.8%)
Navy	44 (72.1%)	17 (27.9%
Air Force	43 (81.1%)	10 (18.9%)
Marines	50 (74.6%)	17 (25.4%)
Other		
Military Rank		
Enlisted	262 (75.7%)	84 (24.3%)
Officer	52 (76.5%)	16 (23.5%)
Previous Mental Health Treatment		
Yes	140 (78.2%)	39 (21.8%)
No	173 (73.9%)	61 (26.1%)
Distance to VA/CBOC		
0 – 15 minutes	22 (64.7%)	12 (35.3%)
16 – 30 minutes	107 (81.7%)	24 (18.3%)
31 – 45 minutes	86 (72.9%)	32 (27.1%)
46 – 60 minutes	40 (72.7%)	15 (27.3%)
61+ minutes	58 (77.3%	17 (22.7%)

Table 3. Reasons for Treatment Modality Preference (n = 391)

Reason for Preference	FTF (N = 300)	TMH (N = 91)
More Personal	118 (39.3%)	0 (0%)
More Convenient	3 (1%)	48 (52.7%)
More Private	14 (4.7%)	8 (8.8%)
More Effective	123 (41%)	4 (4.4%)
Feel Less Embarrassed/Judged	18 (6%)	31 (34.1%)
Other	39 (13%)	7 (7.7%)

Note. A small number of participants listed more than one reason for their preference.

Table 4. Predictors of Previous Treatment Utilization

Variable	*B*	SE	Wald Test	Odds Ratio Exp(B)	Confidence Interval
Self-stigma *	-.04	.02	5.14	.96	.93 – 1.00
Public Stigma*	.03	.01	4.76	1.03	1.00 – 1.0
Treatment Attitudes	-.02	.03	.57	.98	.94 – 1.03
Treatment Preferences	.004	.02	.06	1.00	.98 – 1.03
Logistical Barriers	-.02	.02	.74	.98	.95 – 1.02
PTSD Symptoms**	.03	.01	9.71	1.03	1.01 – 1.05
Depression Symptoms	.02	.01	3.18	1.02	1.00 – 1.05
AUD Symptoms	-.03	.02	3.80	.97	.94 – 1.00

Note. The dependent variable was treatment use with previous treatment as the target variable and no previous treatment as the reference category; Nagelkerke R^2 = .168.
*$p < .05$
**$p < .01$

Table 5. Individual ANOVAs Examining Differences Between Participants Preferring FTF and TMH Modalities (Whole Sample)

Variable	FTF		TMH		F	n^2
	M	SD	*M*	SD		
Self-stigma	18.76	7.04	20.47	7.33	4.39	.01
Public Stigma	29.82	9.12	30.08	8.66	.07	.00
Treatment Attitudes*	18.28	4.91	19.87	5.43	7.56	.02
Treatment Preferences	46.47	7.73	46.04	8.55	.23	.00
Logistical Barriers	25.08	6.22	25.47	6.71	.29	.00
PTSD Symptoms	30.11	19.35	32.26	21.13	.90	.00
Depression Symptoms	18.63	13.64	20.23	15.33	.99	.00
AUD Symptoms	8.10	8.02	8.70	8.25	.42	.00

*Significant after Bonferroni correction ($p < .007$)

Table 6. Individual ANOVAs Examining Differences Between Participants Preferring FTF and TMH Modalities (Women Veterans Only)

Variable	FTF		TMH		F	n^2
	M	SD	*M*	SD		
Self-stigma	17.17	5.78	18.81	6.26	1.56	.02
Public Stigma	28.22	9.06	30.56	9.05	1.33	.01
Treatment Attitudes*	17.05	4.52	20.93	5.42	13.20	.12
Treatment Preferences	46.01	6.51	46.70	8.66	.19	.00
Logistical Barriers*	24.43	6.78	29.15	5.81	10.40	.09
PTSD Symptoms*	25.48	18.45	39.33	18.72	11.19	.10
Depression Symptoms*	15.74	12.55	28.11	15.09	17.45	.15
AUD Symptoms	5.71	6.56	8.26	6.57	2.78	.03

*Significant after Bonferroni correction ($p < .007$)

Table 7. Correlations Between Other PTSD Symptoms, Avoidance Symptoms, and TMH Preference

Variable	1.	2.	3.
1. Other PTSD Symptoms	--		
2. Avoidance Symptoms	.75**	---	
3. TMH Preference	.13	.11	--

**p* < .001

Table 8. Correlations Between Depression Symptoms, Logistical Barrier Endorsement, and TMH Preference

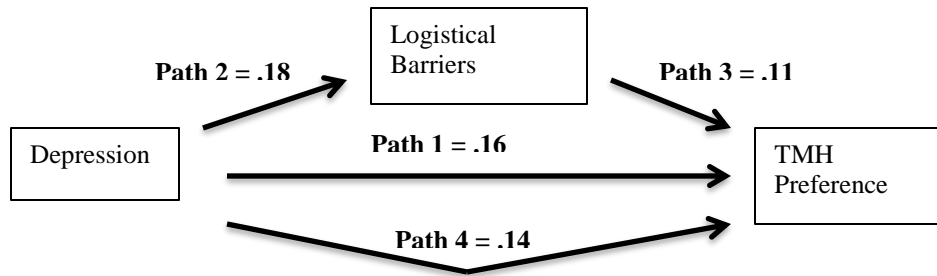| Variable	1.	2.	3.
1. Depression Symptoms	--		
2. Logistical Barrier Endorsement	.18**	---	
3. TMH Preference	.16*	.13*	--

*$p < .05$; **$p < .01$

Figure 1. Mediation Model of Depression, Logistical Barrier Endorsement, and TMH Preference

Table 9. Correlations Between AUD Symptoms, Logistical Barrier Endorsement, and TMH Preference

Variable	1.	2.	3.
1. AUD Symptoms	--		
2. Logistical Barrier Endorsement	.05	---	
3. TMH Preference	.00	.03	--

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Appendix 1

Directions
Please complete each item below as accurately as possible.

Have you ever served in the US Armed Forces?   __ Yes   __ No

While on duty, were you ever deployed in Iraq or Afghanistan as part of Operation Iraqi Freedom or Operation Enduring Freedom?   __ Yes   __ No

Are you a veteran (i.e., no longer serving active duty)?   __Yes   __No

For participants who are not eligible:

Unfortunately, your answers indicate that you are not eligible to participate in this study, either because you indicated that you are not a service member, were not deployed to Iraq or Afghanistan, or you are not a veteran.

If you are experiencing psychological distress and desire immediate assistance, you may call the Veterans Crisis Line at 1-800-273-8255 (available 24 hours a day, 7 days a week). If you are interested in referrals for counseling services, you may obtain information about services available in your area by visiting any of the following websites: http://findtreatment.samhsa.gov/; http://www.mentalhealth.va.gov/docs/MHG_English.pdf; http://www.mentalhealthamerica.net/go/find_therapy. You may also call 1-877-495-0009, where operators are available from 8:30 a.m. to 5:00 p.m. Eastern Standard Time (EST). Finally, if you are interested in learning more about the illness or symptoms that you are suffering from, you may visit http://www.mentalhealth.va.gov and click on "Conditions". Thank you for your time.

Demographics
Please complete each item below as accurately as possible.

Age:
Gender (check one): M   F
State of residence: (drop down menu)
Ethnicity: __ White/Caucasian   __ Black/African-American   __ Hispanic/Latino
                  __ Asian/Pacific Islander   __ Other

Years of service:_____

Branch of service: __ Army   __ Navy   __ Air Force   __ Marines
Component: __ Active Duty   __ National Guard   __ Reserves
Rank: __ Enlisted   __ Officer

Were you deployed while serving? __Yes   __No
Were you exposed to combat during your deployment?   __Yes   __No

Time it takes you to get to your closest VA/CBOC (please check one):
    A- 0-15 minutes
    B- 16-30 minutes
    C- 31-45 minutes
    D- 46-60 minutes
    E- 60+ minutes
Did you receive mental health treatment while serving, or have you received mental
health treatment for a service-related problem since your discharge? __Yes   __No
IF yes, approximately how many sessions did you attend?
    A- 1-2 sessions
    B- 3-5 sessions
    C- 6-7 sessions
    D- 8-10 sessions
    E- 11+ sessions
What did you receive treatment for? (Check all that apply.o)
    A- Posttraumatic stress
    B- Depression
    C- Alcohol use
    D- Difficulty readjusting after service
    E- Other:_____
Did you find your mental health treatment to be helpful? __Yes   __No

Mental Illness Stigma Scale (MISS)

Directions: The following statements are about mental illness. Please indicate how strongly you personally agree or disagree with each statement.

1. Mental illness is not a real medical illness.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

2. Mental illness is a sign of personal weakness.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

3. People with mental illness could snap out of it if they wanted to.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

4. People with mental illness should be ashamed of themselves.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

5. People with mental illness do not make suitable employees.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

6. People with mental illness are unstable.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

7. People with mental illness are to blame for their problem.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

8. People with mental illness are just lazy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

9. People with mental illness are a danger to others.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

10. People with mental illness are self-centered.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

Now we would like you to tell us what you think most other people *in the military* believe. Please indicate how strongly you agree or disagree with the following statements.

11. Most people in the military think that mental illness is not a real medical illness.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

12. Most people in the military think that mental illness is a sign of personal weakness.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

13. Most people in the military think that people with mental illness could snap out of it if they wanted to.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

14. Most people in the military think that people with mental illness should be ashamed of themselves.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

15. Most people in the military think that people with mental illness do not make suitable employees.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

16. Most people in the military think that people with mental illness are unstable.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

17. Most people in the military think that people with mental illness are to blame for their problem.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

18. Most people in the military think that people with mental illness are just lazy.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

19. Most people in the military think that people with mental illness are a danger to others.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

20. Most people in the military think that people with mental illness are self-centered.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

Attitudes Towards Mental Health Treatment Scale
Directions: The following statements are about mental health treatment. Please indicate how strongly you personally agree or disagree with each statement. (Note that in this measure, "mental health treatment" is referring strictly to therapy/counseling.)

1. Mental health treatment often requires treatments that people don't want (e.g., discussing war).
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

2. Mental health treatment does not work.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

3. Mental health professionals are untrustworthy.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

4. Mental health treatment is not a private enough process.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

5. Mental health treatment just makes things worse.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

6. Mental health professionals don't really care about their patients.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree

4- Strongly agree

7. Mental health professionals stereotype their patients based on race, sex, etc.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

<u>Preferences for Mental Health Treatment Scale</u>
Directions: The following statements are about your personal preferences for mental health treatment. Please indicate how strongly you personally agree or disagree with each statement. (Note that in this measure, "mental health treatment" is referring strictly to therapy/counseling.)

1. I would be open to mental health treatment that worked towards relieving sleep difficulties.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

2. I would be open to mental health treatment that worked towards relieving anger issues.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

3. I would be open to mental health treatment that worked towards relieving stress.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

4. I would be open to mental health treatment that worked towards relieving feelings of worthlessness/guilt.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

5. I would be open to mental health treatment that worked towards improving my mood.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

6. I would be open to mental health treatment that assisted me in cutting back on drinking.
   0- Strongly disagree

1- Disagree
2- Neither agree nor disagree
3- Agree
4- Strongly agree

7. I would be open to mental health treatment that focused on helping me readjust post-service.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

8. I would be open to mental health treatment that allowed me to work on marriage/relationship issues with my partner.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

9. I would like to be able to receive assistance with VA benefits at or near the place I receive mental health treatment.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

10. I would like to be able to receive dental care at or near the place that I receive mental health treatment.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

11. I would like for be able to receive eye care at or near the place that I receive mental health treatment.
    0- Strongly disagree
    1- Disagree
    2- Neither agree nor disagree
    3- Agree
    4- Strongly agree

12. I would like for be able to receive care for a physical issue (other than a dental or eye problem) at or near the place that I receive mental health treatment.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

<u>Logistical Barriers to Treatment Scale</u>
Directions: The following statements are about barriers to mental health treatment. Please indicate how strongly you personally agree or disagree with each statement. (Note that in this measure, "mental health treatment" is referring strictly to therapy/counseling.)

1. If I were interested in mental health treatment, the significant amount of time it takes me to get to the nearest VA/CBOC would make it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

2. If I were interested in mental health treatment, a lack of sufficient childcare would make it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

3. If I were interested in mental health treatment, a lack of adequate transportation would make it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

4. If I were interested in mental health treatment, my busy work schedule would it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

5. If I were interested in mental health treatment, the lack of a VA/CBOC in my area would make it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

6. If I were interested in mental health treatment, the cost (e.g., taking time off by work/paying for transportation) of care would make it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

7. If I were interested in mental health treatment, not knowing where to get help would make it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

8. If I were interested in mental health treatment, a lack of flexibility in available appointment times would make it difficult for me to engage in therapy.
   0- Strongly disagree
   1- Disagree
   2- Neither agree nor disagree
   3- Agree
   4- Strongly agree

Preference for Treatment Modality
Please read the following descriptions prior to stating your preference between the following two forms of mental health treatment.

    1- Face-to-face mental health treatment: This would involve weekly sessions with a therapist at your local VA/CBOC. A private space would be available for you to talk about stressful or painful topics, and you and your therapist would work on building skills to help you cope with your current issues.
    2- Telemental health treatment: This would involve weekly sessions with a therapist that you could speak to by phone or by videoconference over the Internet. These sessions could take place at your local CBOC, in your home, or at another private place that you felt comfortable enough to have a therapy session. A private space would be provided for you to discuss stressful or painful topics, and you and your therapist would work on building skills to help you cope with your current issues.

Which form of therapy would you prefer?
    A- Face-to-face treatment
    B- Telemental health treatment

Please state why in a few words: _____

How willing to engage in this form of treatment are you?
    1- "I would not engage in this treatment under any circumstances."
    2-
    3-
    4- "I am moderately willing to engage in this treatment."
    5-
    6-
    7- "I would absolutely be willing to engage in this form of treatment if I felt like I needed it."