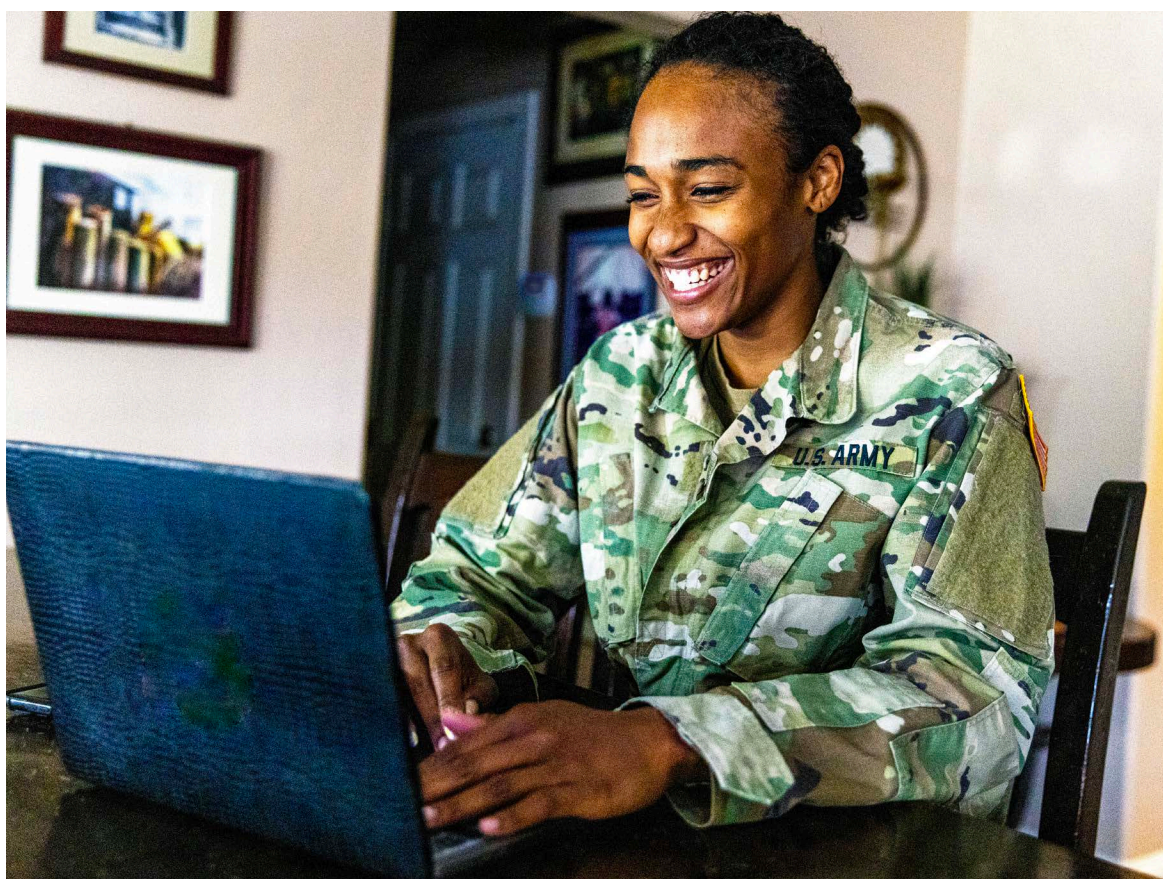


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Virtual Behavioral Health for Army Soldiers

Soldier Perspectives and Patterns of Treatment



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About This Report

This report documents research and analysis conducted as part of a project entitled *Assessing Implementation and Outcomes of Virtual Behavioral Health in the U.S. Army*, sponsored by the Office of the Surgeon General, U.S. Army. The purpose of the project was to assess the ways that expansion of virtual behavioral health services, resulting from the coronavirus disease 2019 (COVID-19) pandemic, has influenced behavioral health service utilization, treatment outcomes, and patient satisfaction, with a focus on services provided to soldiers and their adult dependents.

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Summary

Access to high-quality behavioral health (BH) care is essential to the readiness of the U.S. armed forces and the health of their families. The U.S. Army has made significant improvements to its BH care delivery system over the past ten years, but it now faces the challenge of integrating lessons learned from the dramatic and unanticipated shift to virtual behavioral health (VBH) that occurred in the context of the coronavirus disease 2019 (COVID-19) pandemic. Three years since the onset of the pandemic, the optimal role of VBH as part of overall BH care delivery for soldiers and their dependents remains unclear. To inform policy and planning related to VBH, the Office of the Surgeon General, U.S. Army, asked RAND Arroyo Center to assess the expansion of VBH services and its relationship with overall BH service utilization and soldier perceptions of VBH, to inform recommendations on the role of VBH in military BH care in the future.

Background and Methods

BH conditions include a range of mental health and substance use disorders. VBH, also referred to as *telehealth* or *telebehavioral health*, is remote patient access to visits with a BH provider using technology such as a computer or cellular phone. VBH can be conducted as video visits using audio and visual communication technology, or as audio visits (also called *audio-only* or *telephone*) using audio technology with no video. Literature suggests that VBH can improve access to care, especially for patients who face barriers that involve work commitments, transportation, or child care (Donelan et al., 2019; Kruse et al., 2017). Systematic reviews suggest that VBH is similarly effective to in-person care for assessment and diagnosis of BH conditions (Greenwood et al., 2022; Hilty et al., 2013; Krzyzaniak et al., 2021; Scott, Bakhit, et al., 2022; Scott, Clark, et al., 2022). Research is favorable yet inconclusive on the comparative effectiveness of treatment through VBH and in-person care, as many studies were limited in their size, duration of follow-up, and the number of populations or BH conditions studied (Barnett et al., 2021; Ekland, Bowes, and Flottorp, 2010). Therefore, it has been difficult to generalize the findings about effectiveness of VBH across populations, treated conditions, modalities (e.g., video, audio), and models (e.g., hybrid use of VBH and in-person BH care). For instance, some studies have concluded that video visits are superior to audio visits for the treatment of depression and trauma (McClellan et al., 2022). Patient satisfaction with VBH tends to be high, especially when patients can see their usual provider, and tends to increase with more use of VBH (Fischer et al., 2022; Kruse et al., 2017). Yet greater understanding is needed of patient experiences with and preferences regarding VBH and how those might change under a variety of conditions, treatments, and circumstances.

In this study, we examined patterns of VBH care delivery to active-component soldiers and their spouses and their receipt of VBH by different sources of care (i.e., direct care versus private-sector care). We also analyzed soldiers' perceptions of and experiences with VBH.

- **Administrative data analyses** included visit-level analyses of trends in the proportion of BH visits that were by VBH from October 2019 through March 2022 and VBH visits by soldiers ($N = 78,797$) and their spouses ($N = 49,705$) who had at least one BH visit through primary or specialty care between October 2021 and March 2022. **Administrative data analyses** also included person-level analyses of VBH visits among a subset of soldiers ($n = 22,614$) and their spouses ($n = 7,836$) who received at least three specialty BH treatment visits at a military treatment facility (MTF) (or, for spouses, at an MTF or in private-sector care) between October 2021 and March 2022 (the BH treatment cohorts).

- A **survey of soldiers** assessed perceptions of VBH among those who received at least three BH specialty care outpatient treatment visits at an MTF between January and March 2022. The survey contained 70 items; was fielded between August 4 and September 23, 2022; and was completed by 419 soldiers.

Key Findings

We distilled the main findings from our administrative data analyses and the soldier survey into five themes.

Direct Care Providers Were Less Likely to Deliver Virtual Behavioral Health Than Private-Sector Providers and Relied Heavily on Audio Virtual Behavioral Health

For soldiers, the proportion of direct care VBH visits hit a peak of 74 percent in April 2020 and declined to 16 percent by March 2022. In contrast, private-sector care VBH visits among soldiers ranged from 61 percent to 46 percent during the same period. In direct care, between October 2021 and March 2022, primary care providers and psychiatrists were most likely to provide care by VBH, and evaluation and management/medication management visits were more likely to be by VBH than other types of visits. During the same period, in private-sector care, clinical psychologists and social workers were most likely to provide care by VBH, and individual psychotherapy was more likely to be by VBH than other types of visits. About 80 percent of direct care VBH visits were coded as audio visits, and nearly all private-sector VBH visits were coded as video-based, but guidelines on coding practices may partially account for these differences. Specifically, provider guidance varied regarding the definition of *synchronous VBH* (e.g., whether a video component was required), and codes used by direct care providers to designate audio visits were not used by private-sector providers. Survey findings indicated that, among those with any VBH, more soldiers reported receiving audio visits (79 percent) than video visits (58 percent). The majority of soldiers accessed VBH using their cell phone, though some used a computer or tablet or completed a visit from their vehicle; the home was the most common location for receiving VBH visits.

Soldiers Who Received Virtual Behavioral Health Typically Received a Mix of Virtual Behavioral Health and In-Person Visits

About half of soldiers in the BH treatment cohort received their treatment through a mix of VBH and in-person visits. Some small differences (just over 5 percentage points) were found in receipt of VBH across demographic groups within the BH treatment cohort. The largest difference in use of VBH was across age groups: VBH was used by 60 percent of those age 45–64 and 51 percent of those age 18–24. Almost all soldiers in the BH treatment cohort (98 percent) received at least some in-person care. Only 2 percent received all their visits through VBH.

Receipt of Virtual Behavioral Health Was Associated with More Positive Perceptions of Virtual Behavioral Health

Soldiers generally had positive perceptions of VBH convenience, regardless of whether they had received VBH as part of their BH care. About two-thirds of soldiers indicated that VBH visits saved time and were more convenient than in-person BH visits, and slightly less than half viewed VBH as requiring less time away from their military duties. About two-thirds of soldiers also saw VBH as an important option for care continuity during deployment or after moving to a new location. However, soldiers who had received VBH were more likely to endorse the advantages of VBH than those with no VBH experience (72 percent versus 48 per-

cent, respectively, on the convenience of VBH, for example). Likewise, those with VBH experience were less likely to agree with statements about privacy concerns related to VBH (19 percent versus 34 percent, respectively, on concern about security of the connection). In addition, the “dose” of VBH experience also seemed to make a difference in perceptions of VBH: Soldiers with two or more VBH visits indicated significantly more positive perceptions of their providers, of visits, and of VBH technology (e.g., ease of use, protection of privacy) than those with only one visit.

Soldiers Who Received Virtual Behavioral Health Rated Their Military Behavioral Health Care Similarly to Those Who Received Only In-Person Behavioral Health Care

Comparing soldiers who received VBH and those who did not, we found no significant differences in perceptions of BH care quality, access, privacy, convenience, working alliance with providers, helpfulness of BH care, or global ratings of care. Some concerns arose regarding the scheduling of appointments in a timely manner, and a minority reported feeling concerned about their privacy during appointments, but those concerns did not differ by receipt of VBH. Because perceptions of BH care did not differ, these findings suggest that VBH integration did not negatively affect soldiers’ experience receiving BH care.

Few Soldiers Declined Virtual Behavioral Health in Favor of In-Person Care, but Nearly One-Third Were Not Offered Virtual Behavioral Health

While about half of surveyed soldiers received VBH in the prior six months, nearly one-third were not offered VBH, one-sixth were offered it but did not receive it, and the remainder did not receive VBH but could not be sure whether it was offered. This suggests that some soldiers may have been interested in VBH and may have chosen to use it had it been offered to them. The soldiers who were offered VBH but did not receive it were a small part of the sample (17 percent), but the majority (91 percent) of this small subgroup expressed a preference for in-person BH care.

Recommendations

We integrated our analyses of VBH use and the survey of soldiers to develop three recommendations on the role of VBH in overall BH delivered by the military.

Recommendation 1. Support the Expanded Delivery of Virtual Behavioral Health Among Military Treatment Facility Providers by Developing a Virtual Behavioral Health Care Strategic Plan

Our findings suggest that there is ample room to increase the use of VBH in direct care. The proportion of VBH visits in direct care was substantially lower than in private-sector care, and direct care providers relied heavily on audio visits. A subset of soldiers in our survey who did not receive VBH also indicated that they had not been offered VBH care, which suggests that they might have used it had it been offered to them. To expand the delivery of VBH, we recommend that the Military Health System (MHS) capitalize on its existing virtual health care strategic plan by developing goals and an implementation plan specific to VBH. These could include defining a target volume of VBH to be delivered through direct care and private-sector care, releasing guidance on appropriate situations for VBH delivery, and clarifying coding guidelines for video and audio visits in direct and private-sector care. A VBH implementation plan should establish minimum

requirements for training and outfitting military BH providers with necessary technical equipment. Direct and private-sector providers should receive guidance on standardized coding for the VBH modality used (i.e., video versus audio) to ensure accurate data capture of the use of these modalities. These standards for VBH could be communicated to providers across service branches through an updated Defense Health Agency Procedural Instruction or similar document and through clinical, administrative, and technical trainings.

Recommendation 2. Assess Barriers to Virtual Behavioral Health and Ensure That Military Treatment Facility Providers Are Equipped and Trained to Deliver Virtual Behavioral Health

The high proportion of audio visits in direct care suggest that direct care providers may need additional support to carry out video visits. While the MHS currently has plans to fully equip all direct care providers with VBH equipment, conducting a baseline survey to assess perceived barriers related to technology and clinical training for VBH among MTF BH providers would provide a comprehensive needs assessment to guide these efforts. Survey findings could help identify content to incorporate into standardized trainings, current technology resources, and areas for which additional clinical guidelines or training protocols may be needed.

Recommendation 3. Evaluate the Utility of Virtual Behavioral Health in Supporting Continuity of Behavioral Health Care Across Military Treatment Facilities

Most soldiers indicated that they saw substantial value in being able to continue seeing their provider through VBH while deployed or after moving to a new location. Though the MHS has been developing a Virtual Medical Center to address access shortages in direct care settings in the United States and around the world, there are several barriers to keeping soldiers connected to providers regardless of location. These include administrative processes regarding MTF privileging and credentialing, existing systems for measuring provider productivity according to visits completed with service members at the provider's MTF, and a lack of guidance on how and when to implement VBH with service members after a move or deployment. If the MHS were to address these barriers through changes to administrative processes and the dissemination of updated guidance, it could be useful to then pilot and evaluate the utility of VBH in supporting continuity of care across MTFs. For example, the MHS could explore the feasibility of allowing time-limited use of VBH to support care continuity, such as for a period of six months or until BH care is established with a new provider. A rigorous evaluation could assess for differences in quality and cost of BH care and provide an assessment of the potential value of broader implementation of VBH to support care continuity in the future.

Summary

The rapid expansion of VBH during the pandemic provided an opportunity to learn about the potential for VBH to enhance access to BH care for soldiers and their spouses. The key findings and recommendations from this report may be used to inform policymaking and planning regarding the role that VBH will play as a permanent part of BH care delivery.

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Introduction

Overview

Delivery of high-quality behavioral health (BH) care is essential to supporting the readiness of the armed forces and the health of their families. Over the past decade, the U.S. Army has made significant and successful efforts to improve the quality of BH care and outcomes for soldiers and their dependents (Hoge et al., 2016). The onset of the coronavirus disease 2019 (COVID-19) pandemic and restrictions on in-person care required a rapid shift to virtual care. Three years since the onset of the pandemic, the optimal role of virtual behavioral health (VBH) as part of overall BH care delivery for soldiers and their dependents remains unclear. To inform policy and planning related to VBH, the Office of the Surgeon General, U.S. Army, asked RAND Arroyo Center to assess the expansion of VBH services and its relationship with overall BH service utilization and soldier perceptions of VBH, to inform recommendations on the role of VBH in military BH care in the future.

The Military Health System (MHS) provides health care to service members across branches and to other beneficiaries, including spouses, dependents, and retirees, via the TRICARE health plans. Care provided in military treatment facilities (MTFs; i.e., direct care) is prioritized for service members. Dependents and retirees receive care from providers contracted to provide care via TRICARE (i.e., private-sector care) (Tanielian and Farmer, 2019). In 2017, the Defense Health Agency (DHA) was established to oversee health care delivery across service branches (Adirim, 2019). Thus, while the focus of this report is on soldiers, we highlight relevant efforts by the MHS and DHA as well.

In this chapter, we provide an overview of the effectiveness of VBH, the role of VBH in military BH before and after the onset of the pandemic, and how this report extends and contributes to existing literature on military VBH care.

Effectiveness of Virtual Behavioral Health Care

The MHS defines *virtual health care* as “a patient using technology (computer, smartphone, or tablet, for example) to access their health care” (Military Health System, 2022a). While the term *telehealth* is also used, we use the terms *virtual health care* and *VBH care* in this report. Virtual health care is the use of technology by patients to access care remotely. There are generally two types of virtual health care: synchronous and asynchronous. *Synchronous virtual health* refers to the use of technology to facilitate a “live,” real-time connection between a patient and provider. In contrast, *asynchronous virtual health* involves the use of technology to connect patients with health care providers or connect providers with other providers in a nonsimultaneous manner (i.e., not in real time), such as through messaging or “store-and-forward” (the electronic sharing of medical documents or images) (Reynolds, 2022). This report focuses on synchronous (real-time) virtual health for BH care, or VBH. VBH can be conducted as video visits using both visual and audio communication technology or as audio visits (i.e., *audio-only* or *telephone* visits) using audio communication

technology with no video (e.g., by cellular phone). In the years preceding the COVID-19 pandemic, synchronous virtual health implementation in the MHS was largely limited to video visits between providers and patients located at MTFs (Madsen, Banaag, and Koehlmoos, 2021; U.S. Government Accountability Office, 2017). However, pandemic-related restrictions on care delivery and the easing of restrictions on the modality used for virtual health led to the increased use of telephone (audio) visits in the MHS and in civilian settings (Hepner et al., 2023; U.S. Department of Health and Human Services, 2020; Uscher-Pines et al., 2021).

Research suggests that VBH is effective for assessment and diagnosis of BH conditions (Hilty et al., 2013; Liu et al., 2020). Although some studies have found mixed or inconclusive results on the effectiveness of VBH for treatment (Hilty et al., 2013; Leach and Christensen, 2006; Linde et al., 2015), an increasing number of systematic reviews have shown that VBH may be as effective as in-person care for the treatment of many BH conditions (Barnett et al., 2021; Bashshur et al., 2016; Batastini et al., 2021; Carrillo de Albornoz, Sia, and Harris, 2022; Greenwood et al., 2022; Langarizadeh et al., 2017; McClellan et al., 2022; Snoswell et al., 2021). For example, randomized controlled trials have shown VBH to be as effective as in-person care in delivering individual psychotherapy for depression (Egede et al., 2015) and posttraumatic stress disorder (PTSD) (Acierno et al., 2016; Acierno et al., 2017; Fortney et al., 2015; Yuen et al., 2015), group psychotherapy for PTSD (Greene et al., 2010; Morland et al., 2010; Morland et al., 2014), and medication management for depression (Hungerbuehler et al., 2016; Ruskin et al., 2004) and for other BH conditions (O'Reilly et al., 2007).

However, researchers have cautioned that the generalizability of such findings is limited by the relatively small number of rigorous randomized controlled trials, small sample sizes, variation in the type of BH condition and intervention studied (e.g., video psychotherapy, audio visits for medication management), and the limited study of long-term outcomes (Barnett et al., 2021; Batastini et al., 2021; Ekeland, Bowes, and Flottorp, 2012; García-Lizana and Muñoz-Mayorga, 2010; Gentry et al., 2019; Lin et al., 2019; Mark et al., 2022; McLean et al., 2013). Large-scale implementation studies of VBH are also needed to determine the effectiveness of hybrid models of care, in which patients receive some care in person and some by VBH, compared with receiving only VBH or only in-person care (McLean et al., 2013; Uscher-Pines et al., 2022). Additionally, while research suggests that audio and video visits may be equally as effective as in-person BH care (Chen et al., 2022; Liu et al., 2020), a recent review by McClellan and colleagues (McClellan et al., 2022) found that video visits were superior to audio visits in delivering psychotherapy to treat depression and trauma.

There is also a need for additional research to determine whether VBH is equally effective for different patient populations. Studies have found that Black and Hispanic individuals are less likely to receive virtual health—and video visits in particular—than are White individuals (Drake et al., 2022; Eberly, Kallan, et al., 2020; Eberly, Khatana, et al., 2020; Patel, Mehrotra, et al., 2021; Pierce and Stevermer, 2023). Furthermore, Spanish speakers are less likely than English speakers to receive virtual health (Rodriguez et al., 2021). Research shows that other populations that face greater access barriers to virtual health (and video visits in particular) include Medicaid beneficiaries (Busch et al., 2022; Connolly, Stolzmann, et al., 2022; Drake et al., 2022; Eberly, Khatana, et al., 2020), individuals who live in areas with low broadband access (Patel, Rose, et al., 2021; Rodriguez et al., 2021), and low-income (Eberly, Khatana, et al., 2020; Patel, Rose, et al., 2021) and impoverished individuals (Patel, Mehrotra, et al., 2021; Saeed and Masters, 2021). Findings are mixed with respect to age: Many studies suggest that older age is associated with lower rates of VBH use (Connolly, Stolzmann, et al., 2022; Eberly, Kallan, et al., 2020; Lindsay et al., 2022; Robotham et al., 2016), while a more recent assessment of national survey data suggests that virtual health care use in 2021 among adults aged 80 years and older was similar to that of adults in other age groups (i.e., 40–49, 50–59, and 60–69 years) (Centers for Disease Control and Prevention, 2023).

Despite the need for additional research, there is ample evidence of the potential benefits of VBH for increasing patient access to care and convenience (Barnett et al., 2021; Jenkins-Guarnieri et al., 2015; Mark et al., 2022). VBH can increase access for patients who face traditional barriers to in-person care, such as

transportation, child care, and work obligations (Donelan et al., 2019; Kruse et al., 2017). A meta-analysis of studies published from 2002 to 2017 found similar patient satisfaction scores for VBH compared with in-person BH treatment (Mazziotti and Rutigliano, 2021). Research suggests that patient satisfaction with VBH may be particularly high when it is received from an established provider (Kruse et al., 2017), and patient comfort with VBH appears to increase over time as patients accumulate more experience with receiving VBH as part of their care (Fischer et al., 2022; Waite, Diab, and Adefisoye, 2022). However, there is a need to better understand patient experiences with receiving video versus audio visits, and with hybrid VBH care (i.e., a mix of video, audio, and in-person BH visits). For example, a recent qualitative study found that veterans preferred video visits over audio visits for mental health care (Chen et al., 2021). Future studies are needed to better understand how patients experience video and audio visits for different conditions, treatments, and unique circumstances.

Virtual Behavioral Health Care in the Military Health System

In this section, we describe efforts by the MHS to deliver VBH and summarize trends in the receipt of VBH since the onset of the COVID-19 pandemic. We also highlight some of the ongoing challenges faced by the MHS in delivering VBH to service members.

Military Health System Efforts to Deliver Virtual Behavioral Health Prior to the COVID-19 Pandemic

Challenges to patient access to in-person care (e.g., living far from care sources or experiencing transportation issues) stimulated interest in the potential of virtual health to help address barriers to care. The MHS has historically provided virtual health (predominantly synchronous video visits) to service members located at remote MTFs, but in 2016 it expanded the acceptable VBH locations to include the patient's home "or other patient location deemed appropriate by the treating provider" (Woodson, 2016). In 2018, the MHS described the initiation of the development of an enterprise-wide strategy to expand the receipt of VBH among service members (Military Health System, 2020; U.S. Department of Defense, 2018). However, successful implementation of VBH requires addressing several issues, such as provider and patient acceptance, privacy and security, technical requirements, reimbursement, and the most effective use of this technology (Tuckson, Edmunds, and Hodgkins, 2017; Waltman et al., 2020). In an earlier study, RAND researchers examined the receipt of virtual health care delivered at MTFs in 2016–2017 for PTSD, depression, or substance use disorder (SUD), comparing care delivered to service members who resided remotely from an MTF with care delivered to those who did not. In that study, less than 3 percent of service members receiving BH care (remote and nonremote) received any virtual health care (medical or BH), and less than 2 percent received individual psychotherapy via VBH. Remote service members were less likely to receive virtual health care or individual psychotherapy via VBH (both less than 1 percent) (Hepner, Brown, et al., 2021).

Virtual Behavioral Health Following the Onset of the COVID-19 Pandemic

In January 2020, the U.S. Department of Health and Human Services declared a public health emergency (U.S. Department of Health and Human Services, Administration for Strategic Preparedness and Response, 2020). Federal agencies later eased restrictions on virtual health care delivery because of the emergence of COVID-19 and the related demands on health care systems, including the MHS (U.S. Department of Health and Human Services, Health Resources and Services Administration, 2023; Hepner, Brown, et al., 2021). The result was a dramatic change in the way health care was delivered, including BH care. At the same time,

DHA released documentation guiding providers in the use of VBH (Table A.1). In response to pandemic restrictions, the MHS dramatically expanded virtual health care services. Audio visits increased 70 percent, and video visits (only 4 percent of all virtual health clinical encounters) increased 250 percent (U.S. Department of Defense, 2022c). Most virtual health encounters were in primary care and specialty BH. Primary care providers were the most frequent users of the telephone; however, BH increased the total number of telephone visits by 98 percent compared with 69 percent overall (U.S. Department of Defense, 2022c). During this time, other supports to VBH (e.g., video-enabled tablets and BH apps) were also used in Veterans Health Administration settings and in a more limited capacity within MTFs (Gujral et al., 2022; U.S. Department of Defense, 2022c). The rapid increase in the receipt of telephone VBH allowed for greater access to BH care, but questions remain about the effectiveness of its use, privacy issues, and patient and provider acceptance (Siegel et al., 2021).

To examine changes in BH care delivered by the MHS following the onset of the pandemic, we analyzed administrative data for utilization of BH care, VBH, and quality of care for service members with PTSD, depression, or SUD. Analyses compared a pre-pandemic period (April to September 2019) with the same months after the onset of the pandemic (April to September 2020). Patterns of care utilization during the six-month period in 2020 included fewer SUD visits and fewer group psychotherapy visits overall. The majority of BH visits were in direct care (i.e., delivered by MTF providers), and there were significantly fewer monthly visits than in the same period in 2019. In contrast, there were significantly more monthly BH visits in private-sector care in 2020 compared with 2019. There were also significantly fewer BH visits delivered by primary care providers and social workers. Fewer service members initiated treatment for any of the three studied conditions, but those with PTSD or depression who did initiate treatment in 2020 received more visits than those in 2019 (Hepner et al., 2023).

During the six-month period prior to the pandemic, monthly VBH visits averaged about 7,000. During the six-month pandemic period, average monthly VBH visits grew to 42,000, with a high of 59,000. In April 2020, 66 percent of individual psychotherapy and 75 percent of BH evaluation and management (E&M) visits were VBH. These percentages declined over the subsequent six months, reflecting a gradual return to more in-person visits. Most service members who initiated care for a new treatment episode of PTSD, depression, or SUD in 2020 received a mix of in-person and VBH visits in the subsequent three months. The majority of direct care VBH visits (83 percent) were coded as being audio-only, compared with only 1 percent of private-sector care visits that were audio-only. Variations in definitions of *synchronous virtual health care* and related coding guidance made the actual proportion of VBH visits that were audio visits (as opposed to video visits) unclear. RAND researchers recommended that the MHS standardize and increase virtual health coding guidance for all its providers (Hepner et al., 2023). In that study, RAND researchers also assessed quality of BH care for the three studied conditions during the periods of interest based on 21 quality measures addressing initial care, medication management, and transitions in care. Quality was largely sustained (ten measures) or improved (seven measures) compared with the same period in 2019. The RAND team recommended that the MHS continue the expansion of VBH while also monitoring the quality of VBH care, including treatment outcomes (Hepner et al., 2023).

Ongoing Challenges to Delivering Virtual Behavioral Health in the Military Health System

The rapid transition to VBH in early 2020 required a precipitous transformation of existing workflows and procedures across the MHS. Despite existing policies allowing its use, there was little precedent for the widespread receipt of VBH within the MHS before the pandemic (Hepner, Brown, et al., 2021). This was particularly true of VBH services provided to service members located in their home, a site of care that was not widely used prior to the pandemic (Doarn et al., 2012; Luxton et al., 2016). A recent report of military BH staff

perspectives on VBH following the onset of the pandemic found that most reported providing VBH using audio, not video (Hepner, Sousa, et al., 2021). Military BH staff reported administrative and technological barriers to VBH, including inadequate equipment, insufficient internet bandwidth, difficulty accessing VBH platforms, and concerns about data security (Hepner, Sousa, et al., 2021). Staff also expressed concern about the appropriateness of VBH use, particularly for patients perceived as high-risk or those with high symptom severity (Hepner, Sousa, et al., 2021). Although military BH staff acknowledged the greater convenience of VBH for patients, they also expressed a desire for technical support and training on VBH implementation (Hepner, Sousa, et al., 2021).

Reflecting on the rapid expansion of virtual health use during the pandemic, the MHS recognized the difficulties that the abrupt changes in care delivery placed on providers and the barriers that providers and service members faced regarding virtual health care utilization, including technical and equipment issues; need for clear standard guidance; need for better virtual training for providers and support staff; and integration issues with the electronic health record (U.S. Department of Defense, 2022c). The MHS has introduced new and/or updated mHealth apps, and a portfolio of existing BH apps was packaged into a provider resilience toolkit and disseminated to MTFs and clinics in March 2020 to assist in reducing staff burnout related to the pandemic (U.S. Department of Defense, 2022c).

Contribution of This Report

VBH played an essential role in continuing BH care following the onset of the pandemic, but questions remain about the role of VBH in BH care delivered by the MHS going forward. There is a need to better understand patterns of VBH in the MHS, including VBH by different provider types and for different types of visits, to inform how to optimize the integration of VBH in the future. Decisions about optimal integration of VBH should also consider patient perceptions of VBH and whether patients value VBH as an option in their BH care. This report extends prior work in several ways. First, we examined patterns of VBH care delivery in the MHS to soldiers and their spouses, assessing delivery over time and use of VBH by different sources of care (i.e., direct care delivered by MTF providers and private-sector care delivered by TRICARE contracted providers in the community) and different types of providers and visits. Second, we assessed patient perceptions of VBH through a survey of soldiers who received BH care at an MTF. We integrated these analyses to develop recommendations related to the role of VBH in overall BH delivered by the military.

Organization of This Report

This report provides a comprehensive assessment of VBH delivered by the MHS, including analyses of administrative treatment data and a survey of soldiers' perceptions of VBH. In Chapter 2, we describe our methods for conducting analyses of administrative treatment data for active-component soldiers and their spouses and of data from a survey of soldiers on their experiences receiving BH care and their perspectives on VBH care. Chapters 3 and 4 present findings on patterns of BH care, including VBH, based on administrative treatment data. Chapters 5 through 8 provide results from the soldier survey. In Chapter 9, we summarize our key findings and provide recommendations for integration of VBH in military BH care in the future. Appendixes A through F provide technical details related to our methodology and findings on patterns of care for spouses.

Methods

In this chapter, we describe the methodological approach for the analyses presented in this report. First, we describe methods for our analyses of the administrative treatment data, including data sources and data on eligible soldiers and their spouses, and analyses of patterns of BH care. Next, we describe methods for our survey of soldiers to assess their perspectives on VBH, including sampling, survey development, survey fielding, and analyses. All study methods were approved by RAND's Institutional Review Board and the U.S. Army Medical Research and Development Command Human Research Protections Office. The survey received an Exemption determination from the U.S. Army Records Management Directorate (Survey Control Number: AAHS-RDR-PR-22-54[EX]).

Administrative Data

To conduct analyses of patterns of VBH care, we linked multiple data files characterizing TRICARE eligibility, MHS health care utilization, and deployment history (Table 2.1). Health care utilization files included records on all health care encounters for soldiers or spouses paid by TRICARE, including both direct care, which is provided at MTFs, and private-sector care, which is delivered by contracted civilian providers.

In preparing the health care utilization data files, we de-duplicated and linked all records to the service member or spouse receiving the care. We conducted this data cleaning on the direct inpatient and outpatient stay records (Standard Inpatient Data Record [SIDR] and Comprehensive Ambulatory Professional Encounter Record [CAPER] files), as well as the private-sector care provider and facility records (TRICARE Encoun-

TABLE 2.1
Administrative Data Files Used in Analyses

Content	Data Files
Outpatient services delivered at MTFs (direct care)	Comprehensive Ambulatory Professional Encounter Record (CAPER) GENESIS Episodic Encounter
Inpatient services delivered at MTFs (direct care)	Standard Inpatient Data Record (SIDR) GENESIS Basic Admission
Provider services delivered outside of MTFs (private-sector care)	TRICARE Encounter Data–Noninstitutional (TED-NI)
Facility services delivered outside of MTFs (private-sector care)	TRICARE Encounter Data–Institutional (TED-I)
Dispensed medication (direct care and private-sector care)	Pharmacy Data Transaction Services
TRICARE enrollment, demographics	VM6 Beneficiary Level
Service member rank	Defense Manpower Data Center (DMDC)
Deployment history	Contingency Tracking System–Deployments

ter Data–Noninstitutional [TED-NI] and TRICARE Encounter Data–Institutional [TED-I] files), to ensure that all encounters (i.e., outpatient visits, inpatient stays) were counted accurately. The detailed steps in this process are documented elsewhere (Hepner et al., 2016).

Virtual Behavioral Health

Our analyses focused on synchronous, patient-provider telehealth (two-way, real-time communication). We did not include asynchronous telehealth (one-way data transfer), as it was rarely used in the context of BH in our data. We also did not include consults between providers. Methods for identifying and characterizing VBH visits were based on MHS and TRICARE guidance for providers regarding coding of telehealth visits (Table A.1). Tables A.2 and A.3 provide the codes and modifiers used to define telehealth visits and the modality used.

Eligibility Criteria for Analyses

The criteria for inclusion in the administrative data analyses were the following:

- *Active-component soldier or spouse of active-component soldier*: National Guard and reserve-component members were excluded because of their increased likelihood of more frequent changes in TRICARE eligibility and use of commercial health insurance coverage (e.g., employer coverage). Spouses of active-component soldiers were included in the analyses of spouses unless they were themselves active-component soldiers.¹
- *Age*: Soldiers and spouses were 18 to 64 years old.
- *BH care*: We included soldiers and spouses with at least one outpatient BH visit, defined as a visit with any International Classification of Diseases, 10th revision (ICD-10), F-code in the primary position.

Analyses

We used administrative data for two sets of analyses: visit-level analyses and person-level analyses. The visit-level analyses examined all visits by eligible soldiers or spouses for which a BH diagnosis was included in any position in the record. The visit-level analyses examined change over the course of the COVID-19 pandemic in the delivery of VBH and characterize how VBH was being used in the most recent six-month period for which data were available, October 2021 through March 2022. Visits with a non-BH diagnosis in primary position, which composed about 15 percent of the total number of visits, were included in these analyses to accommodate variations in coding practices and to include encounters in which more than one condition was addressed.

The person-level analyses focused on a subset of soldiers who received at least three BH treatment visits at an MTF (i.e., direct care) in the most recent six-month period for which data were available, October 2021 through March 2022. We call this group the *BH treatment cohort*. We required at least three BH treatment visits to ensure at least minimal experience in receiving BH treatment. This parallels the eligibility criteria for the survey. These person-level analyses examine how soldiers who were receiving BH treatment from an MTF were using VBH as part of their BH care. We created a similar treatment cohort for spouses who had at least three BH treatment visits at an MTF or in private-sector care for similar analyses. For all analyses unless otherwise specified, we defined a BH visit as an encounter coded with an ICD-10 F-code in any position.

¹ Nonspouse dependents were excluded. Spouses made up 92 percent of all dependents of active-component soldiers who received BH care.

Visit-Level Analyses

For visit-level analyses, we examined all BH outpatient visits for soldiers or spouses who met eligibility criteria described above that occurred between October 2019 and March 2022 (30 months). The visit-level analysis had two components. First, we examined trends over time in receipt of VBH versus in-person care. To do this, we calculated the total number of BH visits and the proportion that were VBH in each month (October 2019 through March 2022). Trends were examined separately for soldiers and spouses and for direct care and private-sector care. To provide an estimate of the change in the number of VBH visits being provided each month, we compared the most recent months for which data were available with the same calendar months in the year preceding the pandemic.

Second, to characterize more recent patterns in VBH care, we examined the proportion of BH visits that were delivered by VBH during the most recent six-month period for which data were available, October 2021 through March 2022. We chose to aggregate data across six months to account for variations across months, particularly through the end-of-the-year holiday season, when patterns of care may change. We examined variation in the proportion of visits by VBH by the following visit characteristics: care setting (primary or BH specialty care), provider type (primary care provider, clinical psychologist, psychiatrist, or social worker), visit type (intake assessment, individual psychotherapy, group psychotherapy, or E&M/medication management), and primary diagnosis for the five most common diagnoses in our dataset (PTSD, depression, anxiety, SUD, and adjustment disorder), which accounted for the large majority of visits with a BH diagnosis. Comparisons were conducted across visit characteristics separately for direct care and private-sector care and between direct care and private-sector care for each visit type. Variations in the proportion of visits by VBH were tested using chi-squared tests.

Given the large sample size, small differences across groups are likely to be statistically significant. To home in on differences that may be more likely to be relevant to policy, we focus our discussion on the magnitude of differences and highlight where the proportion of visits by VBH differs across groups by 5 percentage points or more. Comparisons of the use of VBH across visit characteristics among soldiers are presented in Chapter 3, and the parallel comparisons for spouses are presented in Appendix E. While the patterns of VBH use are generally similar for soldiers and spouses, we point out differences in the text.

Person-Level Analyses

For person-level analyses, we selected a subset of soldiers who had at least three BH specialty treatment visits at an MTF between October 2021 and March 2022. For inclusion in the BH treatment cohort, we defined *BH treatment visits* as individual psychotherapy, group psychotherapy, or E&M/medication management with a primary diagnosis of acute stress reaction, adjustment disorder, attention deficit hyperactivity disorder (ADHD), anxiety, depression, eating disorder, PTSD, sleep disorder, or SUD (details on qualifying visit types and diagnosis codes are provided in Tables A.4 and A.5, respectively). These diagnoses were selected because they are the most common BH diagnoses among soldiers. All BH visits (treatment or otherwise) for this group of soldiers that occurred between October 2021 and March 2022 were included in the analyses. We identified a subset of spouses receiving BH treatment using similar criteria. While the eligibility for soldiers was based on three or more BH treatment visits at an MTF, eligibility for spouse inclusion was based on three or more BH treatment visits at an MTF or with a private-sector contracted provider.

In the cohort of soldiers receiving specialty BH treatment, we examined the likelihood that a soldier had a VBH visit as part of their treatment and the average number of VBH visits soldiers with any VBH had received. To be comprehensive in examining VBH in this group, all visits with a BH diagnosis in any position were included in these analyses. We then examined variation in these patterns of receipt of VBH by soldier characteristics (gender, age, race/ethnicity, marital status, and rank) and visit characteristics (care setting, visit type, provider type, and primary diagnosis). Variations in receipt of VBH by soldier characteristics were

tested using chi-squared tests. Because soldiers could have visits that fell into more than one category (e.g., visits with multiple providers), tests of variation in the likelihood of having a VBH visit across visit characteristics were adjusted for clustering of multiple observations per individual soldier. As with the visit-level analyses, we focused analytic attention on differences of greater than 5 percentage points. In Chapter 4, we present the results of analyses of the BH treatment cohort of soldiers, highlighting differences between soldiers and spouses. Full results of the analysis of the BH treatment cohort of spouses are presented in Appendix F.

Survey of Soldiers

In this section, we describe methods for the survey of soldiers to assess their perspectives on VBH, including eligibility, sampling, survey development, survey fielding, and data analyses.

Eligible Participants

Eligible participants consisted of active-component soldiers, age 18 to 64, who had received at least three BH specialty care outpatient treatment visits at an MTF between January 1 and March 31, 2022, the most recent date for which data were available when the sample was drawn. Our aim in requiring at least three BH treatment visits was to increase the likelihood that participating soldiers had a minimal level of experience receiving BH treatment at an MTF. Qualifying BH visits were limited to outpatient psychotherapy (individual or group) or E&M/medication management (Table A.4) delivered either in person or as VBH by an MTF-based BH specialty provider (i.e., psychiatrist, psychologist, psychiatric nurse practitioner, or social worker). Qualifying BH visits also needed to be coded with an eligible BH diagnosis as the primary diagnosis. Eligible diagnoses included acute stress reaction, adjustment disorder, ADHD, anxiety, depression, eating disorder, PTSD, sleep disorder, and SUD (detailed specifications are provided in Table A.5). Among soldiers with any qualifying visits, 42 percent had three or more qualifying visits, making them eligible for inclusion in the study.

Sampling

Using the administrative data described earlier, we selected a sample of eligible soldiers to invite to participate in the survey. In developing the sampling plan, we aimed to ensure adequate variability in receipt of VBH among those soldiers who received at least three qualifying outpatient BH treatment visits at an MTF. Thus, we selected a stratified, random sample of eligible soldiers, stratifying by their receipt of VBH at the time of sampling. Specifically, we selected from three strata: those who received only VBH, those who received only in-person BH care, and those who received a combination of both VBH and in-person BH care. We stratified only on this variable to ensure adequate distribution of the selected survey cohort sample across these VBH groups and sufficient statistical power to compare these groups. We used disproportionate allocation (also referred to as *unequal probabilities*), which involves sampling some substrata at higher probabilities than others to ensure adequate representation of certain groups for analyses. Specifically, we sampled all active-component soldiers in the VBH-only group because of their comparatively small population size. Appendix B includes technical details about the sampling strategy and survey weighting.

To inform an estimated response rate, we considered response rates reported for recent surveys of military populations. In one of these, RAND researchers conducted a survey of active-component BH technicians and the military BH providers who worked with them (Hepner et al., 2022). We focused on the response rate for BH technicians because their ranks (i.e., E-1–E-9) may be more representative of the population of soldiers receiving BH care; licensed BH providers tend to have higher ranks (i.e., O-1–O-6). The raw response rate for

BH technicians across service branches was 43 percent, with the Army having a lower response rate (38 percent) than the Air Force and the Navy (47 percent and 45 percent, respectively). The adjusted response rate across service branches was 42 percent. Response rates for other relevant surveys were lower. The most recent Health Related Behaviors Survey (HRBS), designed to assess health and well-being across service branches, had a raw response rate of 8.6 percent for active-component service members across all service branches (adjusted rate: 9.6 percent) (Meadows et al., 2021). The raw response rate was lower for Army and Marine Corps service members (both 5.7 percent) than for Navy, Air Force, and Coast Guard personnel (7.7 percent, 16.6 percent, and 19.3 percent, respectively). Raw response rates were also lower among junior enlisted personnel (E-1–E-4) than senior officers (O-4–O-6; 4.6 percent versus 24.4 percent). Additionally, while we focused on prior surveys of military populations, one recent civilian survey was also considered. A survey of civilians receiving VBH and in-person BH care during the early months of the pandemic reported a response rate of 14.4 percent (Tse et al., 2021). On the basis of these prior surveys, we assumed a response rate of 25 percent for the purposes of sample design and sampled 1,600 soldiers, anticipating a final sample of 400 soldiers.

Survey Development and Domains

The goal of the survey was to assess soldier experience in receiving BH care, including perspectives and experiences receiving VBH, focusing on the past six months. The survey covered eight domains that were identified through a review of prior literature on VBH: utilization of BH care, experience of receiving BH care, experience of receiving VBH, reasons for not receiving VBH, perceptions of VBH, comparison of VBH with in-person BH care, the importance of various VBH treatment options, and respondent demographic and service characteristics. The survey included 70 total items,² with skip logic that selects appropriate survey items based on respondent experience with VBH. Skip logic resulted in 63 applicable items for soldiers with experience receiving only VBH in the past six months, 51 applicable items for respondents with only in-person BH care experience, and 68 applicable items for respondents who had received both VBH and in-person BH care.

To develop the survey items, we reviewed existing validated scales in the peer-reviewed literature. Where existing items addressing the identified domains were unavailable or not directly applicable to the military context, we developed items. Table 2.2 provides a summary of survey domains, the topics assessed within each, and the number of items for each domain. Appendix C provides a more detailed description of the survey development methods. The complete survey appears in Appendix D.

Survey Administration

The survey was fielded over an eight-week period (August 4, 2022, to September 23, 2022). We worked with an experienced survey organization, Davis Research, to conduct the survey. To maximize response rate, we used a mixed-mode approach, allowing survey completion via web or telephone. The use of mixed-mode approaches has been shown to improve response rates (Anhang Price et al., 2022; Olson et al., 2020). Over the eight-week fielding period, soldiers received a maximum of 12 recruitment attempts using available forms of contact information (e.g., home address, email address, phone number). In general, the recruitment approach started with a mailed letter, followed by a series of email and text message invitations, a second letter, and then telephone calls. Using active tracking of the validity of the contact information for each soldier during survey fielding allowed us to adapt and tailor the recruitment approach to each soldier and their available contact information.

² For six items, nonresponders received a follow-up prompt, which is reflected in the total item count.

TABLE 2.2
Survey Domains and Number of Items

Domain	Topics Assessed	Number of Items in Survey
Eligibility screener	Eligibility	1
Utilization of BH care	In-person and VBH visits for medication treatment and counseling or psychotherapy; care received from TRICARE providers in the community	14 ^a
Experience of receiving BH care	Perceptions of access, convenience, provider interpersonal quality, privacy, shared decisionmaking, working alliance, treatment helpfulness, and global ratings of BH care	14
Experience of receiving VBH	Types of VBH received, VBH technology and location; perceptions of technology ease of use, quality, provider VBH competence, privacy, connection issues, interpersonal quality, shared decisionmaking, and satisfaction with VBH	14
Reasons for not receiving VBH	Whether VBH was offered; reasons for not receiving VBH	2
Perceptions of VBH	Perceptions of privacy, technology, cost, quality, and use of audio versus video with VBH	7
Comparison of VBH to in-person care	Effectiveness, satisfaction, convenience, and privacy of VBH compared with in-person care	7
Importance of VBH options	Importance of having the option of VBH, VBH from home, VBH from work, involvement of family in VBH, and continuity of care through VBH after moving to a new location or when deployed	6
Respondent characteristics	Type of housing, ethnicity, race, education, marital status	5

^a Nonresponders received a follow-up prompt, which is reflected in the survey items count.

The recruitment letter and email included information about the survey and instructions on how to participate via web (survey link and unique Study ID) or telephone (toll-free phone number and hours of operation). A link to a RAND informational website about the survey was included in mailed and emailed invitations. The site included an overview of the survey, as well as a letter indicating support of the study by the Army Office of the Surgeon General. The site also included information about how to access and complete the survey for those invited, along with contact information for the survey vendor for technical support and the study investigator for general questions about the study or participation. Text messages included an abbreviated version of the information communicated in the recruitment letter. All text messages offered the option to opt out from future text communication. Soldiers who completed the survey during off-duty hours could receive a \$35 gift card or check.

Nearly all soldiers in the sample (99 percent) had a home mailing address in the data, though 8 percent of these were invalid (i.e., letters were returned to sender). Similarly, although most sampled soldiers had at least one email address (i.e., work or home email address; 91 percent), 13 percent were invalid (i.e., undeliverable). Nearly all soldiers had at least one phone number (i.e., work, home, or mobile) in the data (97 percent), though 3 percent of these were invalid.

Response Rate

A total of 1,600 active-component soldiers with three or more qualifying BH visits were invited to participate in the survey. With 419 soldiers who completed the survey (defined as responding to at least 80 percent of applicable items), the raw response rate was 26.2 percent (of 1,600 sampled). Of those sampled, 97.8 per-

cent ($n = 1,564$) had at least one form of valid contact information and were invited to participate. Of those sampled, 59.4 percent ($n = 951$) did not respond, 9.6 percent ($n = 154$) declined or refused to participate, and 2.5 percent ($n = 40$) were not eligible. Of those who were not eligible to participate, 19 reported that they were no longer active-component soldiers and 21 reported that they had not received BH care in the past six months. To compute the adjusted response rate, we used the American Association for Public Opinion Research response rate calculator (American Association for Public Opinion Research, undated), which adjusts the denominator to remove soldiers who were determined to be ineligible (i.e., because they had no valid contact information, were no longer in the active component, or had received no BH care in the past six months). The adjusted response rate was 27.5 percent (419 of 1,524). The median time to complete the survey was 11 minutes via web and 31 minutes via telephone. Nearly 60 percent of surveys were completed via web (web: 250; phone: 169).

Analyses

In this section, we describe our approach to analyses of survey data, including analyses of nonresponse and survey weighting to prepare the analytic data set.

Analyses of Survey Strata

As shown in Figure 2.1, the data used to draw the sample did not fully overlap with the recall period used in the survey. Specifically, the sample was drawn using administrative data on BH visits between January 1, 2021, and March 31, 2022, whereas the survey asked respondents about care they received in the six months prior to the day they completed the survey, which was between August 4, 2022, and September 23, 2022. Because of this gap, we anticipated that there would be variation between the BH visit data we used to determine eligibility and define the sample strata and the data that would be reported by respondents of the survey.

As expected, preliminary analyses identified differences between soldiers' receipt of VBH in the administrative data, on which the sample strata were defined, and the survey responses (Table 2.3). Differences could have arisen because of errors in the administrative data at the time of sampling, soldiers' inaccurate reporting on the survey due to recall error, or VBH care that occurred between the time of the sampling and the time of the survey. Approximately half of survey respondents did not change their VBH status between sampling and their survey responses (57 percent). Soldiers in the VBH-only sampling strata were the most likely to change

FIGURE 2.1
Timeline of Survey Sampling, Survey Fielding, and Survey Look-Back Period

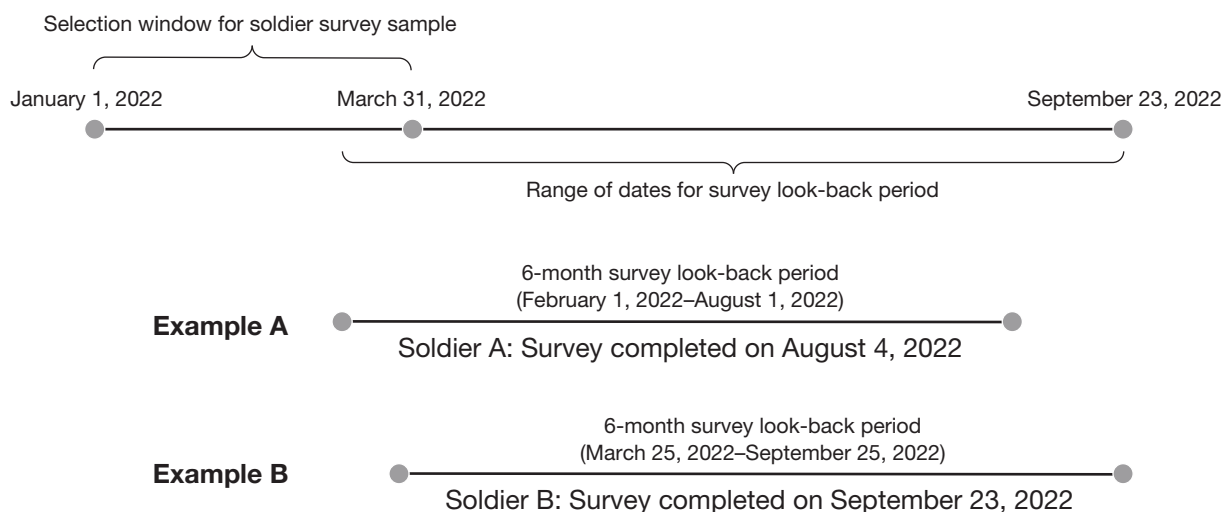


TABLE 2.3
Sampling Strata Versus Soldier Report on Survey

Sampling Strata	Soldier Report on Survey			% Changing
	In-Person Only (N)	In-Person and VBH (N)	VBH Only (N)	
In-person visits only	98	63	3	40.2
In-person visits and VBH	47	112	8	32.9
VBH only	5	55	28	68.2

NOTE: *N* = 419. Bolded numbers indicate soldiers whose status did not change from sampling to report on the survey.

status based on survey responses (68 percent), with most of these soldiers reporting some in-person BH care as well. This markedly reduced the number of soldiers in the VBH-only group, reducing our power to detect differences across the three strata. Based on these findings, we opted to combine the VBH-only group and the in-person-and-VBH group into a single “any VBH” group and conduct two-group comparisons: Any VBH (*n* = 269) versus no VBH (i.e., in person only; *n* = 150).

Nonresponse and Survey Weighting

Because the goal of this study was to be able to generalize our findings to the population of soldiers engaged in BH treatment, we calculated a set of weights for our final analytic sample of responders who had completed over 80 percent of the survey items (*N* = 419). The weighting process accounted for the probability of selection of the soldier into the survey and for the probability that a soldier responded to the survey after being sampled.

The sampling weight for each respondent was equal to the inverse of the probability of selection into each sample and was needed to account for our stratified sampling design, which oversampled from certain strata. While our sampling design weights were known, we needed to estimate the nonresponse weights using statistical models. The nonresponse adjustment was important to eliminate potential differential response that was observed above by characteristics such as rank and marital status and to ensure that the final weighted sample matched the characteristics of our target population. Specifically, we used a logistic regression that incorporated individual-level information on gender, race and ethnicity, age, rank, marital status, and region. Respondent race and ethnicity and marital status were obtained from survey data. We obtained administrative data on gender, age, and region from DHA and on rank from the DMDC. The final weight was equal to the product of the sampling weight and the nonresponse weight. We provide further details of the weighting procedures, as well as a further discussion regarding limitations and challenges of this approach, in Appendix B.

Analyses

We report all study results in survey-weighted percentages and means. When we report the number of respondents included in analyses (e.g., in table and figure notes), these are unadjusted *N*s. We primarily performed comparisons across two groups defined by whether the soldier reported receiving any VBH in the past six months. To evaluate whether there were statistically significant differences across these two groups, we performed survey-weighted two-sample *t*-tests for comparisons of means for continuous measures. When responses were categorical, we performed survey-weighted chi-squared tests. Among soldiers who had received VBH, we also examined whether soldier experiences and perspectives varied by whether they received only one VBH visit versus two or more. We did not perform adjustments to our tests to account for multiple comparisons, though we interpret our results cautiously, with multiple testing concerns in mind.

To protect the confidentiality of participants, we do not report numerical findings in cells representing fewer than five respondents and instead replace the data with *NR* (not reportable).

Summary

This study used a combination of administrative and survey data to examine VBH use by soldiers and their spouses across the MHS, with the aim of informing future VBH policy. To clarify how the different analytic components relate to each other, we summarize the eligibility criteria for each analytic component in Table 2.4.

TABLE 2.4
Eligibility Criteria for Analyses

Criterion	Chapter 3 Trends in Receipt of VBH, October 2019– March 2022	Chapter 3 Receipt of VBH, October 2021– March 2022 (<i>N</i> = 78,797 soldiers) (<i>N</i> = 49,705 spouses)	Chapter 4 BH Treatment Cohorts, Receipt of VBH, October 2021– March 2022 (<i>n</i> = 22,614 soldiers) (<i>n</i> = 7,836 spouses)	Chapters 5–8 Soldiers' Perspectives on VBH (<i>N</i> = 419)
Soldiers or spouses	Active-component soldiers and spouses	Active-component soldiers (and spouses in Appendix E)	Active-component soldiers (and spouses in Appendix F)	Active-component soldiers
Number of BH visits	At least 1 BH visit	At least 1 BH visit	At least 3 BH treatment visits ^a	At least 3 BH treatment visits ^a
Diagnosis	Any F-code diagnosis (primary)	Any F-code diagnosis (primary)	Selected BH diagnosis (primary) ^b	Selected BH diagnosis (primary) ^b
Primary or specialty care	Primary or specialty care	Primary or specialty care	BH specialty care	BH specialty care
Direct or private-sector care	Direct or private-sector care	Direct or private-sector care	Soldiers: Direct care Spouses: Direct or private-sector care	Direct care

^a BH treatment visits included individual psychotherapy, group psychotherapy, and E&M/medication management.

^b Primary diagnosis of acute stress reaction, adjustment disorder, ADHD, anxiety, depression, eating disorder, PTSD, sleep disorder, or SUD.

Receipt of Virtual Behavioral Health in the Military Health System

Key Findings: Trends in Receipt of Virtual Behavioral Health Among Soldiers

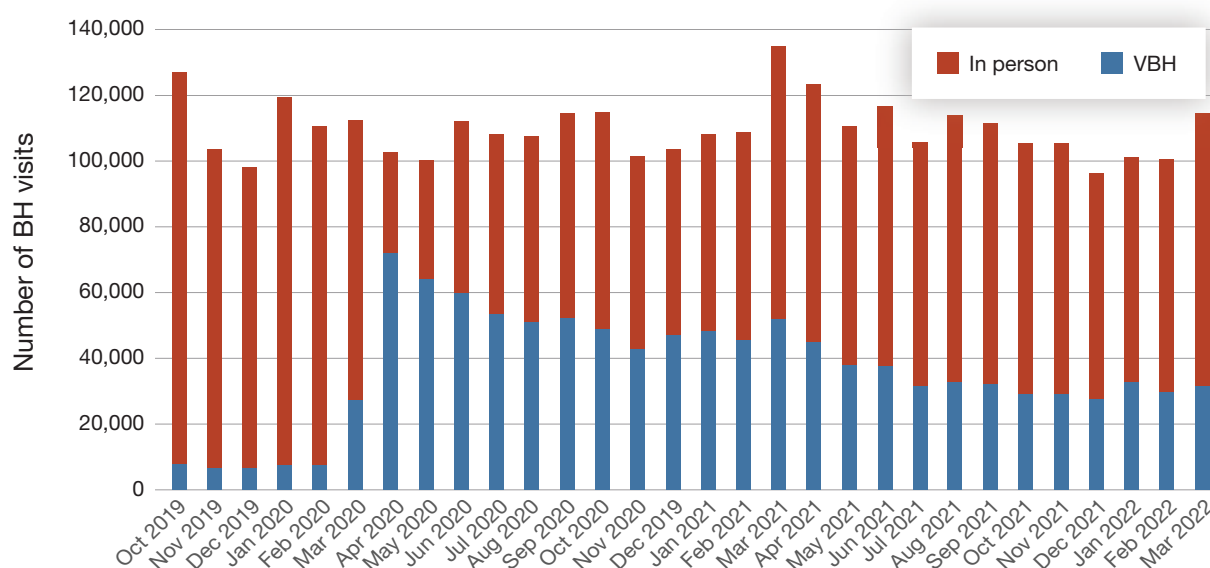
- Since the peak of VBH delivery early in the COVID-19 pandemic (April 2020), delivery of VBH has declined among MTF providers while remaining consistently high in private-sector care.
- Between October 2021 and March 2022, the most recent period for which we had data, the gap in use of VBH between direct care and private-sector care was primarily due to higher private-sector use of VBH in specialty BH care by clinical psychologists and social workers.
- Almost all VBH visits in private-sector care were video visits, whereas the majority of VBH visits in direct care were audio visits.

In this chapter, we present findings from analyses of administrative data on VBH visits in the MHS, focusing on changes over the course of the COVID-19 pandemic. We start by describing trends over time in VBH visits, starting in October 2019, six months prior to the initial spike in VBH in March 2020, and continuing through two years of the pandemic to March 2022. We examine how these trends differed depending on the source of care or whether the patient was a soldier or a spouse. We then focus on receipt of VBH during the most recent six-month period for which data were available, October 2021 through March 2022. We examine whether receipt of VBH during this period differed by the source of care, provider type, visit type, and diagnosis. In the body of the chapter, we focus on results for this six-month period for soldiers, and we discuss findings for spouses where there are differences. Detailed results for spouses are presented in Appendix E.

Trends in the Receipt of Virtual Behavioral Health for Soldiers and Spouses

In this section, we examine how receipt of VBH changed over time, starting in October 2019, before the COVID-19 pandemic, and continuing through March 2022, the most recent month for which data were available. Figure 3.1 shows the total number of outpatient BH visits made by soldiers and spouses in each month, broken out by VBH and in-person visits. The total number of visits each month was relatively stable over time, at about 110,000 visits, with some seasonal variation. In the months prior to the pandemic, from October 2019 through February 2020, the number of VBH visits was stable at about 7,000 visits per month. There was a dramatic increase in VBH visits beginning in March 2020, reaching a peak of nearly 72,000 in April 2020, followed by a gradual decline over subsequent months. Despite this decline, monthly VBH visits remained much higher than prior to the pandemic, averaging about 30,000 visits per month in the six

FIGURE 3.1
Number of Virtual Behavioral Health and In-Person Behavioral Health Visits Among Soldiers and Spouses



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position.

months from October 2021 to March 2022. This pattern of change over time in receipt of VBH was similar to that seen in a prior RAND study of BH care following the start of the pandemic for service members with PTSD, depression, or SUD (Hepner et al., 2023). This pattern was also similar to that reported in the civilian health care system, where there was a dramatic spike in VBH in March and April 2020 followed by a leveling-off at a much higher sustained rate than prior to the pandemic (McBain et al., 2023).

The same pattern emerged when we examined trends in the proportion of BH visits that were delivered by VBH (Figure 3.2). In February 2020, about 7 percent of BH visits delivered to soldiers and spouses were VBH, but in April 2020, 70 percent of BH visits were delivered by VBH. After April 2020, the proportion of BH visits that were VBH slowly decreased, reaching 28 percent in March 2022, which is much lower than the peak at the start of the pandemic but also much higher than pre-pandemic levels.

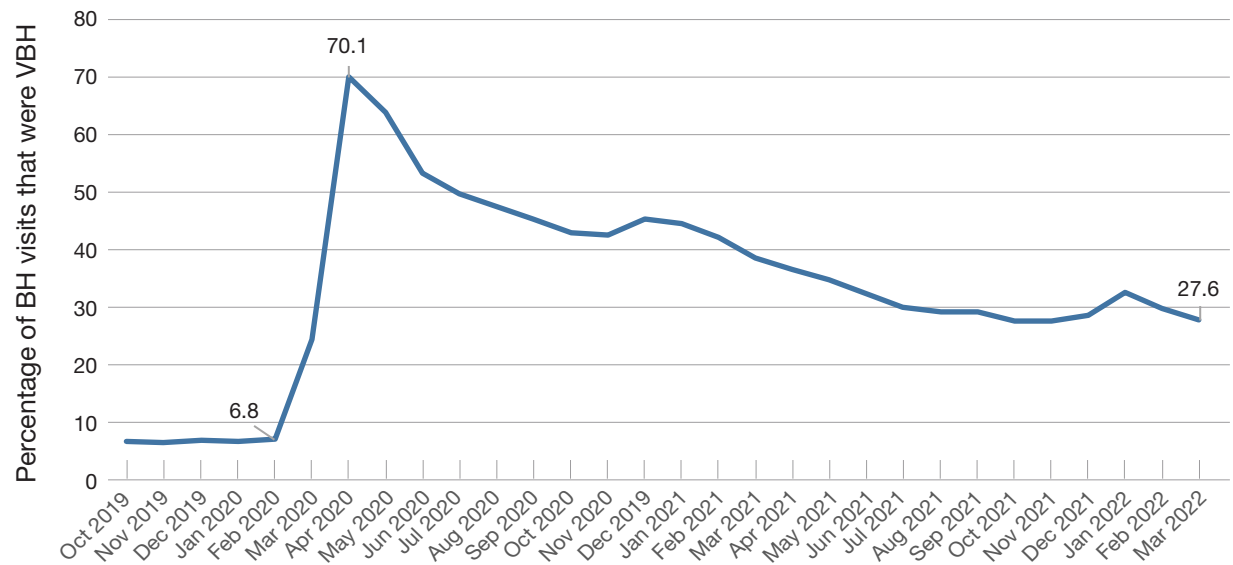
Receipt of Virtual Behavioral Health by Source of Care for Soldiers and Spouses

Soldiers and spouses can receive care from two sources: direct care, which is provided at MTFs, and private-sector care, which is provided by TRICARE-contracted providers in the community. The overall volume of visits among soldiers and spouses was larger in direct care than in private-sector care. From October 2019 through March 2022, 68 percent of BH visits were in direct care and 32 percent were in private-sector care. Soldiers were more likely to receive services through direct care, whereas spouses were more likely to receive services through private-sector care. According to our data, 90 percent of all visits for soldiers were in direct care and 73 percent of visits for spouses were in private-sector care.

The trends in receipt of VBH differed between direct care and private-sector care (Figure 3.3). In direct care, VBH visits accounted for 9 percent of BH visits immediately prior to the pandemic, rose to 74 percent

FIGURE 3.2

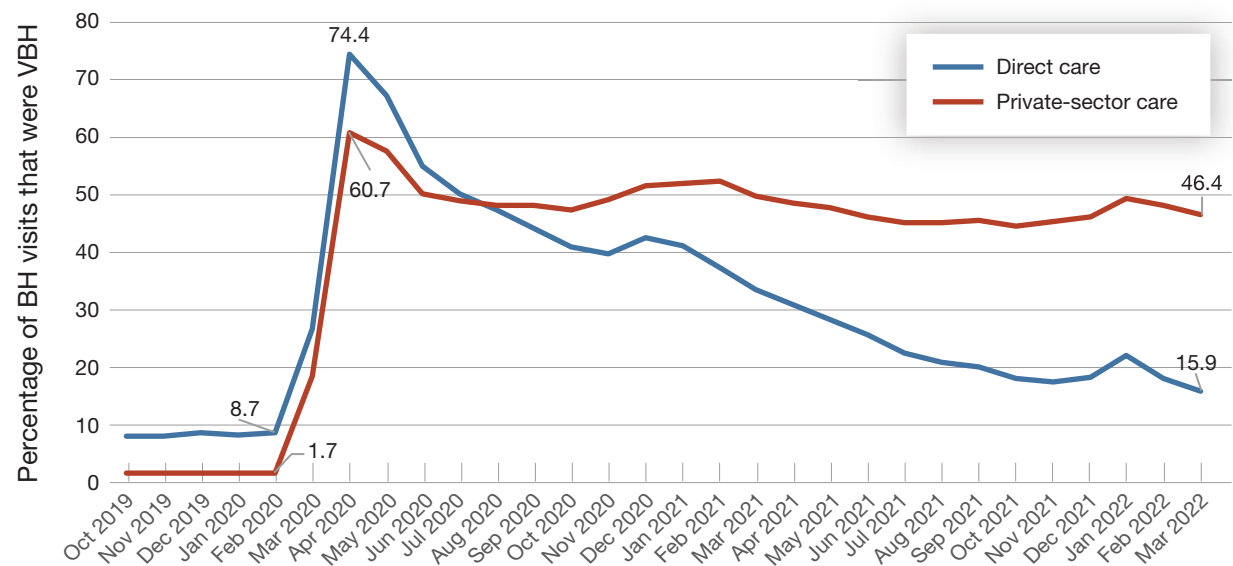
Percentage of Behavioral Health Visits Among Soldiers and Spouses Delivered by Virtual Behavioral Health



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position.

FIGURE 3.3

Percentage of Behavioral Health Visits for Soldiers and Spouses Delivered by Virtual Behavioral Health, by Source of Care



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position.

in April 2020, and consistently declined afterward, reaching a low of 16 percent in March 2022. In contrast, in private-sector care, receipt of VBH was lower than direct care prior to the pandemic, at 2 percent of visits; rose to a lower peak than direct care, topping out at 61 percent of visits in April 2020; and remained stable at

close to 50 percent of visits from June 2020 through March 2022. In March 2022, 46 percent of BH visits in private-sector care were delivered by VBH.

Trends in the proportion of BH visits delivered by VBH differed for soldiers and spouses in direct care and private-sector care (Figure 3.4). In direct care, the percentage of visits delivered by VBH declined from the peak in April 2020 for both soldiers and spouses, but more sharply for soldiers. Because of these diverging trends, BH visits for soldiers were about half as likely to be by VBH than BH visits for spouses in March 2022 (14 percent versus 28 percent). In private-sector care, the percentage of visits delivered by VBH reached a lower peak in April 2020 and leveled off over time at a higher level for spouses than for soldiers. In March 2022, the proportion of visits by VBH was 33 percent for soldiers and 51 percent for spouses. These findings highlight that private-sector providers were delivering VBH at higher rates than direct care providers and that spouses were more likely than soldiers to receive VBH in both care sectors.

Figures 3.3 and 3.4 show trends in the *percentage* of BH visits that were delivered by VBH. Figure 3.5 shows the increase in the *number* of VBH visits compared with the pre-COVID-19 period. To account for seasonal variations, we compared the average number of VBH visits immediately prior to the pandemic, October 2019 through February 2020, with the average number of VBH visits during the same months in the more recent period, October 2021 through February 2022. In direct care, the average number of VBH visits per month was about 5,000 visits higher in the later period than in the earlier one. Most of this increase can be attributed to increases in VBH visits for soldiers, but a significant portion—over 20 percent—is due to increases in VBH visits for spouses. In contrast, the average number of VBH visits per month in October 2021 through February 2022 was much larger in private-sector care—over 17,000 visits per month more—than it was prior to the pandemic. Most of this increase was due to increased VBH visits for spouses, but there was also an increase of over 2,800 VBH visits per month for soldiers in private-sector care.

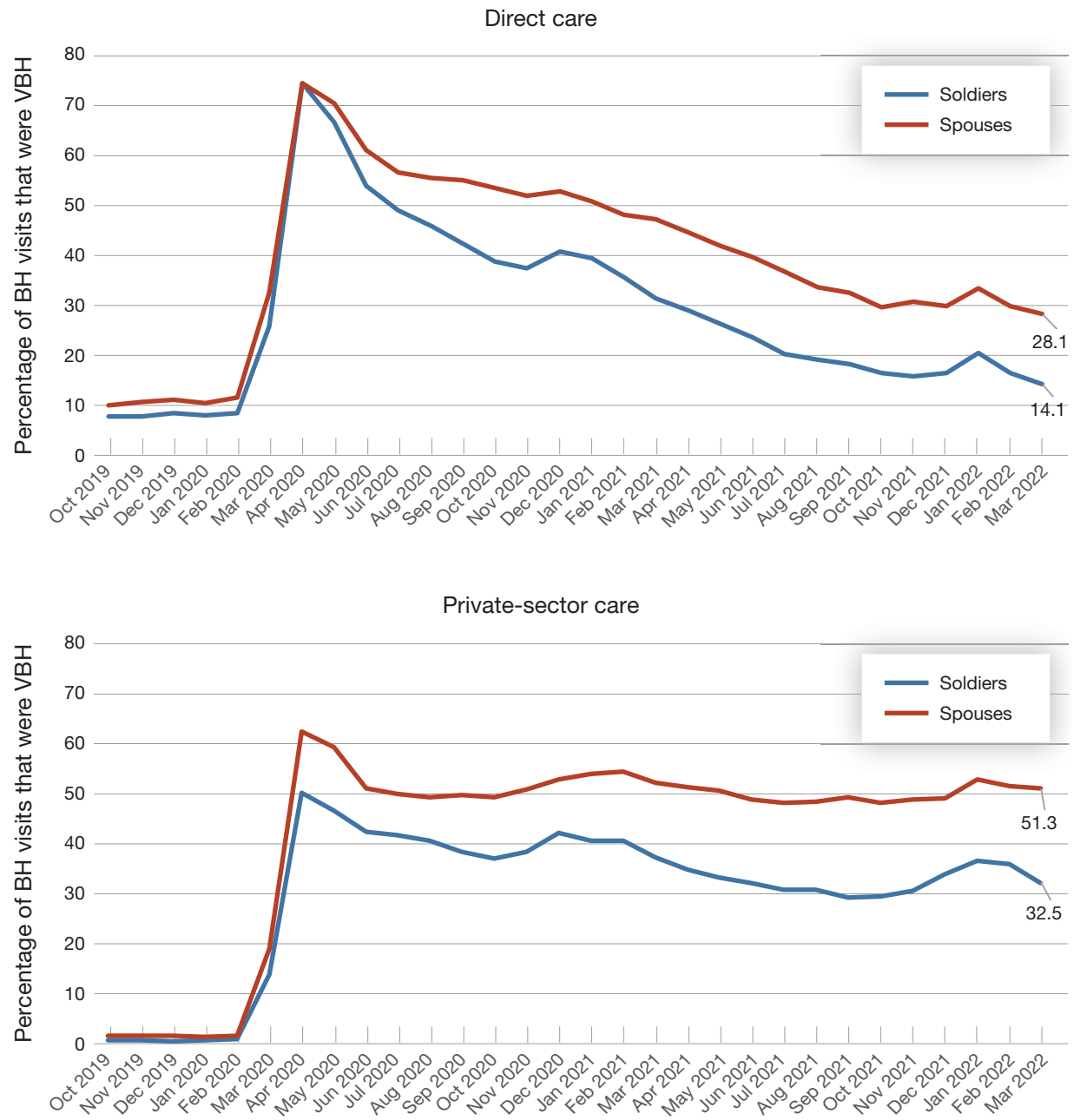
Soldiers' Receipt of Virtual Behavioral Health, October 2021–March 2022

The trend analysis above indicates that the number of VBH visits delivered in the MHS declined after the peak early in the pandemic but as of March 2022 was higher than it was prior to the pandemic. To better understand the changes in VBH that have persisted over time, we focus the next set of analyses on the delivery of VBH in the MHS during the most recent six-month period for which administrative data were available, which was October 2021 through March 2022. We present findings on visits for soldiers seen for BH care during this period ($N = 78,797$) here. Detailed results regarding visits for spouses ($N = 49,705$) are presented in Appendix E. Where there were notable differences between soldiers and spouses, we note those differences in the text.

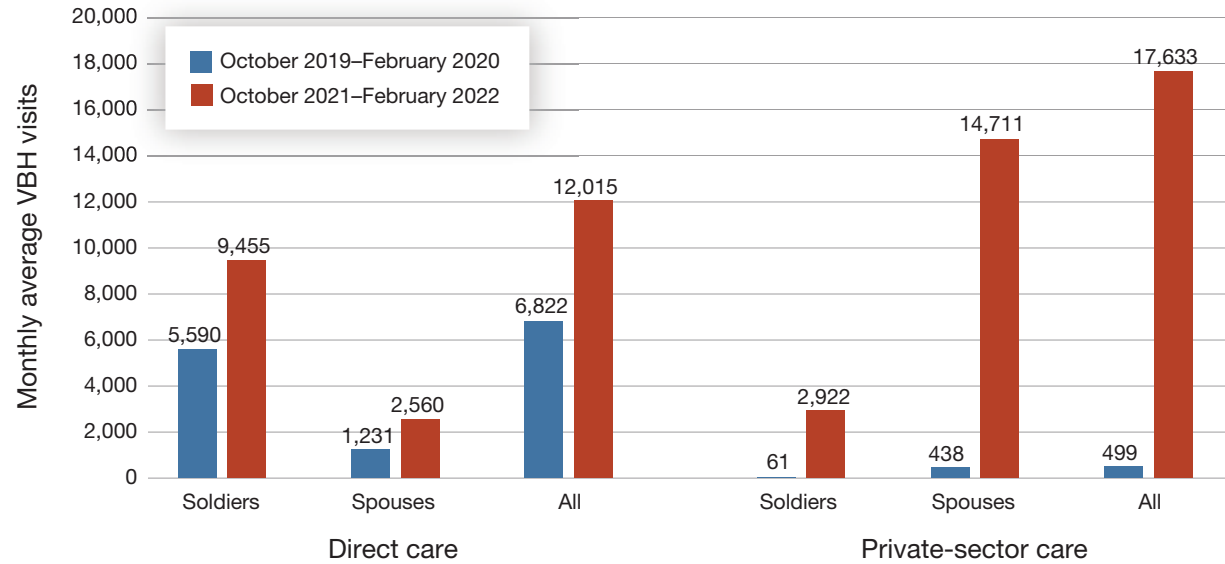
Figure 3.6 shows the monthly average number of BH visits for soldiers delivered by VBH and in person for direct care and private-sector care. During the six-month period, there were approximately 65,000 BH visits per month delivered by the MHS, about 56,000 in direct care and 9,000 in private-sector care. In interpreting differences between sources of care, it is important to keep in mind that, although the proportion of BH visits that are via VBH is higher in private-sector care than in direct care, the number of VBH visits is about three times higher in direct care than in private-sector care (9,319 versus 3,044).

FIGURE 3.4

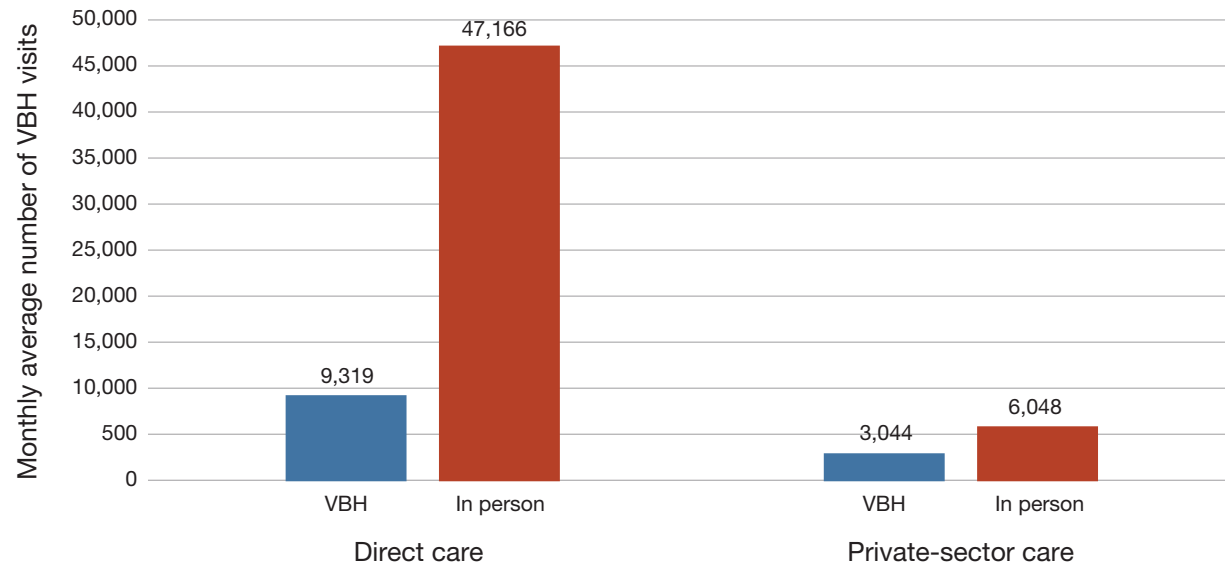
Percentage of Behavioral Health Visits for Soldiers Compared with Spouses Delivered by Virtual Behavioral Health, by Source of Care



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position.

FIGURE 3.5**Monthly Average Virtual Behavioral Health Visits for Soldiers and Spouses, by Source of Care**

NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position.

FIGURE 3.6**Monthly Average Number of Virtual Behavioral Health and In-Person Behavioral Health Visits Among Soldiers, by Source of Care**

NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022.

Virtual Behavioral Health by Setting of Care

The proportion of BH visits that were VBH differed between primary care and specialty BH settings, and the differences were in opposite directions in direct care and private-sector care (Figure 3.7). In direct care, BH visits were more likely to be VBH in primary care than in specialty care (24 percent versus 16 percent), but in private-sector care the opposite was true: BH visits were less likely to be VBH in primary care than in specialty care (21 percent versus 39 percent). Notably, the proportion of visits delivered by VBH in primary care was similar in direct care and private-sector care, whereas there was a large difference between direct care and private-sector care in specialty care visits that were VBH. The findings were similar to VBH for spouses, though the percentage of BH visits that were VBH was higher for spouses than for soldiers in both sources of care and both settings of care (Figure E.2).

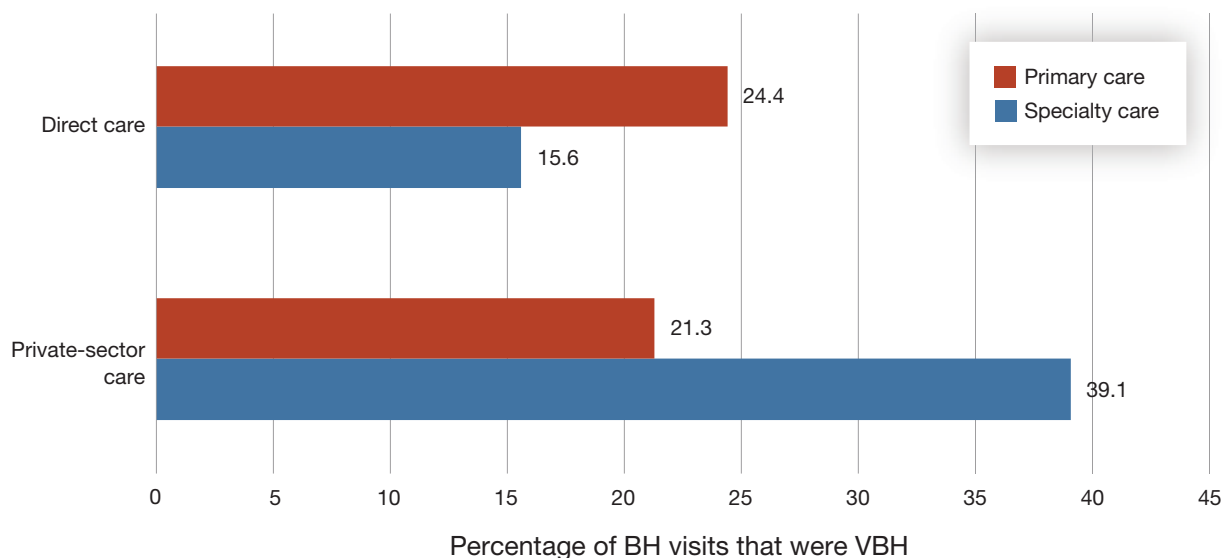
Virtual Behavioral Health by Provider Type

The proportion of BH visits by VBH also differed by provider type and between direct care and private-sector care (Figure 3.8). In direct care, BH visits were more likely to be VBH when the provider was a primary care provider or a psychiatrist than when the provider was a clinical psychologist or a social worker. The opposite was true in private-sector care, where visits were less likely to be VBH with primary care providers and psychiatrists than with clinical psychologists and social workers. Among spouses, VBH was equally common for visits to clinical psychologists, psychiatrists, and social workers in direct care, but the patterns of VBH visits were otherwise similar to those among soldiers (Figure E.3).

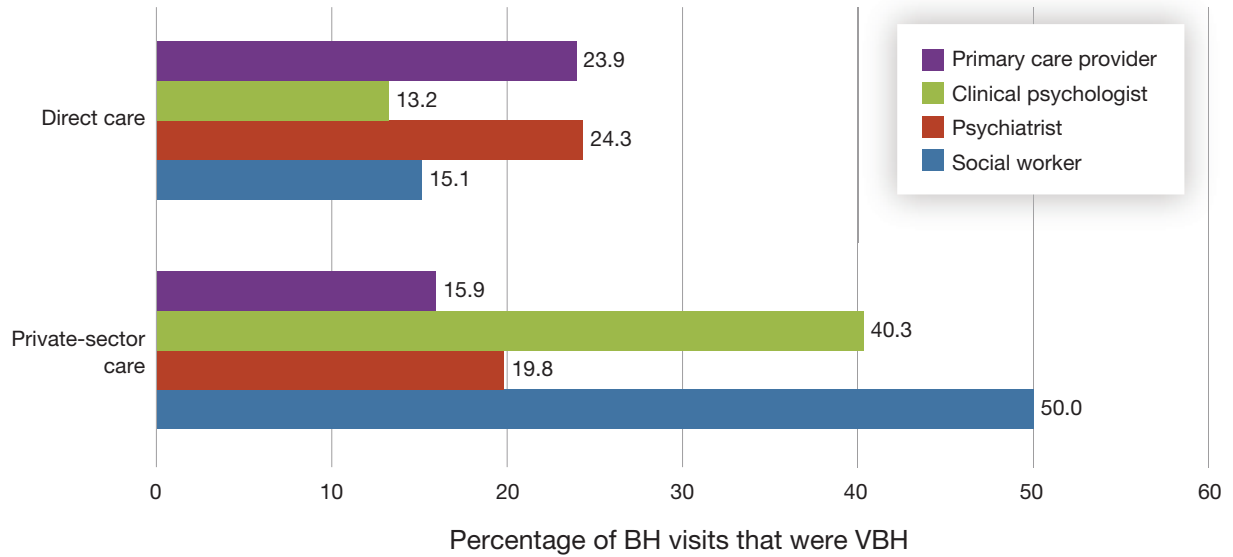
Virtual Behavioral Health by Visit Type

The proportion of BH visits that were VBH differed by visit type, with different patterns in direct care and private-sector care (Figure 3.9). In direct care, the proportion of visits delivered by VBH was much higher for

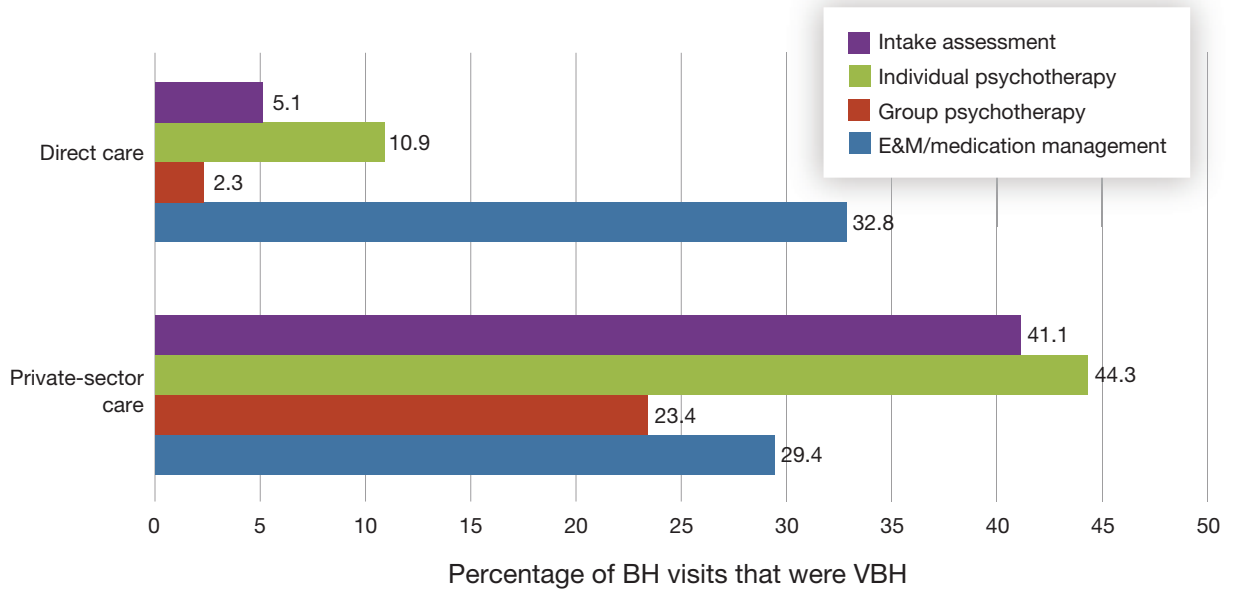
FIGURE 3.7
Percentage of Soldiers' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Care Setting



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022. Differences between primary care and specialty care were statistically significant for both direct care and private-sector care ($p < 0.0001$).

FIGURE 3.8**Percentage of Soldiers' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Provider Type**

NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022. Differences by provider type are statistically significant for both direct care and private-sector care ($p < 0.0001$).

FIGURE 3.9**Percentage of Soldiers' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Visit Type**

NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022. Differences by visit type were statistically significant for both direct care and private-sector care ($p < 0.0001$).

E&M/medication management visits (33 percent) than for any other visit type. The visit type with the second highest proportion by VBH was individual psychotherapy (11 percent). In contrast, in private-sector care, the proportion of VBH visits was higher for both intake assessments (41 percent) and individual psychotherapy visits (44 percent) than for E&M/medication management visits (29 percent). Findings for spouses were similar, with one exception: In direct care, spouses were more likely to have an intake assessment by VBH than to have individual psychotherapy by VBH (Figure E.4).

Virtual Behavioral Health by Primary Diagnosis

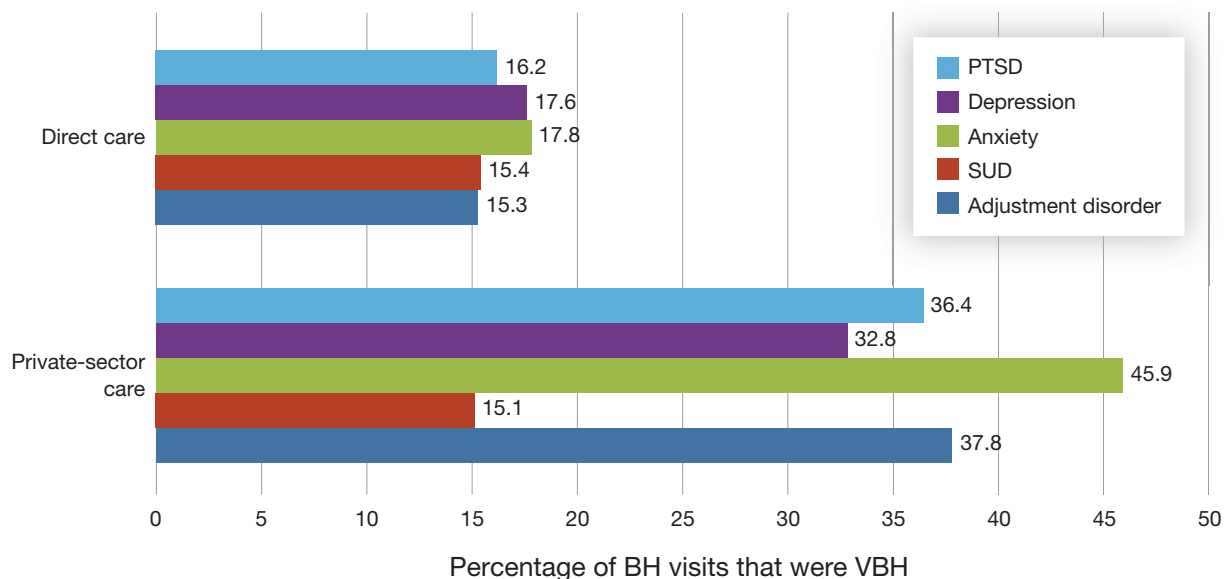
Next, we examined the percentage of BH visits delivered by VBH for the five most common diagnoses among soldiers in our study (Figure 3.10). In direct care, differences in the use of VBH by diagnosis were very small, ranging from 15.3 percent for adjustment disorder to 17.8 percent for anxiety disorders. In private-sector care, differences across disorders were larger, and visits for SUD were much less likely to be delivered by VBH than visits for other disorders. Among spouses in direct care, there was more variation in VBH by diagnosis, with higher proportions of visits by VBH for anxiety disorders and adjustment disorders than for other diagnoses (Figure E.5).

Modality of Virtual Behavioral Health, October 2021–March 2022

VBH can be conducted as audio-only or video visits. We examined the proportion of VBH visits that were coded as audio visits, separately for direct care and private-sector care, during the six-month period of interest (Figure 3.11). In direct care, about 80 percent of VBH visits were coded as audio. In contrast, in private-sector care, the proportion of VBH visits that were coded as audio was extremely low, at less than 1 percent.

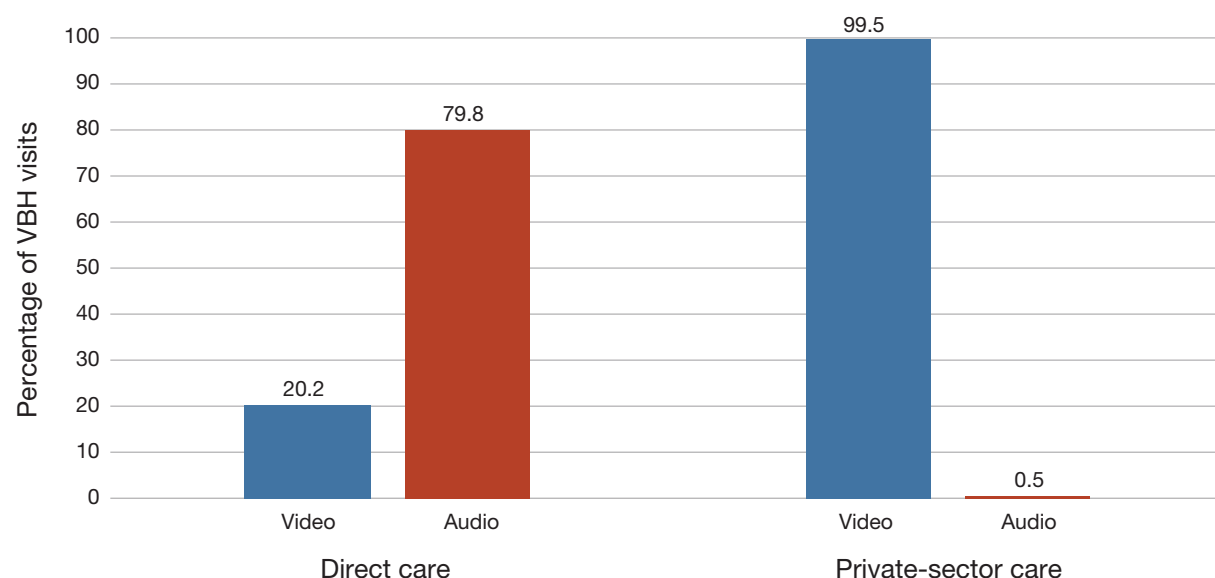
FIGURE 3.10

Percentage of Soldiers' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Primary Diagnosis



NOTE: BH visits coded with the BH diagnosis in primary position, October 2021–March 2022. Differences by diagnosis are statistically significant for both direct care and private-sector care ($p < 0.0001$).

FIGURE 3.11

Modality of Virtual Behavioral Health Visits Among Soldiers, by Source of Care

NOTE: VBH visits coded with the BH diagnosis in any position, October 2021–March 2022.

However, data on the modality used for VBH visits in private-sector care should be interpreted with caution because different coding practices may have affected the data. The coding used by MHS providers to document modality of VBH, and specifically audio VBH, varied significantly between direct and private-sector care (Hepner et al., 2023). Unlike guidance in direct care, private-sector coding guidance defined *synchronous* telehealth as two-way communication in real time without specifying a requirement for a video component, making it unclear what proportion of private-sector care VBH visits were audio-only visits (Hepner et al., 2023). Challenges in interpreting information about the specific modality of telehealth visits have also been noted in studies of Medicare claims data (Hailu et al., 2022). In response to the increased utilization of VBH since the onset of the pandemic, the Centers for Medicare and Medicaid Services added two telehealth code modifiers¹ to identify the use of synchronous audio-only telehealth starting in January 2023 (American Psychological Association, 2022). The MHS may want to incorporate the use of similar modifiers into its coding for MHS telehealth services.

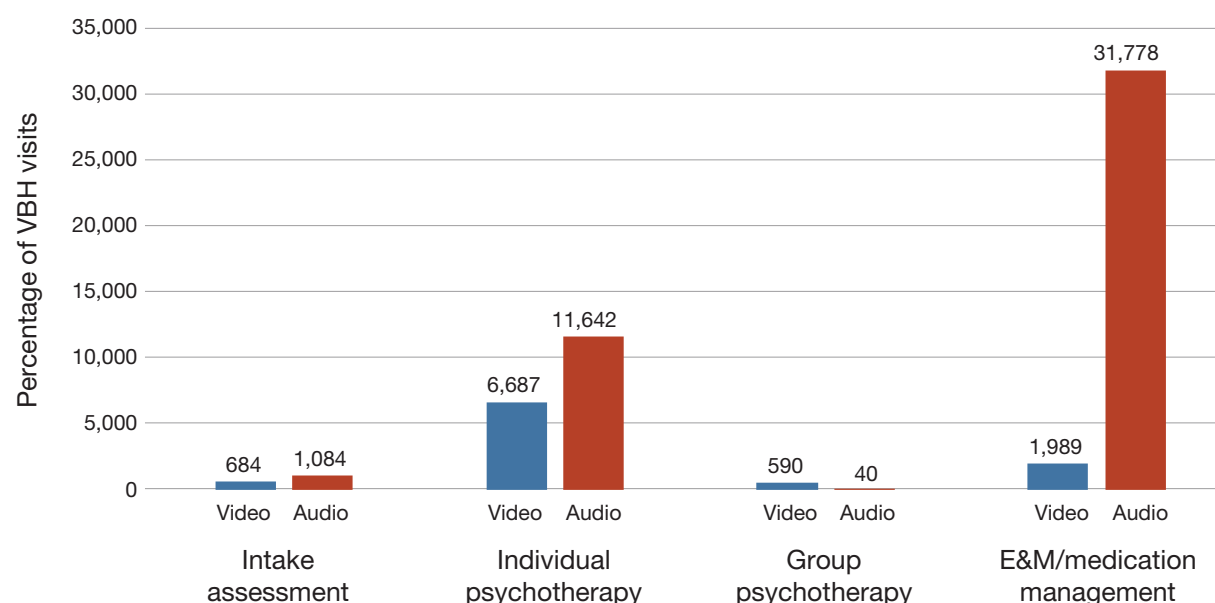
When looking at VBH delivered to soldiers in direct care, we observed that most E&M/medication management visits were delivered as audio VBH. Almost twice as many individual psychotherapy visits were delivered by audio VBH compared with video visits (Figure 3.12).

Summary

In this chapter, we have provided a broad description of how delivery of BH care by VBH changed between October 2019 and March 2022, from before the pandemic, through the declaration of the public health emergency in March 2020, and over the following two years.

¹ Code modifier 93 = Synchronous telemedicine service rendered via telephone or other real-time interactive audio-only telecommunications system. Code modifier FQ = Audio-only services rendered in rural health clinics or federally qualified health centers.

FIGURE 3.12

Modality of Virtual Behavioral Health Visits in Direct Care Among Soldiers, by Visit Type

NOTE: VBH visits coded with the BH diagnosis (any ICD F-code) in any position, October 2021–March 2022.

- Overall trend in the delivery of BH by VBH:** Consistent with trends elsewhere, we observed a sharp spike in the number and proportion of BH visits by VBH in March and April 2020 and a slow decline over the subsequent two years. However, despite this decline, VBH remained much more common two years after the beginning of the pandemic than it was prior to the pandemic, indicating that the shift to VBH care persisted long after restrictions on in-person contact, meant to limit transmission of COVID-19, were lifted.
- Trend by source of care:** After the initial spike in the proportion of BH visits delivered by VBH, the trend in VBH delivery in direct care diverged from that in private-sector care. In direct care, VBH decreased to a low of 16 percent by March 2022, whereas in private-sector care, VBH decreased slightly from its April 2020 peak but remained relatively stable over the remainder of the two-year period, at about 46 percent in March 2022. The divergent trends in direct care and private-sector care were observed for both soldiers and spouses.
- Receipt of VBH:** From October 2021 to March 2022, differences in the proportion of BH visits by VBH between direct care and private-sector care were largely attributable to much higher rates of VBH in private-sector care for specialty BH visits. The proportion of visits by VBH was lower in direct care than in private-sector care for visits where the provider was a clinical psychologist or social worker and where the visit was for individual psychotherapy. The proportion of BH visits that were VBH was higher for spouses than for soldiers in both direct care and private-sector care.
- VBH modality:** Most VBH visits in direct care were coded as audio visits and were for individual psychotherapy or E&M/medication management types of visits. In contrast, almost all VBH visits in private-sector care were coded as video visits (though the latter could be an artifact of coding guidance). This was true for both soldiers and spouses. Video visits were more common for individual psychotherapy than for other types of BH visits.

Receipt of Virtual Behavioral Health Among Soldiers Receiving Behavioral Health Treatment

Key Findings: Receipt of Virtual Behavioral Health in the Behavioral Treatment Cohort

- About half of soldiers in the BH treatment cohort received at least one VBH visit, and soldiers who received VBH had 3.2 VBH visits, on average. In the spouses' BH treatment cohort, over three-quarters received at least one VBH visit, with an average of 7.3 VBH visits.
- On average, soldiers had between 15 and 19 percent of their BH visits by VBH. Very few soldiers (2 percent) had all their BH visits by VBH, in comparison to about one-quarter of spouses.
- The oldest group of soldiers in the study, those age 45 to 64, were more likely to use VBH than the youngest group of soldiers in the study, those age 18 to 24. Soldiers who were Black and non-Hispanic and those who were divorced, separated, or widowed were more likely to use VBH than others in the BH cohort.
- Soldiers' receipt of VBH was more likely for visits to psychiatrists and social workers than for visits to primary care providers and clinical psychologists.

In the previous chapter, we described the proportion of all BH visits delivered by the MHS that were VBH visits. Although the visit-level analysis provided a broad description of the way VBH is being delivered, it may not reflect the role of VBH in the treatment of individuals who are receiving BH treatment. In this chapter, we use a *person-level* analysis to examine receipt of VBH by soldiers who were engaged in BH treatment. For this analysis, we restricted the sample to soldiers who received BH treatment, defined as three or more treatment visits (i.e., individual psychotherapy, group psychotherapy, or E&M/medication management) at an MTF in BH specialty care with a primary diagnosis of a selected BH condition between October 2021 and March 2022. (Although eligibility was determined based on MTF visits, all visits, including those in private-sector care and those with a BH diagnosis in any position, were included in the analyses.) This group, which we call the *BH treatment cohort*, was selected to focus attention on soldiers engaged in BH treatment rather than those with fewer visits who may have been seen for administrative reasons or one-time assessments. A BH treatment cohort of spouses was also selected using similar eligibility criteria. In this chapter, we present results related to soldiers; we present a parallel set of results related to spouses in Appendix F.

Our analysis of the BH treatment cohort had two primary goals. First, we aimed to describe receipt of VBH as a component of BH treatment during the six-month observation period. For this analysis, we examined the proportion of the BH treatment cohort that received any VBH and the proportion of their visits that were delivered by VBH. Second, we aimed to identify differences within the BH treatment cohort in receipt of VBH that may help understand barriers to its use. Specifically, we examined whether soldier characteristics, such as age, rank, and gender, or aspects of their treatment were related to the receipt of VBH.

Characteristics of the Behavioral Health Treatment Cohort

The BH treatment cohort consisted of 22,614 soldiers, representing 55 percent of the 41,010 soldiers who had one or more specialty BH treatment visits at an MTF between October 2021 and March 2022. Characteristics of these soldiers and their receipt of VBH are shown in Table 4.1. Within the BH treatment cohort, just over half of the soldiers had at least one VBH visit (55 percent). Among those with at least one VBH visit, the average number of VBH visits was 3.2. Given the large size of the cohort, it is not surprising that we found statistically significant differences in receipt of VBH across all soldier characteristics that we examined, and that many of these differences were small in magnitude. Therefore, we focused on differences of 5 percentage points or more between highest and lowest percentage within each characteristic. These analyses suggested that receipt of VBH was more common among Black non-Hispanic soldiers compared with White non-Hispanic soldiers; among soldiers who were divorced, separated, or widowed than among those who were never married; among those age 45 to 64 than those age 18 to 24; and among officers than junior enlisted. About 11 percent of the BH treatment cohort had one or more BH visits in private-sector care. Soldiers with a private-sector care visit were more likely than soldiers without any private-sector care to use VBH. They were more likely to have at least one visit by VBH (72 percent versus 53 percent), and, among those with at least one VBH visit, they had more VBH visits (4.3 versus 3.0). In general, among groups that were more likely to have a VBH visit, there was a higher average number of VBH visits among VBH users. In the spouses' BH treatment cohort, female spouses were more likely to receive VBH than male spouses, and those age 18 to 24 were less likely to receive VBH than older age groups. Among spouses, 77 percent received at least one VBH visit, with an average of 7.3 VBH visits (Table F.1).

Receipt of Virtual Behavioral Health by Soldiers in the Behavioral Health Treatment Cohort

The likelihood of having any VBH was higher for soldiers with more BH visits (Figure 4.1). Among soldiers in the BH treatment cohort (i.e., soldiers who had three BH treatment visits), 40 percent received any VBH, while among the subgroup of soldiers with 25 or more BH visits, 94 percent received any VBH. In contrast, soldiers with more BH visits did not receive a different proportion of their visits by VBH than soldiers with fewer BH visits; on average, soldiers had 17 percent of their BH visits delivered by VBH (range: 15 to 19 percent across the number of BH visits) (Figure 4.2). It was uncommon for soldiers to receive all their care by VBH. In the BH treatment cohort, only 1.8 percent of soldiers in the BH treatment cohort had all their BH visits by VBH (not shown).

There was less of an association between number of visits and receipt of VBH among spouses (Figure F.1). For spouses, 52 percent of their BH visits were VBH (range: 47 to 65 percent) (Figure F.2). Compared with soldiers, a higher proportion of spouses in the BH treatment cohort received all their care by VBH (25.3 percent).

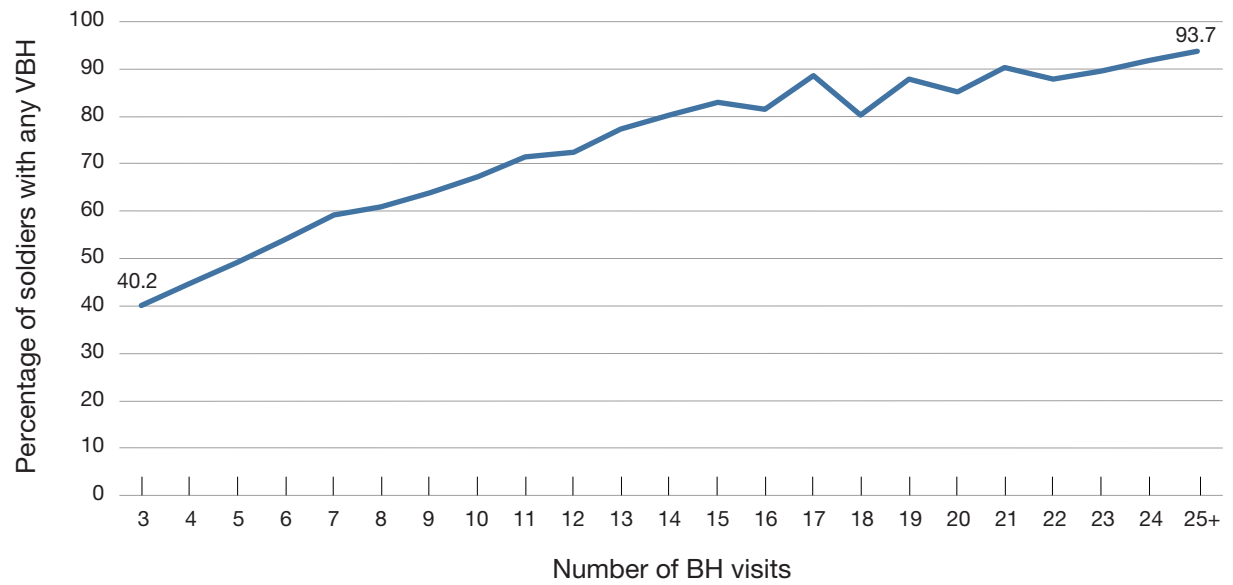
TABLE 4.1

Characteristics of Soldiers in the Behavioral Health Treatment Cohort and Receipt of Virtual Behavioral Health

Characteristic	BH Treatment Cohort (<i>n</i> = 22,614) (%)	Received Any VBH (<i>n</i> = 12,392) (%)	VBH Visits Among Those with at Least 1 VBH Visit (Mean)
Overall	100.0	54.8	3.2
Gender			
Female	27.0	57.1	3.5
Male	73.0	54.0	3.1
Race/ethnicity			
Hispanic	16.9	53.9	3.2
White, non-Hispanic	48.9	53.3	3.1
Black, non-Hispanic	27.6	58.5	3.3
Other race/ethnicity	6.5	52.9	3.2
Marital status			
Married	59.4	55.5	3.2
Divorced/separated/widowed	10.5	58.7	3.3
Never married	30.1	52.1	3.1
Age			
18–24	30.8	51.1	3.0
25–34	36.4	54.9	3.2
35–44	25.3	57.9	3.3
45–64	7.4	59.5	3.4
Rank			
C-1, E-1–E-4	41.3	52.5	3.1
E-5–E-6	26.6	54.3	3.1
E-7–E-9	17.4	57.1	3.1
O-1–O-9, W-1–W-5	14.7	59.5	3.7
Any BH visits in private-sector care			
Yes	11.1	72.4	4.3
No	88.9	52.6	3.0

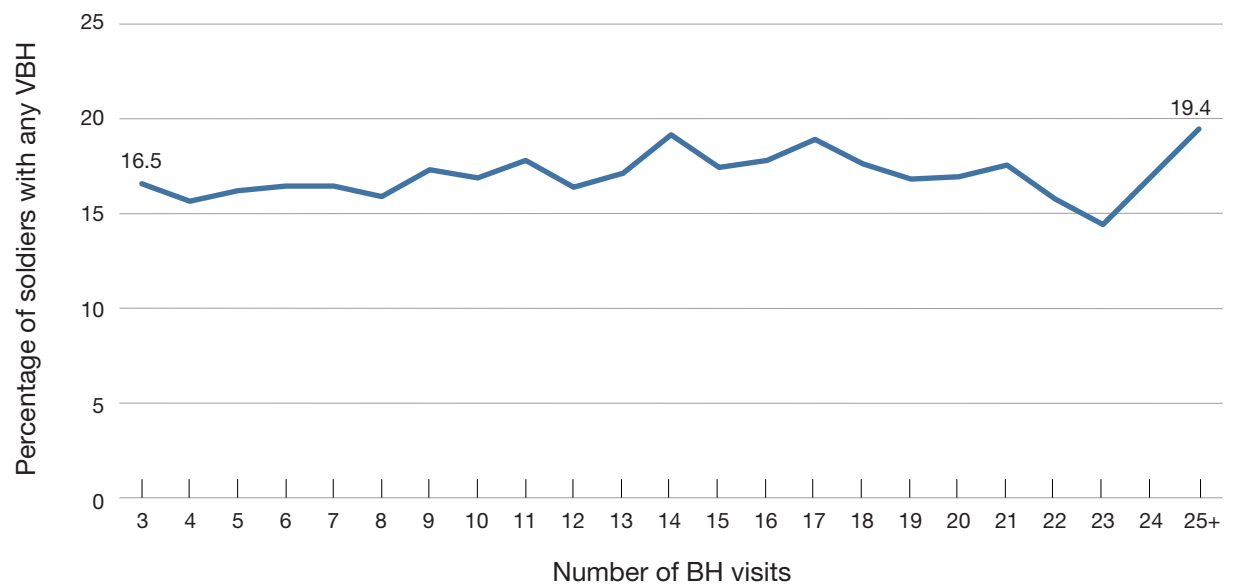
NOTE: Differences in receipt of any VBH across characteristics in the table were statistically significant ($p < 0.0001$ in all cases). Differences in the average number of VBH visits among VBH users across characteristics were also all statistically significant ($p < 0.0001$ in all cases). C = cadet, E = enlisted, O = officer.

FIGURE 4.1
Percentage of Soldiers in the Behavioral Health Treatment Cohort with a Virtual Behavioral Health Visit, by Total Number of Behavioral Health Visits



NOTE: BH visits coded with any BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022.

FIGURE 4.2
Percentage of Behavioral Health Visits by Soldiers in the Behavioral Health Treatment Cohort Delivered by Virtual Behavioral Health, by Total Number of Behavioral Health Visits



NOTE: BH visits coded with any BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022.

Differences in Receipt of Virtual Behavioral Health

This section summarizes how the receipt of VBH differed among soldiers in the BH treatment cohort by visit type, provider type, and primary diagnosis.

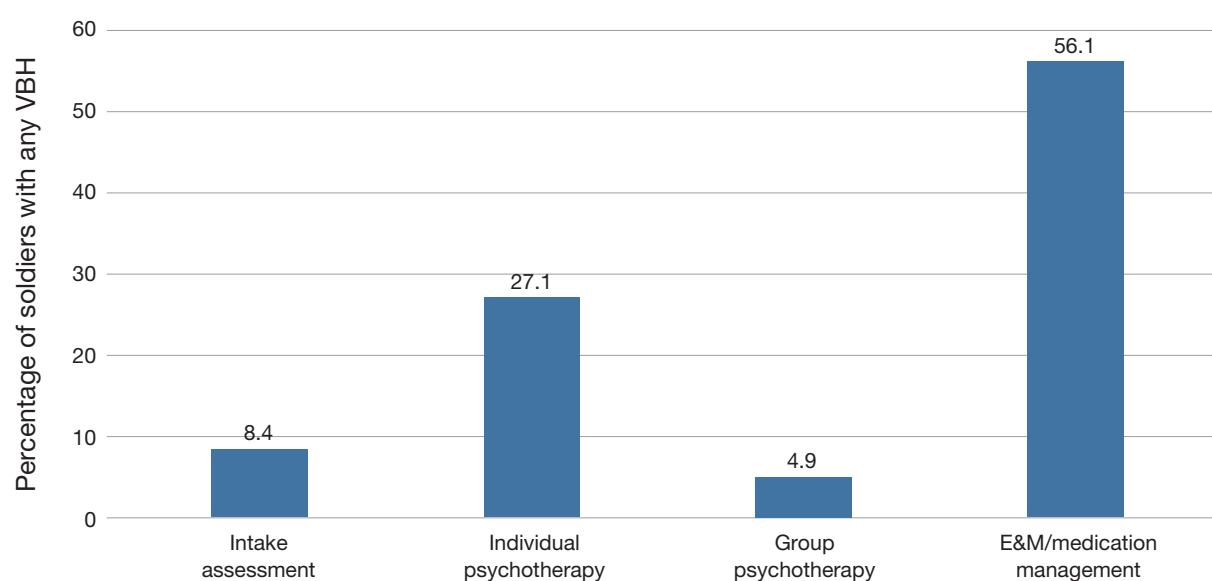
Visit Type

We examined differences in receipt of VBH across four types of visits: intake assessments, individual psychotherapy, group psychotherapy, and E&M/medication management. Figure 4.3 shows the proportion of users of each type of visit who had at least one visit of that type by VBH (e.g., of those with an intake assessment, what proportion had at least one of those visits by VBH). Use of VBH varied significantly across the four visit types ($p < 0.0001$). Over half of soldiers with an E&M/medication management visit (56 percent) and over one-quarter of soldiers with an individual psychotherapy visit (27 percent) had one of those visits by VBH. VBH was less common among other types of visits, with small percentages having an intake assessment (8 percent) or group psychotherapy visit (5 percent) by VBH. In contrast, more spouses had any VBH for an intake assessment (47 percent) and group psychotherapy (27 percent) (Figure F.3).

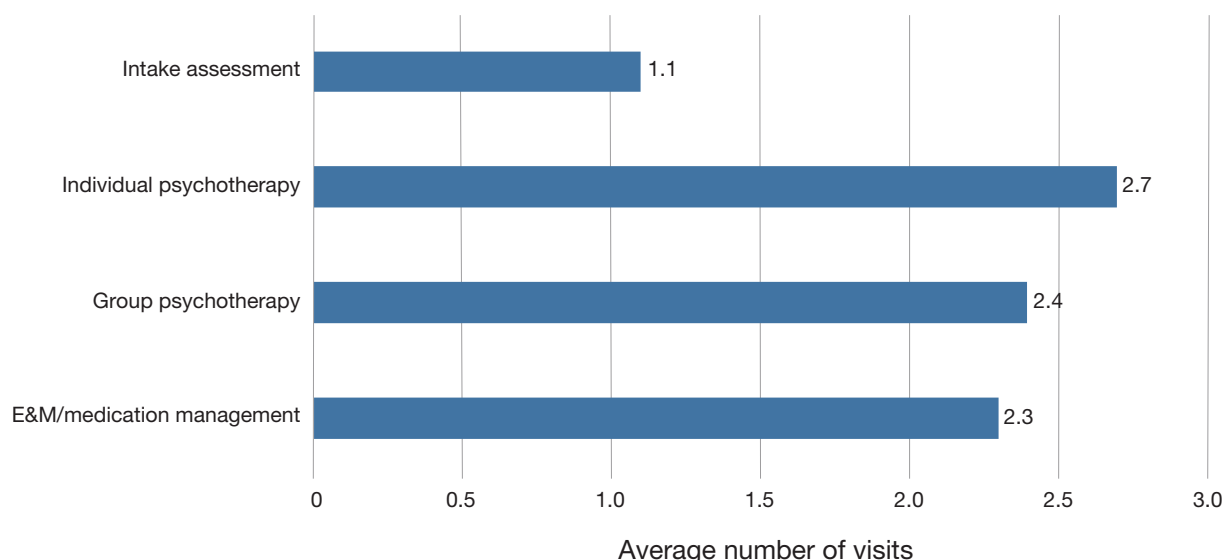
The number of VBH visits among VBH users also differed by visit type ($p < 0.0001$; Figure 4.4). Soldiers who received any VBH for individual or group psychotherapy or for E&M/medication management visits tended to receive multiple VBH visits. The average number of VBH visits across the six-month observation period was between two and three visits for each of these visit types. Soldiers who had intake assessments by VBH tended to have only one intake assessment by VBH, which would be expected because intake assessments are not recurring types of visits. Spouses tended to receive more VBH visits, with an average of seven for individual psychotherapy and six for group psychotherapy (Figure F.4).

FIGURE 4.3

Percentage of Soldiers in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Behavioral Health Visit Type



NOTE: Denominator is soldiers who had at least one visit of the specified type, October 2021–March 2022. Numerator is soldiers who had at least one visit of the specified type delivered by VBH. Differences in the percentage of soldiers with a VBH visit across visit types are statistically significant ($p < 0.0001$).

FIGURE 4.4**Average Number of Virtual Behavioral Health Visits Among Soldiers in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Visit Type**

NOTE: Visits among soldiers who had at least one visit of the specified type, October 2021–March 2022. Differences in the mean number of VBH visits across visit types are statistically significant ($p < 0.0001$).

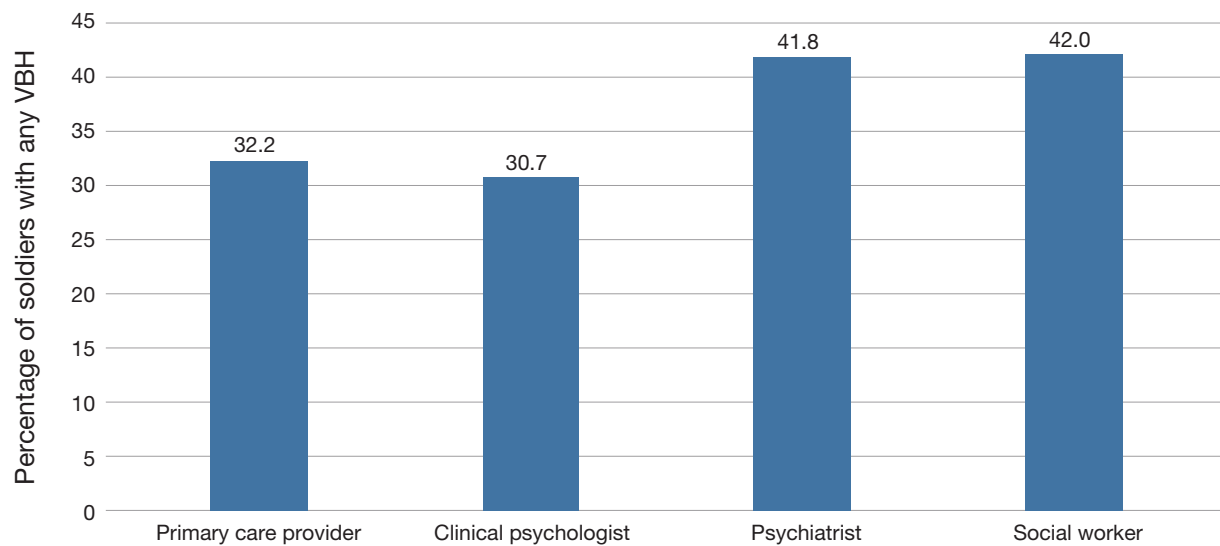
Provider Type

A soldier receiving BH treatment may receive care from several types of providers. To examine whether receipt of VBH differed across provider types, we examined four categories of providers: primary care providers, clinical psychologists, psychiatrists, and social workers. We calculated the proportion of soldiers who received care from each provider type who had at least one of those visits by VBH. Receipt of a VBH visit differed significantly across provider types ($p < 0.0001$), but a substantial minority of soldiers—between 31 and 42 percent—had at least one VBH visit among all four provider types (Figure 4.5). Having a VBH visit was more common for visits with a psychiatrist or social worker than for visits with a primary care provider or a clinical psychologist. The number of VBH visits varied across provider types, with the highest average number of VBH visits among soldiers who saw a social worker or clinical psychologist (Figure 4.6). Notably, although soldiers with clinical psychologist visits were least likely to have received any VBH for those visits, those who had a VBH visit had, on average, between two and three VBH visits with a clinical psychologist during the six-month period of observation. As might be expected, these patterns of care for those in the BH treatment cohort differed somewhat from the patterns of care seen for all soldiers during the same period (Chapter 3) because this cohort is a group with multiple visits (at least three) and therefore likely to receive more BH visits.

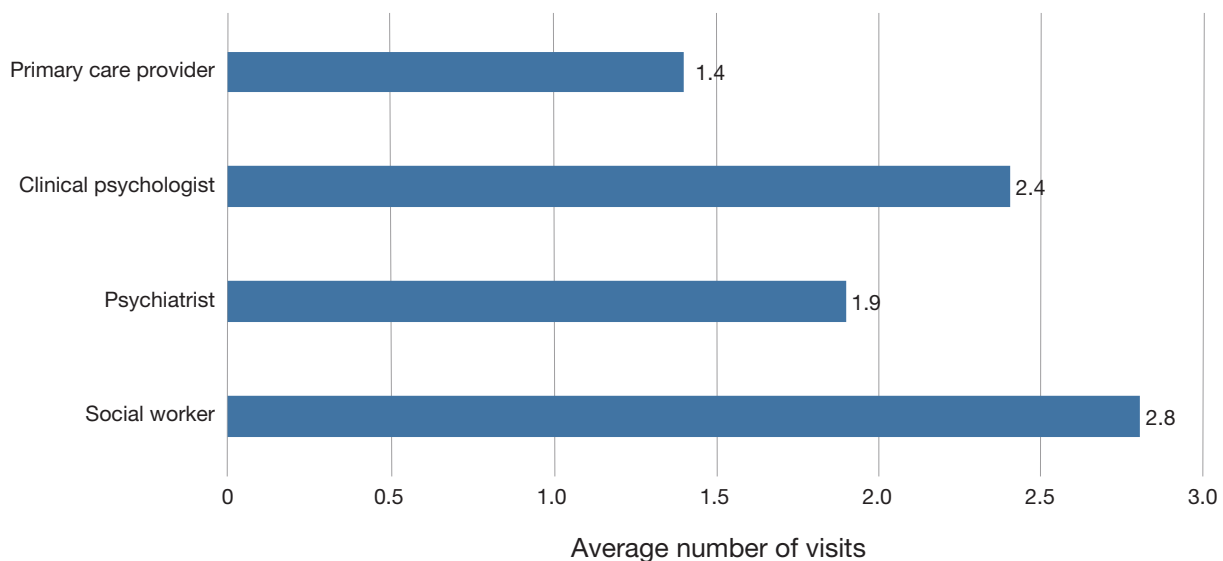
Primary Diagnosis

We next examined whether receipt of VBH differed by the soldier's primary diagnosis for the five most common diagnoses.¹ Receipt of any VBH was lowest for visits with a primary diagnosis of adjustment disorder or anxiety disorder, slightly higher for PTSD or depression, and highest for SUD (Figure 4.7). Diag-

¹ These five diagnoses accounted for 90 percent of the BH diagnoses recorded for the BH treatment cohort.

FIGURE 4.5**Percentage of Soldiers in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Provider Type**

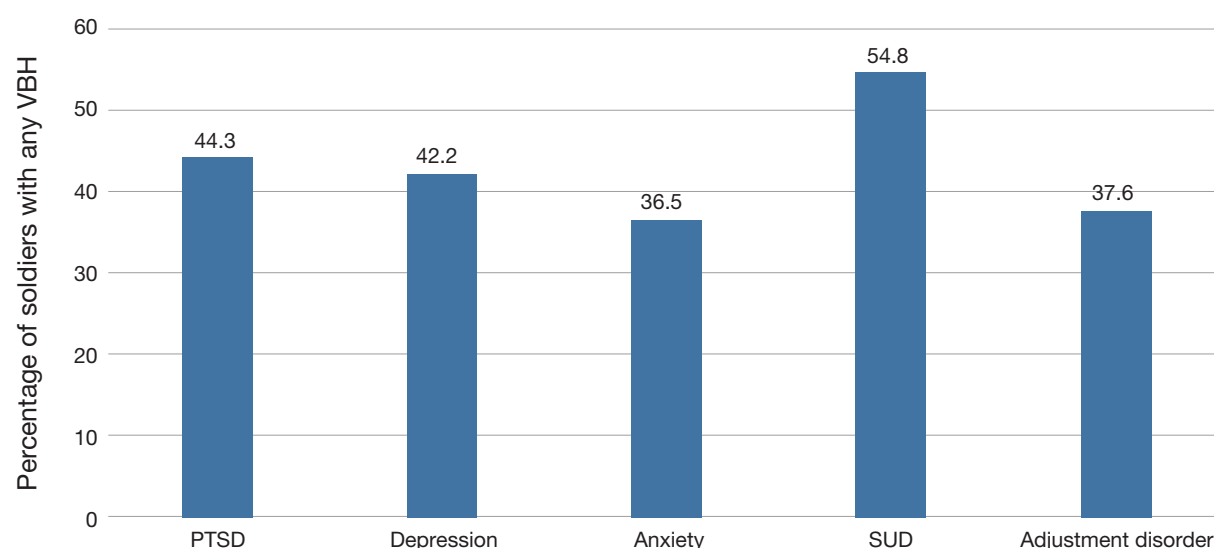
NOTE: Denominator is soldiers who had at least one visit with the specified provider type, October 2021–March 2022. Numerator is soldiers who had at least one visit with the specified provider type delivered by VBH. Differences in the percentage of soldiers with a VBH visit across provider types are statistically significant ($p < 0.0001$).

FIGURE 4.6**Average Number of Virtual Behavioral Health Visits Among Soldiers in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Provider Type**

NOTE: Visits among soldiers who had at least one visit with the specified provider type, October 2021–March 2022. Differences in the mean number of VBH visits across provider types are statistically significant ($p < 0.0001$).

FIGURE 4.7

Percentage of Soldiers in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Primary Diagnosis



NOTE: Denominator is soldiers who had at least one visit with the specified primary diagnosis, October 2021–March 2022. Numerator is soldiers who had at least one visit with the specified diagnosis delivered by VBH. Differences in the percentage of soldiers with a VBH visit across diagnoses are statistically significant ($p < 0.0001$).

noses for which any VBH visits were more common were also associated with higher average numbers of VBH visits per person (Figure 4.8). This contrasts with Chapter 3 findings for all soldiers during the same six months, in which VBH visits represented the lowest proportion of BH visits for SUD compared with the other common diagnoses. For all diagnoses, the average number of VBH visits per soldier was between two and three visits. For spouses, receipt of any VBH was lowest for SUD (51 percent), with the averages for the other diagnoses ranging from 62 to 67 percent (Figure F.7). The average number of VBH visits for spouses ranged from four to six (Figure F.8).

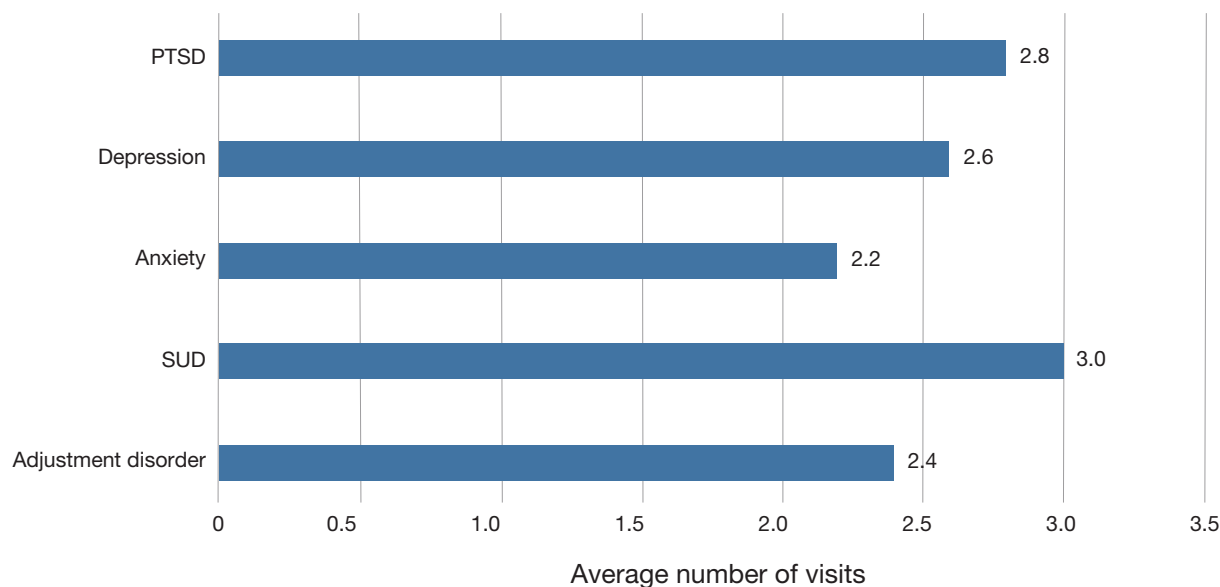
Summary

In this chapter, we examined the receipt of VBH by a cohort of soldiers who received at least three BH treatment visits in direct care during the six-month observation period. This group includes 55 percent of all soldiers who received BH in direct care during that period.

- **Receipt of VBH:** About half of soldiers in the BH treatment cohort received at least one VBH visit, and soldiers who received VBH had three VBH visits, on average. Very few soldiers (2 percent) had all their BH visits by VBH. Soldiers who had more BH visits were more likely to have had at least one VBH visit than soldiers with fewer visits. However, the proportion of BH visits that were by VBH was relatively low, between 15 and 19 percent, regardless of how many visits a soldier had. These findings indicate that soldiers who receive VBH do so as part of a pattern of care in which most visits are in person. Compared with soldiers, spouses receiving BH treatment were more likely to have had a VBH visit, had on average more than seven VBH visits, and were more likely to have had all their BH visits by VBH (25 percent).
- **Soldier characteristics and receipt of VBH:** Receipt of VBH was more common among the oldest soldiers in the study (those age 45 to 64) than those age 18 to 24 and more common among officers than

FIGURE 4.8

Average Number of Virtual Behavioral Health Visits Among Soldiers in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Primary Diagnosis



NOTE: Visits among soldiers who had at least one visit with the specified primary diagnosis, October 2021–March 2022. Differences in the mean number of VBH visits across diagnoses are statistically significant ($p < 0.0001$).

among junior enlisted. In addition, Black non-Hispanic soldiers were more likely to use VBH than White non-Hispanic soldiers, and soldiers who were divorced, separated, or widowed were more likely to use VBH than soldiers who were never married. While these differences in use of VBH by demographic characteristics were not large in magnitude, they should be monitored over time to identify potential inequalities in access or emerging barriers affecting particular groups of soldiers. Among spouses, female spouses were more likely to receive VBH than male spouses, and those age 18 to 24 were less likely to receive VBH than older age groups.

- **Variability in receipt of VBH:** Soldiers were most likely to receive VBH for an E&M/medication management visit than any other type of visit, and they were more likely to have a VBH visit for individual psychotherapy than for an intake assessment or group psychotherapy. Receipt of VBH was more likely for visits to psychiatrists and social workers than primary care providers and clinical psychologists, and higher for SUD visits than for visits with other diagnoses. Receipt of VBH among spouses differed from soldiers in that spouses were most likely to receive VBH for E&M/medication management and individual psychotherapy; more likely to have an intake assessment by VBH than a group psychotherapy visit; and more likely to have a VBH visit with a clinical psychologist, psychiatrist, or social worker than a primary care provider. In contrast with soldiers, spouses were less likely to have an SUD visit by VBH than a visit for other diagnoses.

Characteristics and Receipt of Behavioral Health Care Among Surveyed Soldiers

Key Findings: Receipt of Virtual Behavioral Health Among Surveyed Soldiers

- Nearly half of soldiers reported receiving a mix of VBH and in-person BH care. Nearly all received at least some in-person BH care, and very few reported receiving all their care by VBH.
- Most soldiers reported receiving at least one psychotherapy visit, but less than half received such a visit by VBH. About two-thirds reported receiving a medication management visit, but less than one-quarter received such a visit by VBH.
- Soldiers who received VBH as part of their care did not differ significantly in demographic or service characteristics from soldiers who did not receive VBH.

In this chapter, we provide an overview of the demographic and service characteristics of soldiers who participated in the survey. In addition, we describe soldiers' self-reported utilization of BH care, including the number of different types of BH visits. We conclude with a description of receipt of VBH by soldier demographic and service characteristics. All summary statistics are weighted, except where noted.

Demographic and Service Characteristics

The demographic and military characteristics of soldiers who participated in the survey are summarized in Table 5.1. Nearly three-quarters of respondents were male (74 percent). Less than half were White non-Hispanic (43 percent); less than one-fifth were Hispanic (18 percent); and less than one-fifth were Black non-Hispanic (18 percent). The majority had completed some postsecondary education (80 percent). More than half were married or living as married (58 percent). Most respondents were enlisted personnel (C-1, E-1–E-9: 85 percent). Most were living off base (69 percent), either in civilian or military housing. Nearly all were age 18 to 44 years (90 percent). As noted in Chapter 2, we do not report numerical findings in cells representing fewer than five respondents and instead replace the data with *NR* (not reportable).

Utilization of Behavioral Health Care

The survey eligibility criteria required that all respondents be active-component soldiers who had received at least three BH specialty care outpatient treatment visits at an MTF during the three months prior to sampling (January through March 2022). In the survey, we asked soldiers several questions about their utilization of military BH care in the past six months. Specifically, soldiers were asked to report the total number of BH

TABLE 5.1
Characteristics of Soldiers Included in the Analytic Sample

Soldier Characteristics	Percentage
Gender	
Female	26.1
Male	73.9
Race and ethnicity	
Hispanic	17.7
White, non-Hispanic	43.3
Black, non-Hispanic	17.8
Other race, non-Hispanic	7.8
Multiple races, non-Hispanic	3.8
Refused/missing	9.6
Educational attainment	
Some high school, GED, or high school diploma	17.1
Some college or technical/vocational school	45.2
College graduate (4-year)	19.1
Postgraduate	15.3
Refused/missing	3.3
Marital status	
Married or living as married	57.8
Separated, divorced, or widowed	16.7
Never married	24.7
Refused/missing	NR
Age	
18–24 years	28.7
25–34 years	34.2
35–44 years	27.5
45–64 years	9.6
Rank	
C-1, E-1–E-4	38.0
E-5–E-6	25.1
E-7–E-9	21.6
O-1–O-9, W-1–W-5	15.4
Current housing	
Dorms or barracks	10.9
Military housing, on base	19.8
Military housing, off base or some other housing	6.2
Civilian housing	62.4
Refused/missing	NR

NOTE: Gender, age, and rank were obtained from administrative data. Race and ethnicity, education, marital status, and current housing were survey items. "Other race" includes non-Hispanic individuals who were Asian, American Indian, Alaska Native, or none of these. NR = not reportable. *N* = 419. C = cadet, E = enlisted, O = officer, GED = General Educational Development certificate.

visits they received, the number of BH visits that were VBH and in person, and the number of VBH and in-person visits that were primarily for psychotherapy versus primarily for medication treatment.

Virtual Behavioral Health and In-Person Visits

We asked respondents to report the total number of BH visits they received at an MTF in the past six months, and how many of those visits were VBH versus in person. Soldiers reported receiving a median of 12 total BH visits at an MTF, with in-person BH visits representing a median of nine visits (Table 5.2). About half reported receiving no VBH in the past six months. The median number of VBH visits, among those who received a VBH visit, was three, and the median number of in-person visits, among those who received an in-person visit, was ten. About half of all respondents reported that they received at least some VBH care (48.8 percent), and nearly all received at least some in-person BH care (96.7 percent). Overall, half of all soldiers received *only* in-person BH care with no VBH (51.2 percent), about half received both VBH and in-person BH care (45.5 percent), and few received *only* VBH with no in-person BH care (3.3 percent). Soldiers who received any VBH care reported having, on average, significantly more BH visits overall (average total BH visits: 20.4) compared with soldiers who did not receive any VBH visits (15.5; $p < 0.05$). While all soldiers received at least some BH care from an MTF provider, per the eligibility criteria, about two-fifths reported also receiving at least some BH care in the private sector in the past six months (42.2 percent).

Next, we examined frequency distributions of the total number of reported BH visits, VBH visits, and in-person visits. Nearly half of soldiers reported receiving ten or fewer BH visits at an MTF in the past six months (46 percent) (Figure 5.1). Nearly 20 percent of soldiers reported receiving more than 25 BH visits. Although our sampling frame required at least three BH visits at an MTF in the past six months at the time of sampling, 2.8 percent reported receiving one or two visits (not shown). As described in Chapter 2, this could be attributable to the lag between available utilization data and survey fielding or recall error.

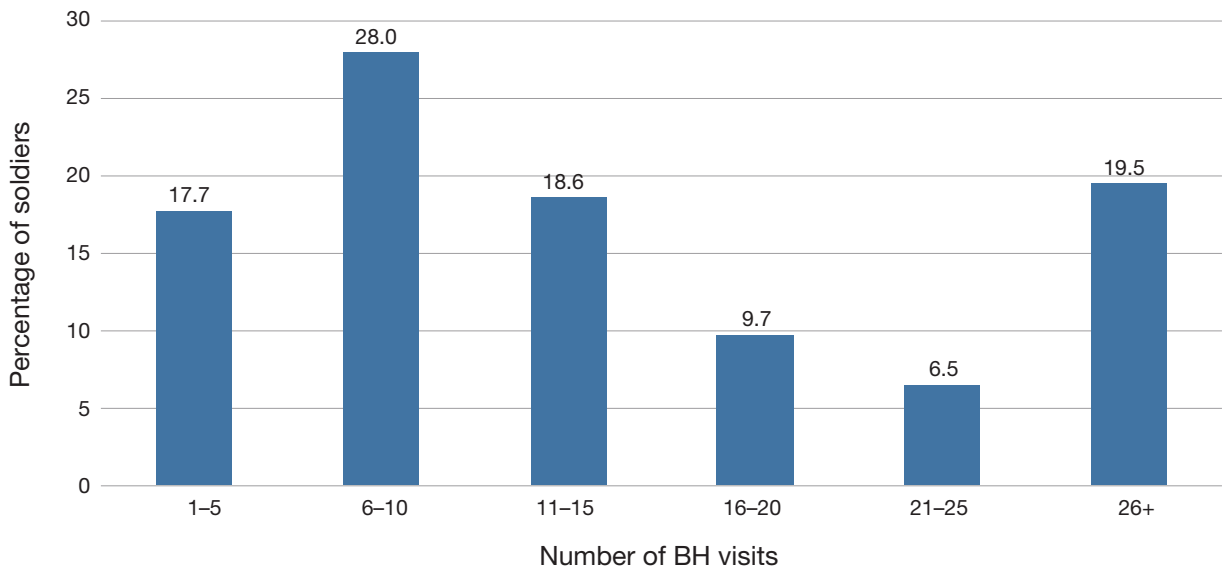
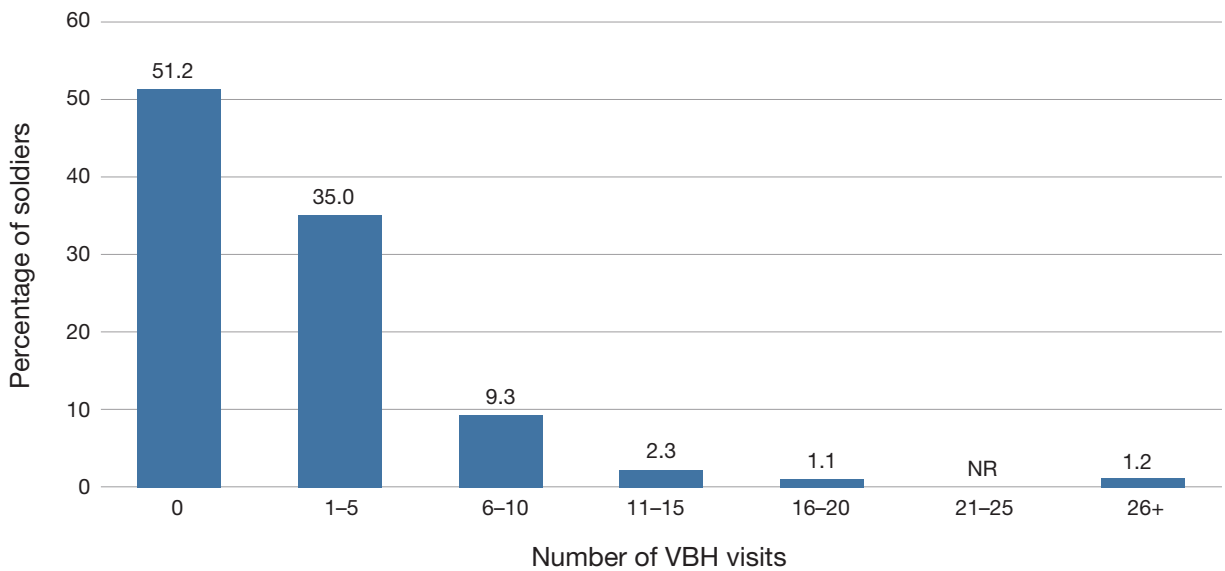
When asked to report on the number of VBH visits received, about half of soldiers reported that they had not received any VBH visits in the past six months (51 percent) (Figure 5.2). About one-third of soldiers reported receiving one to five VBH visits (35 percent), and only 5 percent of soldiers reported receiving more than ten VBH visits. Compared with VBH visits, soldiers generally reported receiving more in-person visits (Figure 5.3). Nearly half reported receiving more than ten in-person visits (45 percent).

The survey did not prompt respondents to have their reported numbers of VBH and in-person BH visits sum to the total BH visits. Thus, for 17.4 percent of respondents (unweighted), the sum of the reported VBH and in-person BH visits was *not* equal to the reported total of BH visits, leading to some uncertainty about the accuracy of reported number of visits. We elected not to use reported visit counts in our analyses presented

TABLE 5.2
Reported Total Behavioral Health Visits, Virtual Behavioral Health Visits, and In-Person Visits at a Military Treatment Facility in the Past Six Months

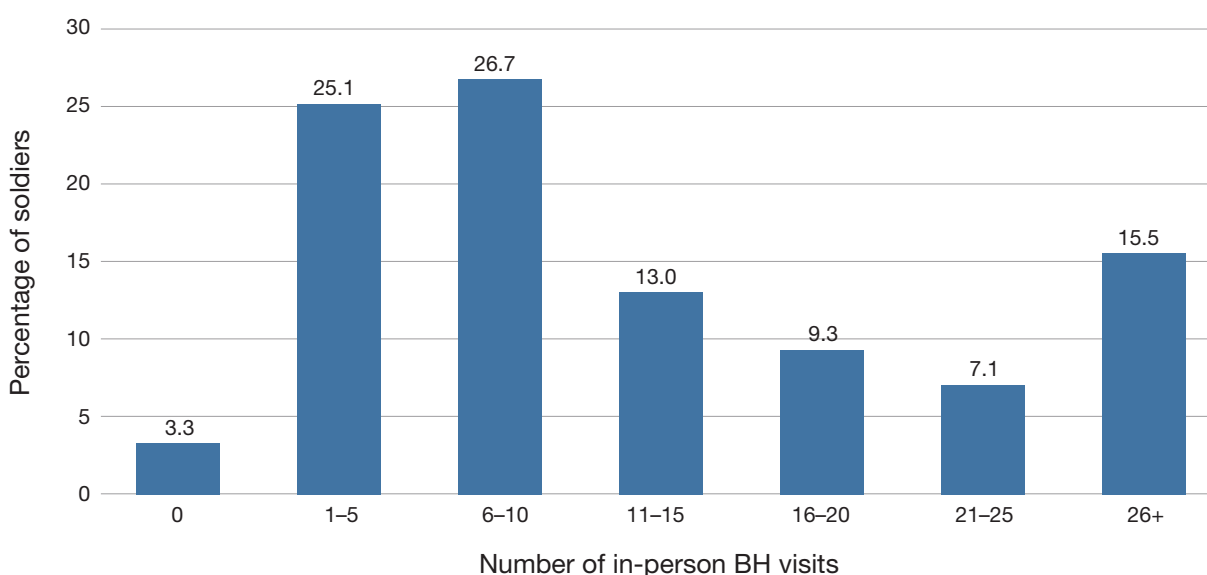
	Reported BH Visits ($N = 419$) (Median [IQR])	Among Those with at Least One of the Specified Visit Type ($n = 269\text{--}419$) (Median [IQR])
Total BH visits	11.5 (5.9–23.1)	11.5 (5.9–23.1; $n = 419$)
VBH visits	0.0 (0.0–2.6)	2.7 (1.2–5.4; $n = 269$)
In-person BH visits	9.4 (4.3–19.5)	9.6 (4.8–19.7; $n = 380$)

NOTE: IQR = interquartile range, the location of the second and third quartile.

FIGURE 5.1**Reported Number of Behavioral Health Visits at a Military Treatment Facility in the Past Six Months**NOTE: $N = 419$.**FIGURE 5.2****Reported Number of Virtual Behavioral Health Visits at a Military Treatment Facility in the Past Six Months**NOTE: NR = not reportable. $N = 419$.

in subsequent sections. Instead, we report on the responses of the soldiers who reported receiving *any* of each type of visit (e.g., VBH, in person), regardless of the number of visits reported.

FIGURE 5.3

Reported Number of In-Person Behavioral Health Visits at a Military Treatment Facility in the Past Six Months

NOTE: NR = not reportable. *N* = 419.

Psychotherapy and Medication Management

We also asked respondents to report the total number of VBH and in-person visits that were primarily for psychotherapy versus medication treatment. As with respondent reports of in-person versus VBH visits, reports of the numbers of VBH or in-person psychotherapy versus medication visits did not always add up to the reported total number of VBH or in-person visits. Our data checks indicated that the number of VBH psychotherapy and VBH medication visits correctly summed to the reported total number of VBH visits for 82.8 percent of respondents (unweighted). Similarly, the number of reported in-person psychotherapy and in-person medication visits summed to the reported total number of in-person visits for 70.4 percent of respondents (unweighted). Given these inconsistencies, we present the results for these items only to indicate receipt (or nonreceipt) of any of that type of care.

Table 5.3 provides the percentage of soldiers who reported receiving any VBH or in-person visits for psychotherapy or medication treatment. Psychotherapy visits were defined as those focused primarily on “talk therapy,” though respondents might also have received prescriptions for medications at a psychotherapy visit. Medication visits were defined as those primarily for medication, in which a prescriber gave a prescription for a new medication or refill or checked how the respondent was doing on an existing medication. Nearly all soldiers reported receiving at least one psychotherapy visit (97 percent), while less than three-quarters reported receiving at least one medication visit (69 percent). Less than half of soldiers reported receiving any VBH psychotherapy (42 percent), while nearly all reported receiving any in-person psychotherapy (93 percent). Less than half of soldiers reported receiving both VBH and in-person psychotherapy (37.9 percent). While less than one-quarter of soldiers received any VBH medication visits (22 percent), over half reported receiving one or more in-person medication visits (64 percent). Only 17.1 percent of respondents reported receiving *both* VBH and in-person medication visits.

TABLE 5.3
Soldiers Who Received Any Virtual Behavioral Health or In-Person Behavioral Health Care at a Military Treatment Facility, by Visit Type

Visit Type	Soldiers Reporting at Least 1 Visit (%)
Any VBH	48.8
Psychotherapy visits	97.0
VBH	41.9
In-person	93.0
Medication visits	69.3
VBH	22.0
In-person	64.3

NOTE: *N* = 419.

Receipt of Virtual Behavioral Health by Demographic Characteristics

We examined whether receipt of any VBH varied by selected soldier demographic and service characteristics and did not identify any statistically significant differences (Table 5.4). One of the largest percentage point differences observed was between soldiers with different housing statuses, with soldiers in military housing off base (59 percent) being more likely to have received VBH compared with soldiers living in barracks (39 percent; $p = 0.07$).

Summary

In this chapter, we described the demographic and service characteristics of soldiers who completed the survey. Soldiers were predominantly enlisted and male, and over half were living in civilian housing at the time of the survey. We also presented findings on self-reported utilization of BH care.

- **VBH and in-person visits:** About half of soldiers received one or more VBH visits (49 percent), and nearly all received at least some in-person BH care (97 percent). Close to half of all soldiers reported receiving both types of care (46 percent). Very few reported receiving all their care by VBH (3.3 percent).
- **Number of BH visits:** Soldiers reported receiving a median of 12 total BH visits at an MTF in the past six months, with in-person visits representing a median of nine visits. Soldiers who received at least some VBH care reported significantly more total BH visits (mean of 20) compared with soldiers who did not receive VBH (mean of 15). However, soldiers overall tended to report fewer VBH visits than in-person visits; the majority reported five or fewer VBH visits (86 percent), and nearly half reported more than ten in-person visits (45 percent).
- **Psychotherapy and medication management:** Nearly all soldiers reported receiving one or more BH visits for psychotherapy (97 percent), and about two-thirds reported receiving at least one visit for medication management (69 percent). For psychotherapy, less than half of all soldiers reported receiving one or more VBH psychotherapy visits (42 percent), but nearly all soldiers reported receiving in-person psychotherapy (93 percent). With respect to medication visits, less than one-quarter of all soldiers reported receiving any VBH medication visits (22 percent), and over half reported one or more in-person medication visits (64 percent). This finding is in contrast to the finding in Chapter 4 that soldiers were more

TABLE 5.4
Receipt of Virtual Behavioral Health, by Soldier Characteristics

Soldier Characteristics	Soldiers Who Reported Receipt of Any VBH (%)
Gender	
Female	54.3
Male	46.9
Race and ethnicity	
Hispanic	50.0
White, non-Hispanic	48.6
Black, non-Hispanic	49.8
Other race, non-Hispanic	58.7
Multiple races, non-Hispanic	60.4
Refused/missing	33.6
Education	
Some high school, GED, or high school diploma	49.9
Some college or technical/vocational school	49.5
College graduate (4-year)	52.7
Postgraduate	43.5
Refused/missing	36.7
Marital status	
Married or living as married	52.0
Separated, divorced, or widowed	46.8
Never married	41.4
Refused/missing	NR
Age	
18–24 years	41.7
25–34 years	48.7
35–44 years	55.8
45–64 years	50.7
Rank	
C-1, E-1–E-4	46.9
E-5–E-6	47.5
E-7–E-9	56.9
O-1–O-6, W-2–W-5	44.4
Housing	
Dorms or barracks	39.2
Military housing on base	34.5
Military housing off base or some other housing	59.0
Civilian housing	53.5
Refused/missing	NR

NOTE: Gender, age, and rank were obtained from administrative data. Race, ethnicity, education, marital status, and current housing were survey items. "Other race" includes non-Hispanic soldiers indicating Asian, American Indian, Alaska Native, or none of these. NR = not reportable. $N = 419$. A multivariate model including all of the demographic and service characteristics was not statistically significant ($p = 0.29$; not shown). C = cadet, E = enlisted, O = officer.

likely to have an E&M or medication management visit by VBH than a psychotherapy visit by VBH. This difference could be due to differences in the visits counted in the administrative data analysis (e.g., inclusion of primary care visits or visits in private-sector care). In addition, soldiers may not accurately recall their visit characteristics or classify visits in the same way as the administrative data when they respond to survey questions.

- **Receipt of VBH by respondent characteristics:** Soldiers who received VBH as part of their care did not differ significantly in demographic or service characteristics from soldiers who did not receive VBH.

Soldiers' Experiences Receiving Virtual Behavioral Health Care

Key Findings: Soldiers' Reported Experiences Receiving Virtual Behavioral Health

- More soldiers reported having audio visits than video visits, and nearly all soldiers reported using their cell phone for one or more VBH visits. The soldier's home was the most common visit location.
- Most soldiers endorsed positive statements regarding their VBH experience, and few reported any technical difficulties while using VBH. Few soldiers agreed or strongly agreed with negative statements regarding VBH experiences. The majority reported being satisfied with privacy protections during VBH use.
- Soldiers who had two or more VBH visits reported significantly more positive perceptions of their provider and the technology used compared with those who had only one VBH visit.

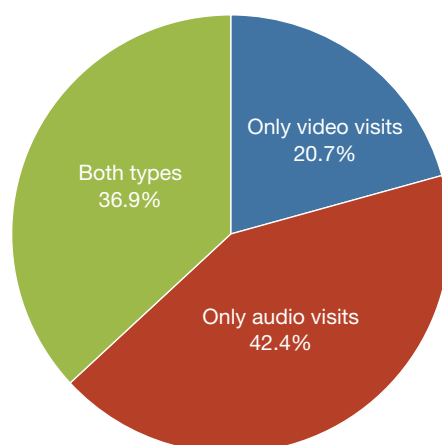
About half of soldiers (49 percent) reported receiving at least some VBH as part of their BH care. In this chapter, we present findings on the experiences of receiving VBH among this subset of soldiers. We describe the characteristics of their visits (i.e., modality of VBH visit, technology used, location of visit), along with perceptions of their VBH care.

Characteristics of Virtual Behavioral Health Visits

In this section, we describe the modality of VBH visits received (i.e., video, audio, or both types), the types of technology used for VBH visits, and the location of the soldier during VBH visits in the past six months. One-fifth reported receiving only video visits for their VBH care (21 percent) (Figure 6.1). Nearly half of soldiers reported receiving only audio visits (42 percent), and over one-third received both types (37 percent). Although the share of soldiers who received *only* video visits was relatively small, over half of all soldiers reported receiving *any* video visits in the past six months (58 percent). In contrast, over three-quarters of soldiers reported receiving any audio visits in the past six months (79 percent).

We also asked soldiers to report the types of technology they used for VBH visits in the past six months (Table 6.1), because the type of technology used by the patient could affect the quality or perceived utility of the VBH visit (Chen et al., 2021; Luxton et al., 2012; Turvey et al., 2013). For example, a computer or cell phone can facilitate either video or audio visits if there is adequate internet bandwidth or sufficient cellular data, and if the use of video is permitted. While most cell phones can facilitate a video visit, their use may be disallowed in restricted areas or under certain conditions (e.g., during military training) (U.S. Army Fort Benning, 2018). Computers or tablets offer a larger screen for video visits than a cell phone but may be less accessible than a cell phone. A landline phone does not require internet bandwidth or cellular data, and its

FIGURE 6.1
Types of Virtual Behavioral Health Visits Received



NOTE: $N = 269$.

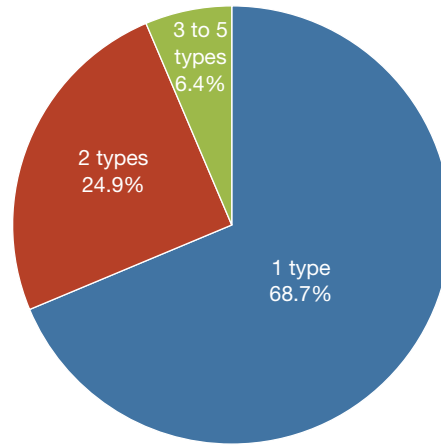
use is not typically restricted (Army Regulation 25–13, 2017), but it can only be used to conduct audio visits. Overall, 93 percent of soldiers reported using some type of telephone for their VBH visits in the past six months (not shown). By far the most common method for accessing VBH was by cell phone; 92 percent of all soldiers reported using a cell phone for their VBH visits. Use of a work or home phone (landline), which could only be used for audio VBH visits, was also reported by small proportions of the sample (7 and 3 percent, respectively). Computer or tablet use was somewhat common, with about one-third of soldiers reporting using these technologies for their VBH visits (32 percent; not shown). Use of a home computer was endorsed by about 21 percent of soldiers, while fewer soldiers reported using a clinic (12 percent) or work (5 percent) computer or tablet.

Soldiers could endorse multiple types of technology used for their VBH visits, but the majority reported using only one type (69 percent) (Figure 6.2). This suggests that soldiers may select a certain type of technology that works best for them and then rely solely on that technology for their VBH visits. Among soldiers who used only one type of technology, a cell phone was used most frequently (93.8 percent). One-quarter of soldiers reported using two types of technology (25 percent).

TABLE 6.1
Types of Technology Used for Virtual Behavioral Health Visits

Type of Technology	Soldiers Reporting Use (%)
Cell phone	91.6
Home computer or tablet	21.2
Clinic computer or tablet	12.2
Work phone	6.8
Work computer or tablet	4.9
Home landline phone	2.9

NOTE: Types of technology used are not mutually exclusive; respondents selected all that apply. No respondent selected the "something else" response option.
 $N = 269$.

FIGURE 6.2**Number of Different Types of Technology Used for Virtual Behavioral Health Visits**NOTE: *N* = 269.

We also asked soldiers to report all the locations in which they received VBH in the past six months (Table 6.2). Location can be an important factor in determining whether the soldier had privacy during the visit (Shore et al., 2018; Turvey et al., 2013). For example, attending a visit from a vehicle may offer adequate privacy. Home locations may offer more privacy than public spaces, but they could present privacy challenges for soldiers living with other adults or children. Soldiers might also have less privacy in conducting VBH visits from work, a public space, or military barracks, where they may share living space with other soldiers. The most commonly reported location for a VBH visit was home, with more than three-quarters reporting receiving VBH visits at home (77 percent). Nearly half of all soldiers reported completing one or more VBH visits from their car or vehicle (48 percent), and about one-third completed VBH visits from work. Other locations that were less commonly endorsed were a public space, a clinic or health care facility, and another location (e.g., barracks). It is notable that few reported receiving VBH while in a clinic or health care facility, as this was the predominant location for VBH delivery to service members in U.S. military settings prior to the pandemic (Luxton et al., 2015; Luxton et al., 2016).

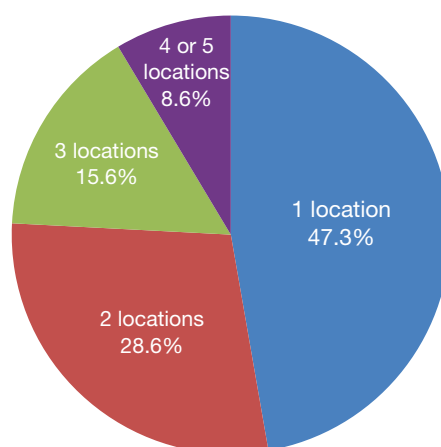
Nearly half of soldiers endorsed using only one type of location for their VBH visits (47 percent) (Figure 6.3). Among those who reported only one type of location, home was used most frequently (64.2 percent). About

TABLE 6.2
Location During Virtual Behavioral Health Visits

Location	Soldiers Reporting Use (%)
Home	76.9
Car/vehicle	47.9
Work	33.3
Public space	15.6
Clinic or health care facility	12.2
Other location: Barracks	NR

NOTE: Location during VBH visit is not mutually exclusive; respondents selected all that apply. Home could include military barracks. Examples of a public space included a park or store. NR = not reportable. *N* = 269.

FIGURE 6.3
Number of Different Locations During Virtual Behavioral Health Visits



NOTE: There were no soldiers who reported using VBH in six different locations. *N* = 269.

one-third of soldiers reported receiving VBH visits from two types of locations (29 percent), while smaller numbers of soldiers received VBH visits from three (16 percent) or four or more (9 percent) locations.

Experience Receiving Virtual Behavioral Health Visits

In this section, we describe the positive and challenging aspects of soldiers' experiences with receiving VBH visits. Soldiers were asked to indicate how much they agreed or disagreed with each statement about their experience using VBH in the past six months. Figure 6.4 shows the percentage of soldiers who reported that they agreed or strongly agreed with positive statements regarding various aspects of their experience with VBH, including technology, their provider, privacy, and satisfaction with their visits. Most soldiers agreed that the technology was easy to use (88 percent), had good sound quality (86 percent), and could be trusted to work correctly (83 percent). As reported earlier, more soldiers received audio visits relative to video visits (79 percent versus 58 percent), and challenges with technology may be less likely for audio visits. Similarly, most soldiers agreed that their provider understood their concerns and involved them in decisions about their treatment plan (84 percent). About 81 percent of soldiers reported feeling satisfied with how their privacy was protected. Among soldiers who received video VBH, about three-quarters agreed that the video quality was good (76 percent).

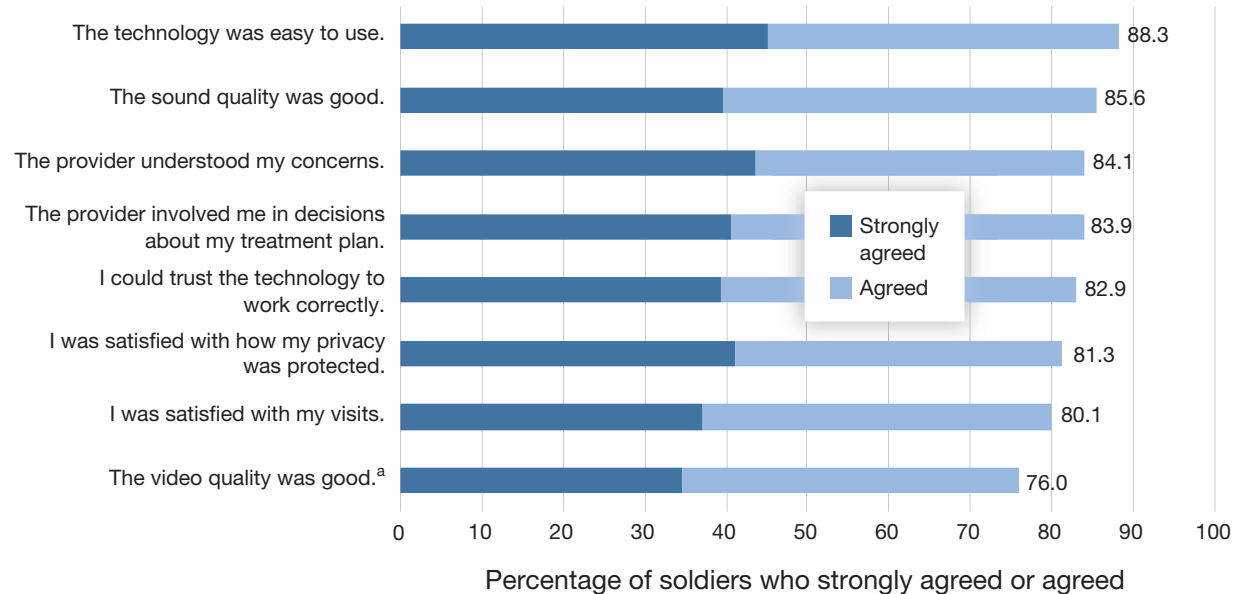
Far fewer soldiers strongly agreed or agreed with negative statements regarding aspects of their experience with VBH (Figure 6.5). Few soldiers stated that it took too long to connect (13 percent) or that their provider struggled with the technology (12 percent). Even fewer soldiers reported that they were disconnected during a VBH visit (10 percent).

To facilitate statistical testing, we created two composite measures by computing a mean of multiple items. The first composite included three items and assessed positive perceptions of providers and their visits (i.e., provider understood concerns; provider involved me in decisions; satisfied with my visits) (Figure 6.4) (Cronbach's $\alpha = 0.93$). The second composite assessed experiences with VBH technology (Cronbach's $\alpha = 0.86$). This composite included four positively worded technology items,¹ including protection of privacy

¹ The item of video quality was not included, as that was asked only of soldiers who received video visits.

(Figure 6.4), and the three negatively worded items (Figure 6.5), which were reverse coded. Soldiers who had video as part of their VBH care did not have significantly more positive perceptions of their provider/visits ($p = 0.80$) or the technology ($p = 0.39$) compared with those who did not have video visits. In contrast, soldiers who had two or more VBH visits had significantly more positive perceptions of their provider/visits ($p < 0.01$) and the technology ($p < 0.05$) compared with those who had only one VBH visit. This finding is similar to that of a recent analysis of a longitudinal survey of civilians that found that willingness to use video visits

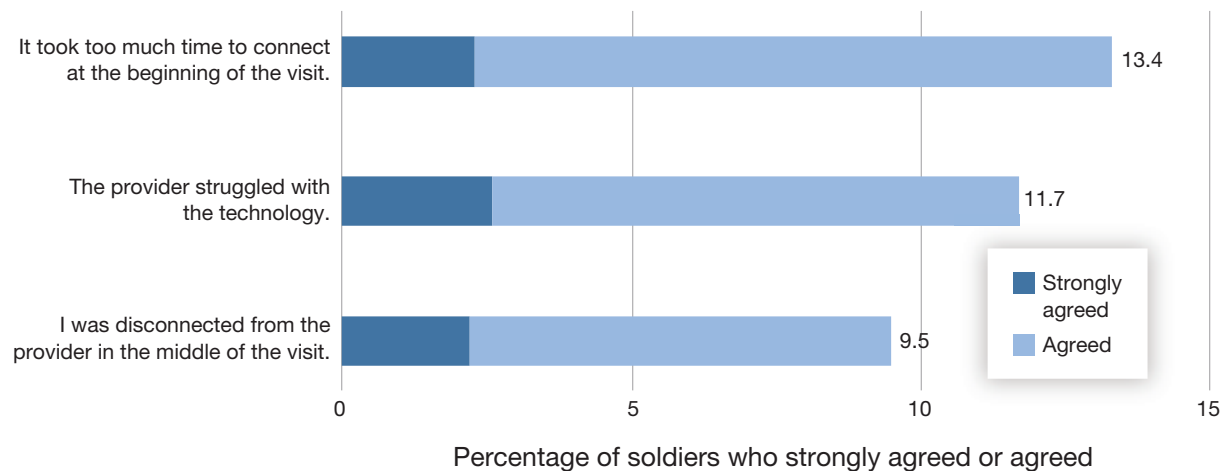
FIGURE 6.4
Respondents Who Strongly Agreed or Agreed with Each Positive Aspect of Their Virtual Behavioral Health Experience



NOTES: Among respondents with any VBH ($n = 269$).

^a This item was asked only of respondents who reported experience with video VBH.

FIGURE 6.5
Respondents Who Strongly Agreed or Agreed with Each Negative Aspect of Their Virtual Behavioral Health Experience



NOTE: $N = 269$.

increased between 2019 and 2021 as individuals accumulated experience with video visits (Fischer et al., 2022).

Summary

In this chapter, we described the characteristics of VBH visits, including the modality of VBH received, the types of technologies used, and the location of the soldier during VBH visits. We also summarized soldiers' experiences with VBH.

- **Characteristics of VBH visits:** About four-fifths of soldiers reported receiving audio visits (79 percent), and over half reported receiving video visits (58 percent). Nearly all soldiers reported using their cell phone for one or more VBH visits (92 percent). Only about one-third of soldiers reported using any type of computer or tablet (32 percent). The home was the most common location for receiving VBH visits, though nearly half of soldiers reported completing one or more VBH visits from their car or vehicle (48 percent).
- **Experiences with VBH:** Most soldiers agreed with positive statements regarding aspects of technology, their provider, privacy, and satisfaction with their visits. Most also agreed that the technology was easy to use (88 percent), had good sound quality (86 percent), and could be trusted to work correctly (83 percent). Three-quarters of soldiers with any video visits reported that the video quality was good (76 percent). Furthermore, most soldiers agreed that their provider understood their concerns and involved them in decisions (84 percent), and the majority reported feeling satisfied with how their privacy was protected (81 percent). Few soldiers strongly agreed or agreed with negative statements regarding aspects of experience with VBH.
- **Soldiers with more positive perceptions of VBH:** Soldiers who had two or more VBH visits had significantly more positive perceptions of their provider and visits and the VBH technology (including ease of use, quality of connection, protection of privacy) compared with those who had only one VBH visit. These perceptions did not differ significantly on whether the soldier had video visits as part of their VBH care. From these data, we cannot determine whether this was due to favorable perceptions of VBH leading to greater receipt of VBH, a positive effect of receipt of VBH on perception of VBH, or both.

Soldiers' Experiences Receiving Behavioral Health Care

Key Findings: Soldiers' Reported Experiences Receiving Behavioral Health Care

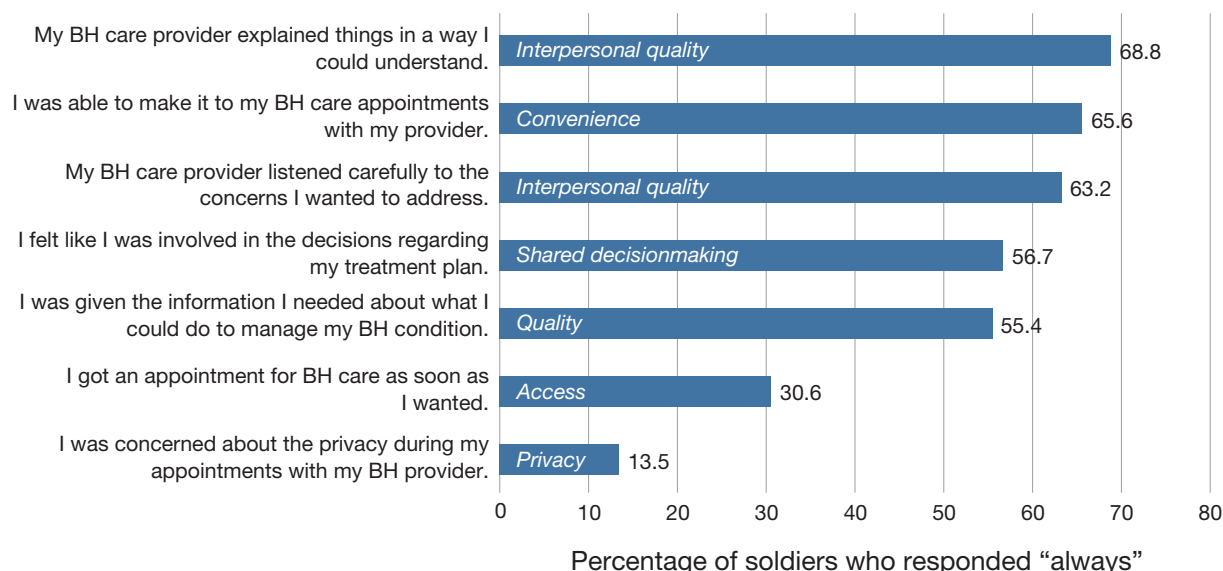
- Among all the domains examined in this chapter (perceptions of quality, access, privacy, working alliance, perceived helpfulness, and global ratings of care), soldiers' perceptions of receiving BH care did not differ significantly by whether they had received any VBH as part of their care.
- Findings suggest that soldiers' overall perceptions of their BH care were not negatively affected by the integration of VBH.

Whereas the prior chapter focused on the experiences of a subset of soldiers who had received VBH, this chapter describes experiences of receiving BH care among all soldiers, whether VBH was included in their care or not. Our aim was to examine whether soldier experience or perceptions varied by receipt of any VBH as part of their BH care. Although findings could favor VBH on some aspects of care, such as convenience, finding no difference between perceptions of soldiers who received VBH and those who did not receive VBH as part of their care could suggest that VBH can be integrated into BH care delivery without compromising patient experience. We analyzed several domains, including perceptions of various aspects of care, the working alliance with providers, perceived helpfulness of care, and global ratings of care.

Perceptions of Quality, Access, and Privacy

Soldiers were asked to indicate how often they experienced various aspects of care related to quality (including interpersonal interactions and shared decisionmaking), access, privacy, and convenience in the past six months on a four-point scale of "never" to "always." While items related to interpersonal quality, convenience, shared decisionmaking, quality, and access were framed such that a response of "always" indicated a favorable perception, the item assessing privacy was framed such that a response of "always" indicated concern. Figure 7.1 reports the percentage of soldiers who reported "always." Most soldiers responded favorably to items assessing interpersonal quality, or the quality of the interpersonal interaction with their provider. More than two-thirds of soldiers reported that their providers always explained things in a way they could understand (69 percent), and about 63 percent reported that their providers always listened carefully to their concerns. Similarly, only a minority of soldiers reported always feeling concerned about privacy during their BH visits (13 percent). Regarding convenience, about two-thirds of soldiers reported always being able to make it to their appointments (66 percent). Just over half of soldiers reported always feeling involved in shared decisionmaking about their treatment (57 percent), and just over half reported always receiving the information they needed to manage their BH conditions (55 percent). In contrast, only about one-third of

FIGURE 7.1

Percentage of Soldiers Who Responded “Always” to Each Aspect of Their Behavioral Health CareNOTE: $N = 419$.

soldiers reported always being able to get BH care appointments as soon as they wanted (31 percent). These perceptions of care did not vary significantly by whether soldiers had any VBH as part of their care (not shown; $p = 0.15$ – 0.93).

Working Alliance

We also asked soldiers to rate their working alliance with their provider. We used three items, to be rated on a 0-to-10-point scale, which asked about working well together, working toward agreed-on goals, and agreeing on the best approach to addressing problems (Table 7.1). Across these items, soldiers provided high ratings of their working alliance with providers, with an average rating of 8. We created a composite of these variables by computing a mean of available items (Cronbach’s alpha = 0.97). The composite of working alliance items did not differ significantly by whether soldiers received any VBH as part of their care ($p = 0.81$).

TABLE 7.1

Soldiers’ Perceptions of Their Working Alliance with Their Provider

Item	Mean (SE)
Working alliance composite	8.2 (0.2)
My provider and I have a good relationship and work well together.	8.3 (0.2)
My provider and I are working towards mutually agreed upon goals.	8.3 (0.2)
My provider and I agree upon the best approach for addressing my problems.	8.1 (0.2)

NOTE: $N = 419$. Ratings were on a scale of 0 (never) to 10 (always). SE = standard error.

Perceived Helpfulness

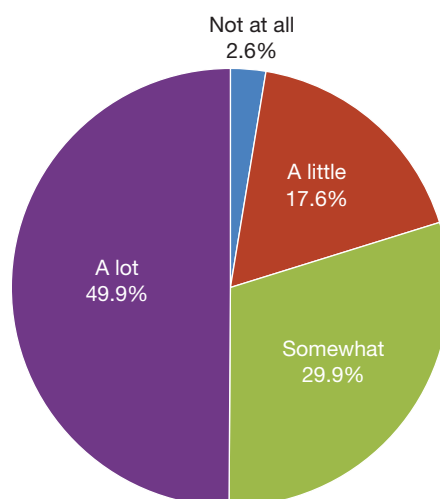
We also asked soldiers to report on the perceived overall helpfulness of their BH care in the past six months. Figure 7.2 shows the proportion of soldiers who reported that they believed that their BH care helped them a lot, somewhat, a little, or not at all. Most soldiers reported that their BH care helped them a lot or somewhat (80 percent). One-fifth reported that their BH care helped a little or not at all (20 percent). Perceived helpfulness was not significantly different between soldiers who received VBH as part of their care and soldiers who did not ($p = 0.25$).¹

Global Rating of Care

We asked soldiers to rate their overall experience with all BH care ($N = 419$), VBH care ($n = 268$), and in-person BH care ($n = 380$) in the past six months on a scale of 0 to 10, with 0 being the worst care possible and 10 being the best. The mean response for all BH care was 7.3 ($SE = 0.2$). The mean global ratings of VBH and in-person BH care were similar (7.4 [$SE = 0.2$] and 7.5 [$SE = 0.2$], respectively). Global ratings of all BH care and in-person BH care did not vary significantly by whether soldiers received VBH as part of their care ($p = 0.24$ and $p = 0.16$, respectively). These global ratings of care items were modeled after Consumer Assessment of Healthcare Providers and Systems (CAHPS) items, which are broadly used across medical settings and are routinely reported as the percentage of respondents who selected 9 or 10 (Robert Wood Johnson Foundation, undated). Figure 7.3 shows the percentage of soldiers who rated all BH care, all VBH care, or all in-person care with either a 9 or 10. A similar percentage of soldiers rated their overall BH care and VBH care as a 9 or 10 (38 percent and 39 percent, respectively). Nearly half of the soldiers who received in-person care rated it as a 9 or 10 on the survey (46 percent).

While these items were modeled after the CAHPS global rating of care items, there are limited data available from BH care settings that would provide direct comparisons. To aid in interpretation, we identified

FIGURE 7.2
Perceived Helpfulness of Behavioral Health Care

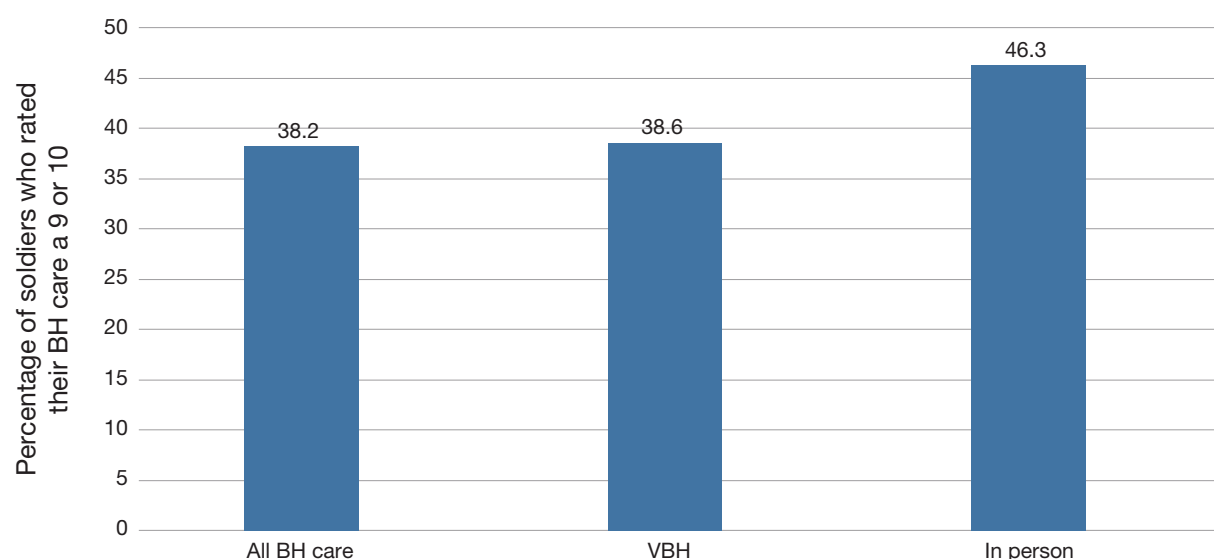


NOTE: $N = 419$.

¹ Because of small cell sizes, the counts for “Not at all” and “A little” were combined prior to significance testing.

FIGURE 7.3

Percentage of Soldiers Who Rated Their Behavioral Health Care a 9 or 10



NOTES: Respondents provided global ratings of all BH care ($N = 419$), VBH care ($n = 268$), and in-person care ($n = 380$). Ratings were on a scale of 0 (worst BH care possible) to 10 (best BH care possible).

some examples of rates of endorsement of 9 or 10 from other available CAHPS data. Only one is specific to BH care: An urban integrated health network in Michigan reported that 51 percent of recipients of BH care rated their overall treatment a 9 or 10 (on a scale of 0–10), which is higher than the global rating of care we observed. While these results were specific to BH care, 61 percent of the respondents were Black, 81 percent had a primary disability designation of severe mental illness, and 32 percent were dual eligible (Medicaid/Medicare), limiting the comparability of these data with our population of soldiers (Afework, Hulleza, and Xuan, 2020). Other reported findings on this global rating item were not specific to BH care. Results from the 2019 Adult CAHPS Clinician and Group Survey revealed that 79 percent of respondents rated their provider 9 or 10. However, these results were for overall care, and listed subspecialties did not include BH (Agency for Healthcare Research and Quality, 2019). Finally, the fiscal year 2021 TRICARE evaluation reported that 45 percent of beneficiaries rated their direct care as a 9 or 10 and 72 percent rated their private-sector care as a 9 or 10 (Defense Health Agency, 2022). These limited data suggest a range of rates on the global rating of care item. They also suggest that, because the 38 percent of soldiers rating all care as a 9 or 10 was lower than other available rates across BH and non-BH care, there is likely room for improvement among soldiers' ratings of their BH care.

Summary

In this chapter, we described the experiences of soldiers receiving BH care and examined whether experiences and perceptions varied by whether soldiers received any VBH as part of their care.

- **Perceptions of soldiers who received VBH versus those who did not:** On all the domains examined in this chapter, soldiers' perceptions of BH care did not differ significantly by whether they had received any VBH as part of their care. These findings suggest that soldiers' overall perceptions of their BH care were not negatively affected by the integration of VBH.

- **Perceptions of quality, access, and privacy:** Most soldiers had favorable perceptions of the quality of interpersonal interactions with their providers and convenience of making it to their appointments. Similarly, only a minority reported always feeling concerned about their privacy (13 percent). However, about one-third reported concerns about difficulty getting BH appointments as soon as they wanted (31 percent).
- **Working alliance:** Soldiers provided high ratings of their working alliance with their provider, including working well together, working toward agreed-on goals, and agreeing on the best approach to addressing problems.
- **Perceived helpfulness:** Most soldiers reported that their BH care helped them a lot or somewhat (80 percent), but one-fifth reported that it had helped a little or not at all.
- **Global rating:** Soldiers rated their overall BH care and VBH care similarly, with 38 percent and 39 percent rating these as a 9 or 10, respectively. However, nearly half of soldiers rated their in-person BH care as a 9 or 10. While we did not identify data that were directly comparable, making interpretation of these findings challenging, other rates we identified for BH care and medical care were higher.

Soldiers' Perceptions of Virtual Behavioral Health

Key Findings: Soldiers' Reported Perceptions of Virtual Behavioral Health

- The most commonly endorsed advantages of VBH were related to convenience. Concerns about VBH were endorsed much less frequently than advantages.
- Soldiers who had received VBH were significantly more likely to endorse advantages of VBH and less likely to endorse concerns about VBH than soldiers without VBH experience.
- More than half of soldiers endorsed the importance of access to VBH to maintain continuity of care when moving to a new location or deployed. Soldiers with any VBH were significantly more likely to endorse the importance of these VBH treatment options than soldiers with no VBH.
- The majority of soldiers who did not receive VBH in the past six months were not offered VBH, suggesting that they did not necessarily choose not to receive VBH.

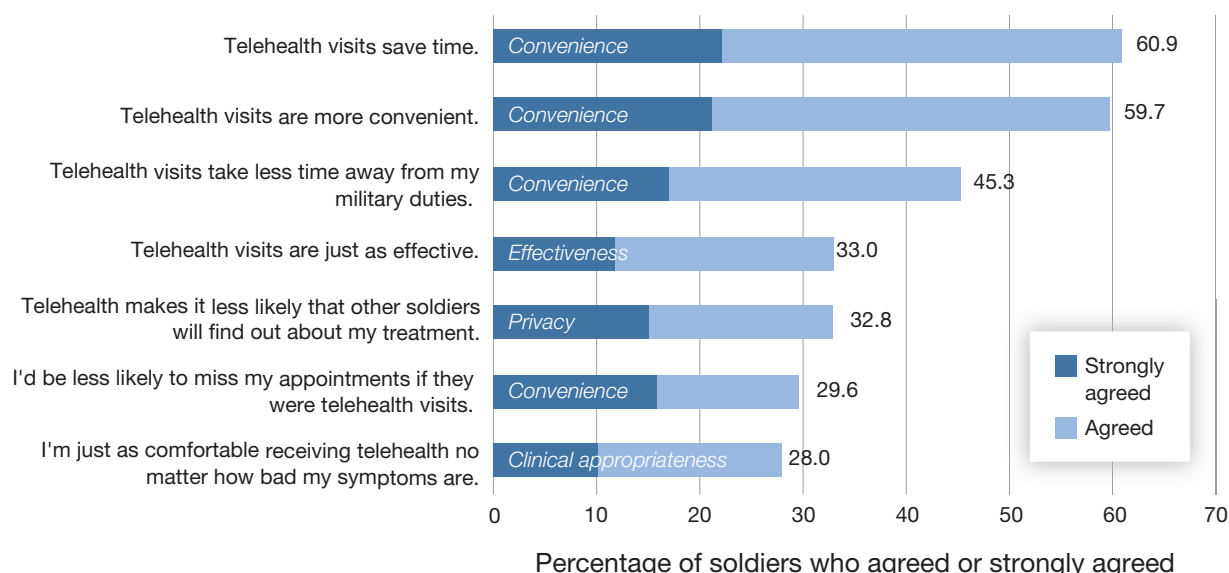
Understanding how soldiers perceive VBH—which aspects they consider positive and which they consider negative—can be helpful in guiding policy to improve its use. In the survey, we used several complementary approaches to understanding which aspects of VBH were most important to soldiers, those with and without VBH experience. This chapter reports results on the perceived advantages of VBH over in-person care, concerns that soldiers have about VBH, the importance of specific VBH treatment options, the reasons that soldiers did not receive VBH, and the preferences that soldiers have for audio versus video VBH. For each of these domains, we assessed whether perceptions varied significantly by whether the soldier had received any VBH.

Advantages of Virtual Behavioral Health

We asked all soldiers about their perceptions of the advantages of VBH compared with in-person BH visits. Soldiers rated seven statements on a scale ranging from strongly agree to strongly disagree on topics related to convenience, effectiveness, clinical appropriateness, and privacy with VBH. Figure 8.1 shows the percentage of soldiers who agreed or strongly agreed with each statement, from most to least endorsed. Among the potential advantages, soldiers were most likely to endorse items related to the convenience of VBH relative to in-person care. With respect to convenience, more than half of service members reported that VBH visits save time and that VBH visits are more convenient (61 and 60 percent, respectively). Nearly half of soldiers reported that VBH visits take less time away from their military duties (45 percent). In contrast, less than one-third of soldiers reported that they would be less likely to miss VBH appointments (30 percent). Similarly, only about one-third of soldiers endorsed statements that indicated equivalent effectiveness, privacy, or clinical appropriateness of VBH and in-person care. Approximately one-third of soldiers agreed or strongly

FIGURE 8.1

Percentage of Soldiers Who Agreed or Strongly Agreed with Each Statement About Advantages of Virtual Behavioral Health



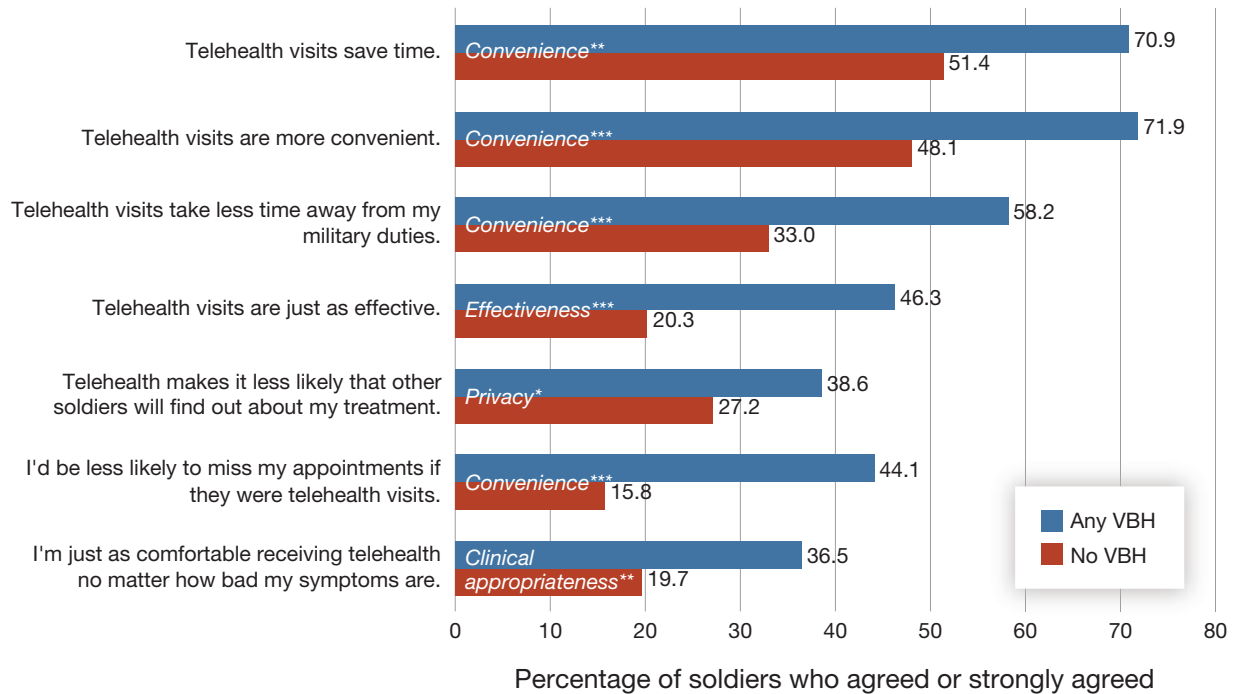
NOTE: $N = 419$ across all items except *clinical appropriateness* and *privacy*, which both had $n = 418$.

agreed that VBH visits are just as effective as in-person visits (33 percent). Similarly, one-third of soldiers agreed that they are just as comfortable receiving VBH no matter the severity of their symptoms (28 percent). This suggests some hesitancy among soldiers to receive VBH when they are experiencing more-severe symptoms. Relatedly, a 2021 report of military BH staff perspectives on VBH found that about half of all military providers interviewed expressed concerns about using VBH to treat patients with high symptom severity (Hepner, Sousa, et al., 2021). Finally, one-third of soldiers reported that VBH visits make it less likely that other soldiers will learn about their treatment (33 percent).

As noted earlier, soldiers varied in whether they had any experience receiving VBH in the past six months. We examined whether those differences in experiences translated into differences in soldier perceptions. Overall, soldiers with any VBH experience were significantly more likely than those with no VBH experience to agree or strongly agree with each favorable statement about VBH convenience, effectiveness, privacy, and clinical appropriateness (Figure 8.2). For example, approximately 70 percent of soldiers who had received VBH agreed that VBH saves time and is more convenient, whereas only approximately half of soldiers without VBH experience agreed with these statements. Furthermore, while over half of soldiers who had received VBH agreed that VBH takes less time away from their military duties, only one-third of soldiers without VBH experience endorsed this statement. While soldiers may have some degree of self-selection to opt in to receiving VBH, and thus have more positive perceptions of it, the possibility remains that soldiers may develop more positive perceptions of VBH as they experience VBH visits. If true, this phenomenon would be consistent with recent findings of a nationally representative survey suggesting that U.S. adults became increasingly more willing to use video visits during the pandemic (Fischer et al., 2022). The survey's authors hypothesized that individuals became more willing to use VBH because of increased experience and positive experiences with VBH (Fischer et al., 2022).

FIGURE 8.2

Percentage of Soldiers with Any Virtual Behavioral Health Versus No Virtual Behavioral Health Who Agreed or Strongly Agreed with Each Statement About Advantages of Virtual Behavioral Health



NOTE: * $p < 0.05$, ** $p < 0.01$, and *** $p < 0.001$ indicate a statistically significant difference on the item between those with and without VBH experience. $N = 419$.

Concerns About Virtual Behavioral Health

We also asked soldiers about concerns with VBH related to privacy, technology, and cost. Figure 8.3 summarizes the percentage of soldiers who agreed or strongly agreed with each statement, ordered from most to least endorsed. In general, fewer soldiers endorsed concerns about VBH relative to VBH advantages. About one-third of respondents reported that they would be concerned about the quality of their connection (34 percent). About one-quarter endorsed that they strongly agreed or agreed that they would be concerned about the security of their connection or finding a private place to be during the visit (27 percent and 25 percent, respectively). Few respondents reported that they would feel concerned about finding needed equipment or the cost of minutes on their phone.

In general, soldiers who had received any VBH were less likely to endorse VBH concerns than soldiers who had not received any VBH (Figure 8.4). These differences were significantly different ($p < 0.01$) for only two items, both related to privacy. Soldiers with VBH experience were significantly less likely to endorse concern about the security of their VBH connection or that they would have a hard time finding a private place for their VBH visit. Differences on the remainder of the items related to technology and cost were marginally significant ($p = 0.06$ – 0.08).

FIGURE 8.3

Percentage of Soldiers Who Agreed or Strongly Agreed with Each Statement About Concerns Related to Virtual Behavioral Health

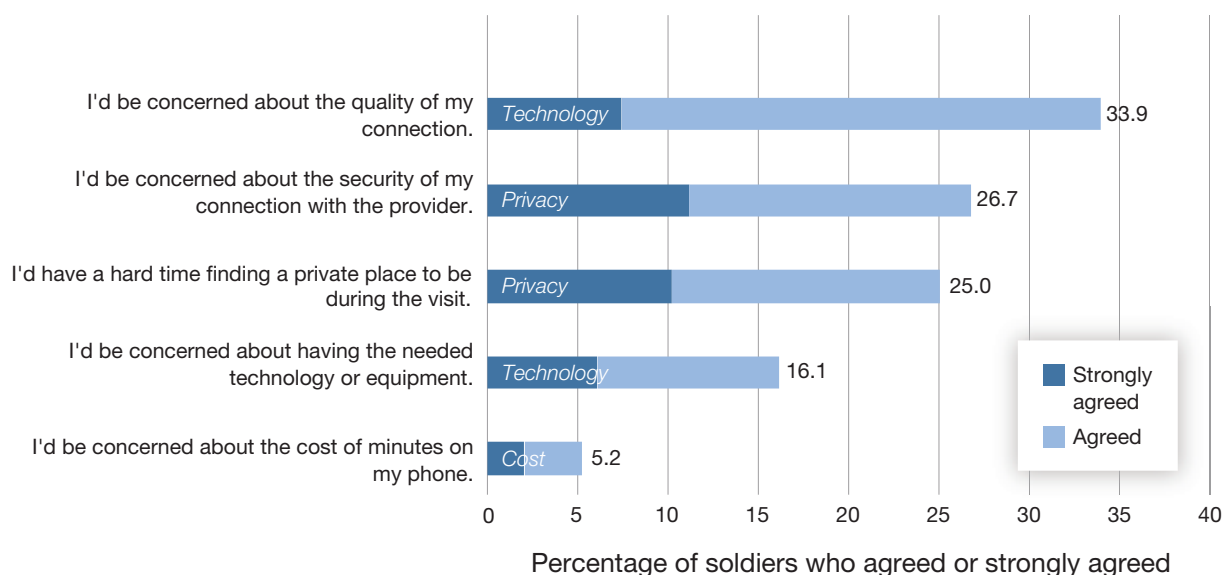
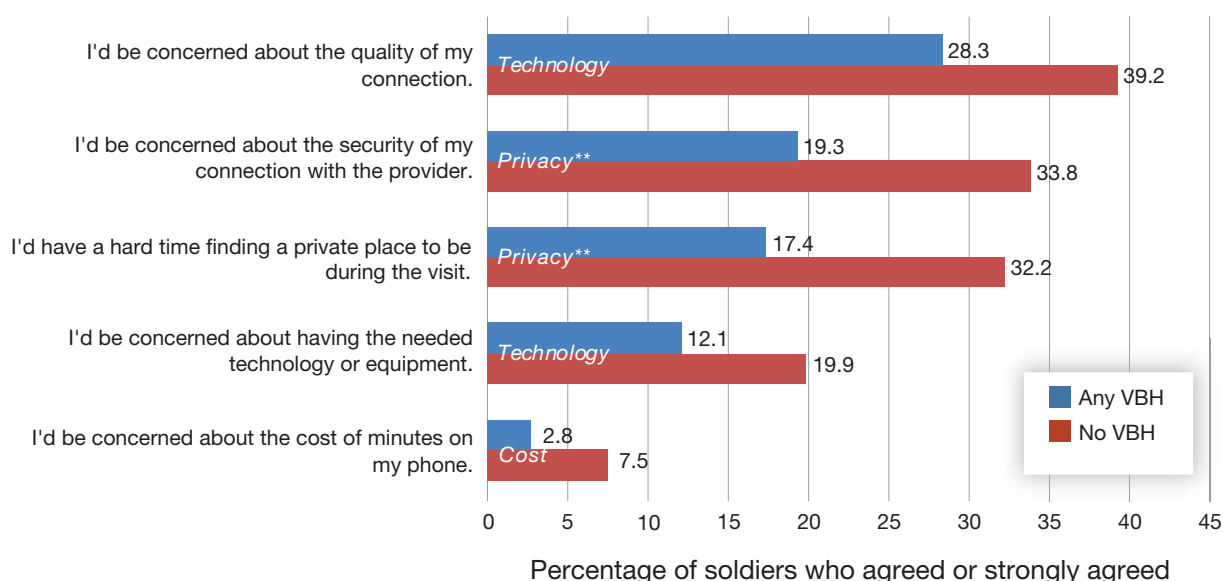
NOTE: $N = 419$.

FIGURE 8.4

Percentage of Soldiers with Any Virtual Behavioral Health Versus No Virtual Behavioral Health Who Agreed or Strongly Agreed with Each Statement About Concerns Related to Virtual Behavioral Health

NOTE: ** $p < 0.01$. $N = 419$.

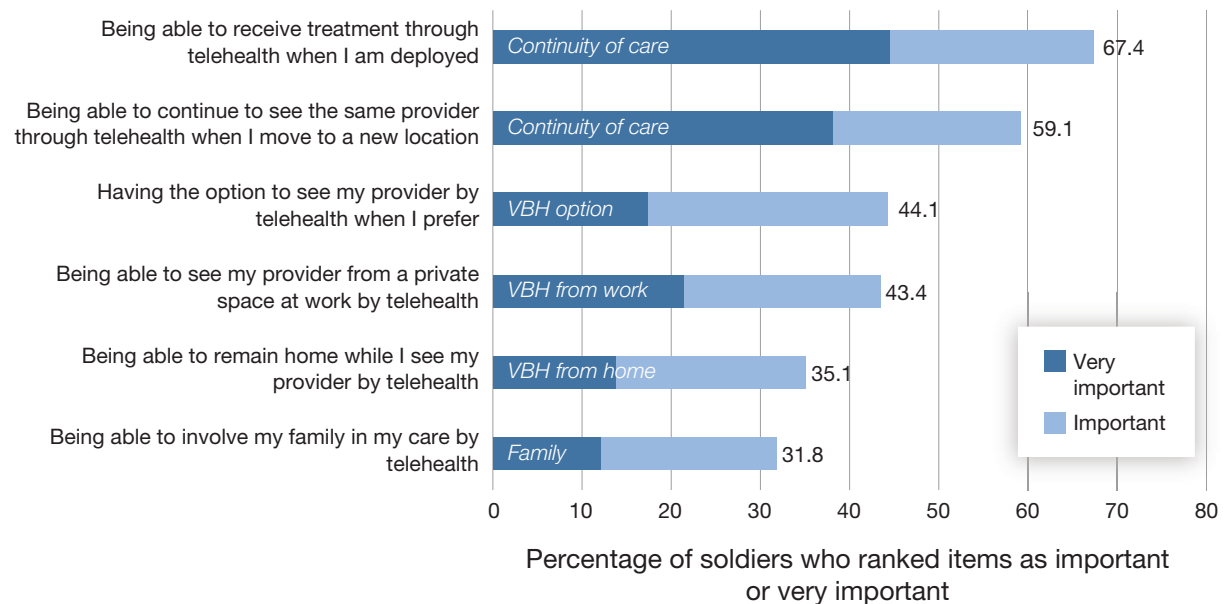
Importance of Virtual Behavioral Health Treatment Options

We also asked soldiers about their perceptions of the importance of various treatment options for VBH. Soldiers rated six statements on a scale ranging from not important to very important on topics related to VBH options from home or work, involvement of family in VBH, and continuity of care. Figure 8.5 shows the percentage of soldiers who agreed or strongly agreed with each statement, from most to least endorsed. The most frequently endorsed items related to continuity of care. Most soldiers agreed or strongly agreed with the importance of being able to receive VBH while deployed (67 percent). Over half of soldiers agreed that being able to continue to see the same provider through VBH after moving to a new location was important (59 percent). Less than half of soldiers endorsed the importance of being able to see their provider by VBH when they preferred that option (44 percent), and less than half reported that it was important to be able to see their provider from a private space at work using VBH (43 percent). The least endorsed items related to the option of receiving VBH visits from home and involvement of family in VBH. Although the least endorsed, they each were still endorsed by about one-third of participants (35 percent and 32 percent, respectively).

Soldiers with any VBH experience were significantly more likely to endorse the various VBH treatment options as important across five of the six items (Figure 8.6). These included items related to continuity of care, the option to use VBH when preferred, and the option to use VBH from work and VBH from home. The perceived importance to soldiers of being able to receive VBH to involve their family in their care did not differ significantly. Notably, being able to receive VBH while deployed was important to three-quarters of soldiers who had experience with VBH. Similarly, over two-thirds of soldiers who had received VBH indicated that it would be important to be able to continue to see the same provider when they move to a new location. These findings suggest that soldiers—particularly those who have had at least some experience with VBH—perceive that VBH plays an important role in continuity of care.

FIGURE 8.5

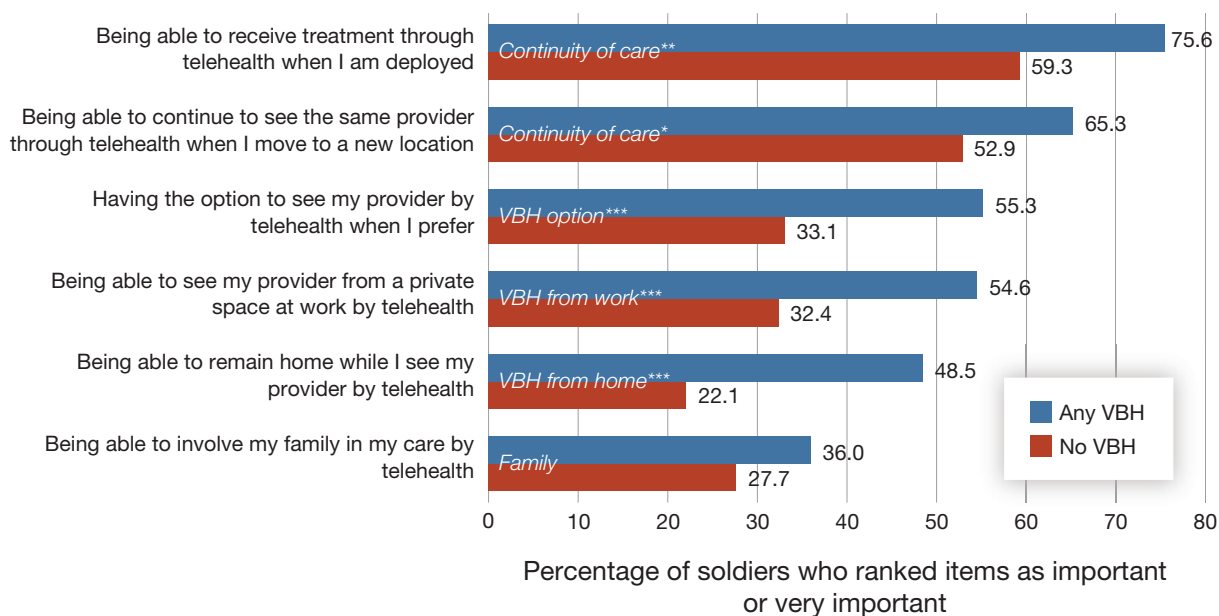
Percentage of Soldiers Who Ranked Each Virtual Behavioral Health Treatment Option as Important or Very Important



NOTE: *N* = 417.

FIGURE 8.6

Percentage of Soldiers with Any Virtual Behavioral Health Versus No Virtual Behavioral Health Who Ranked Each Virtual Behavioral Health Option as Important or Very Important



NOTE: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. $N = 419$.

Perceptions of Video and Audio Visits

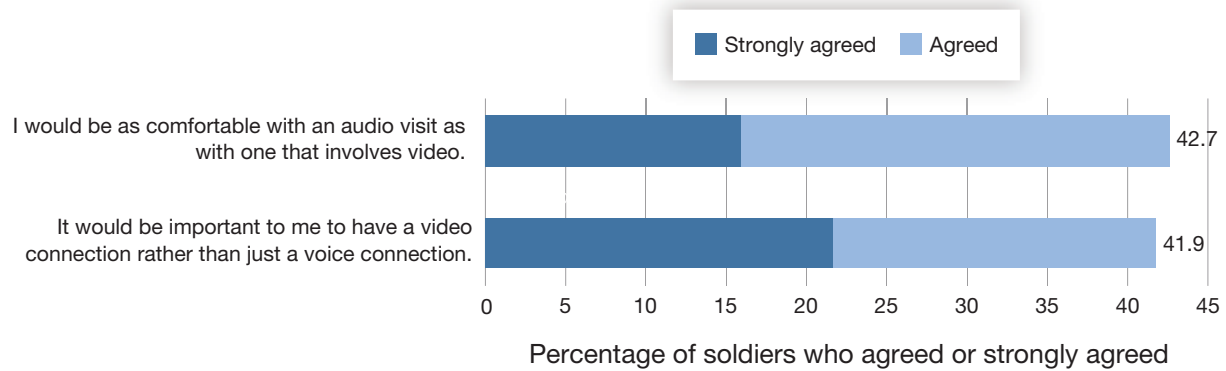
To build on our questions about the importance of various options for VBH more generally, we also asked soldiers about their perceptions of video and audio visits. Soldiers rated on a scale ranging from strongly agree to strongly disagree two statements on the importance of having the option to use video during a VBH visit (rather than audio only) and on their relative comfort with a video versus audio visit. Figure 8.7 shows the percentage of soldiers who agreed or strongly agreed with each statement. Less than half of soldiers reported that they would feel as comfortable with audio visits as they would with video (43 percent). However, less than half reported that it would be important for them to have a video connection rather than just an audio connection (42 percent). This might suggest that while some soldiers hold a slight preference for video over audio visits, they might be just as likely to accept an audio visit. Furthermore, soldiers with any VBH were significantly more likely to indicate that they would be as comfortable with an audio visit as a video visit compared with those with no VBH (any VBH: 55.7 percent; no VBH: 30.3 percent; $p < 0.001$). This might reflect an overall increase in comfort with different types of VBH visits among soldiers with any VBH experience. Soldiers who had any VBH were also more likely to endorse the importance of a video visit rather than an audio visit, but this difference was only marginally significant (any VBH: 36.2 percent; no VBH: 47.3 percent; $p = 0.06$).

Reasons for Not Receiving Virtual Behavioral Health

We asked soldiers who reported that they did not receive VBH in the past six months about whether they had been offered VBH during this period (51.2 percent) ($n = 150$). Among these soldiers, over half reported that they had not been offered VBH (59.0 percent), one-third reported that they had been offered VBH (32.6 per-

FIGURE 8.7

Percentage of Soldiers Who Agreed or Strongly Agreed with Each Statement About Video and Audio Visits



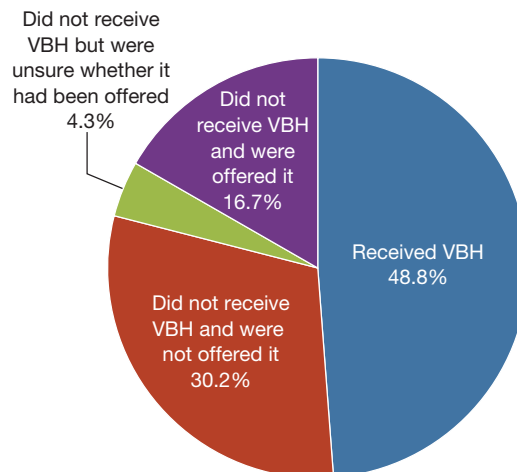
NOTE: $N = 419$.

cent), and the remainder of respondents were unsure (8.4 percent). Figure 8.8 puts these results in the context of the entire population: 49 percent had received VBH, and an additional 35 percent had not been offered or were unsure about being offered VBH. Soldiers who were offered VBH and elected not to use it made up only 17 percent of the population. This suggests that, for the majority of soldiers who did not receive VBH, nonreceipt may have been driven by not having the option provided to them or not knowing that VBH was an option, rather than a preference that VBH not be part of their care. Figure 8.8 also shows that most people who had the opportunity to use VBH did in fact use it; the people who used VBH made up about 75 percent of the people who had the opportunity to use VBH (the sum of the people who used VBH [49 percent] and the people who had the opportunity to use VBH and did not [17 percent]).

Soldiers who were offered VBH but did not receive it were presented with a list of reasons that people might decide not to receive VBH and were asked to select all that applied ($n = 54$). The majority (90.5 percent)

FIGURE 8.8

Distribution of Whether Soldiers Received Virtual Behavioral Health



NOTE: $N = 419$.

of these soldiers endorsed that they preferred to receive BH care in person. About one-quarter (22.6 percent) reported anticipating trouble communicating with their provider by VBH. Interestingly, 10.6 percent of this group said that the reason they did not receive VBH was that there were no VBH appointments available, suggesting that they would have used VBH if given the opportunity. Other reasons provided in the survey were not endorsed by a sufficient number of soldiers to report, suggesting that these were not prominent reasons.¹

Summary

This chapter described soldiers' perceptions of advantages and concerns related to VBH and the importance of having VBH options, as well as how these perceptions varied among soldiers who had received VBH as part of their care versus those who had not. We also summarized reasons for not receiving VBH.

- **Advantages of VBH:** Overall, soldiers were most likely to endorse items related to the convenience of VBH and less likely to endorse VBH advantages related to effectiveness, privacy, and clinical appropriateness. Soldiers who had received VBH were significantly more likely than soldiers with no VBH to endorse favorable statements about VBH convenience, effectiveness, privacy, and clinical appropriateness. For example, while nearly three-quarters of soldiers who had received VBH agreed that VBH saves time (71 percent) and is more convenient (72 percent), only about half of soldiers without VBH agreed with these statements (51 percent and 48 percent, respectively).
- **Concerns about VBH:** Overall, fewer soldiers endorsed concerns about VBH relative to VBH advantages. Only one-third of soldiers reported that they would be concerned about the quality of their connection with VBH (34 percent), and only one-quarter agreed that they would be concerned about the security of their connection or finding a private place to be during the VBH visit (27 percent and 25 percent, respectively). Soldiers who received VBH were less likely to endorse VBH concerns than soldiers who had not received VBH, though these differences were statistically significant for only two items related to privacy (concern about the security of their VBH connection or having a hard time finding a private place to be during their VBH visit).
- **Importance of VBH treatment options:** Most soldiers endorsed the importance of having the option to receive VBH to support continuity of care, such as receiving VBH while deployed (67 percent) or being able to continue seeing the same provider through VBH after moving to a new location (59 percent). A little less than half of soldiers agreed that it was important to have the option to see their provider by VBH when they preferred (44 percent) and to be able to see their provider from a private space at work using VBH (43 percent). Overall, soldiers with any VBH experience were significantly more likely than those with no VBH to endorse the various VBH options as important.
- **Perceptions of video and audio visits:** Less than half of soldiers reported that they would feel as comfortable with audio visits as they would with video (43 percent), suggesting that video is not critical for many soldiers. However, about the same percentage of soldiers, 42 percent, indicated that it would be important for them to have a video connection rather than just an audio connection. These findings suggest both that there is a difference of opinion on the importance of video for VBH and that many soldiers who prefer video would also be comfortable with audio visits. Soldiers who had received VBH as part of their care were more likely than those with no VBH experience to indicate that they would be as comfortable with an audio visit as a video visit.

¹ Other response options, including "Didn't have a comfortable, private place for the visits," "Didn't have the equipment needed," "The provider I was seeing was not available through telehealth," and "Other reason," were endorsed by five or fewer soldiers and are therefore not reportable.

- **Reasons for not receiving VBH:** While nearly half of all soldiers reported receiving VBH in the past six months (49 percent), about one-third did not receive VBH and were not offered it (30 percent), one-sixth did not receive VBH despite being offered it (17 percent), and the remainder did not receive VBH and were unsure whether it had been offered as an option (4 percent). This suggests that not receiving VBH was likely driven by not having the option of VBH provided to them, rather than preferring that VBH not be part of their care. Among the minority of soldiers who were offered VBH but did not receive it in the past six months, almost all reported that they preferred to receive BH care in person (91 percent).

Findings and Recommendations

In this report, we examined patterns of VBH visits for soldiers and their spouses and assessed soldiers' perceptions of VBH. In this chapter, we describe the strengths and limitations of our approach, highlight key findings, and provide recommendations related to the role of VBH in military BH care delivery.

Strengths and Limitations

Our study methodology, which incorporated analyses of both BH utilization data and a survey of soldiers, had several strengths. Our administrative data analyses provided a comprehensive picture of BH care and receipt of VBH in the MHS during the periods studied. Specifically, administrative data documented all BH care provided at MTFs and care delivered by TRICARE-contracted providers to active-component soldiers and their spouses. We analyzed data from multiple periods to examine trends over time, including a three-year period beginning just before the COVID-19 pandemic started and a more recent six-month period (October 2021 to March 2022). Our analyses of a subset of soldiers who received at least three BH treatment visits at MTFs provided a detailed assessment of the integration of VBH for these soldiers. Furthermore, we highlighted similarities and differences in patterns of BH care for soldiers versus spouses.

Our survey also had significant strengths. Our sampling strategy ensured that participating soldiers represented a mix of VBH experience. Using administrative data on past three-month BH utilization, we selected equal numbers of soldiers from each of three strata (VBH only, in-person BH care only, and a mix). In addition, we obtained a high response rate relative to other surveys of service members (28 percent), increasing our ability to make inferences about the population. Our nonresponse and survey weighting procedures also increased our ability to generalize to the larger population of soldiers receiving BH care.

Our analyses also had some limitations. Administrative data are subject to multiple sources of error, including inaccurate or variable coding by providers. Variable guidance for providers on coding the modality used for VBH visits (i.e., video versus audio) reduced our confidence in the accuracy of the VBH modality data. In addition, administrative data do not include details documented in unstructured medical record notes, such as suicide risk or delivery of evidence-based psychotherapy. We were not able to examine reasons for the observed trends or differences between direct care and private-sector care. Because of the time lag between when services are delivered and when the administrative data are complete, we were not able to examine data more recent than March 2022. Furthermore, we were not able to conduct analyses of outcomes for soldiers who had VBH as part of their care with those who did not. The MHS uses the Behavioral Health Data Portal (BHDP) to collect patient-reported symptom measures, which can be used to assess whether individual patients improve. Unfortunately, during the time frame of available data, the BHDP could not be used to collect symptom measures for VBH visits, resulting in inadequate data to conduct these analyses.

There were also some limitations related to the survey analyses. Our survey focused on soldier experiences of BH care delivered at MTFs and may not generalize to other populations (e.g., spouses) or sources of care (e.g., private-sector care). For example, our administrative data analyses showed that VBH was less

likely to be integrated into BH care by direct care providers than by private-sector providers and that spouses were more likely to receive VBH compared with soldiers. Follow-on surveys should assess how perspectives of VBH differ in other populations and settings. Furthermore, we found that a soldier's sampling strata (only VBH, only in-person BH care, a mix) sometimes differed from what the soldier reported on the survey, and we relied on the soldier's reported use in our analyses. Ultimately, we used a two-group comparison (any VBH versus no VBH) for our analyses, and post hoc power calculations indicated adequate power for this approach. Survey responses could be subject to sources of error, including recall or reporting error, and items asked soldiers to report on their overall BH care rather than specific providers or types of services. Some analyses were underpowered for certain comparisons (e.g., inability to check for differences between receipt of any video and receipt of no video for VBH-related items). Finally, we were not able to conduct some analyses of interest, such as whether receipt of video visits was associated with improved perceptions of VBH, as our analytic sample size did not allow adequate power for these comparisons.

Key Findings

Our analyses of patterns of BH care documented in administrative treatment data and a survey of soldiers' perceptions of VBH yielded several findings. In this section, we provide an overview of key findings presented in this report.

Direct Care Providers Were Less Likely to Deliver Virtual Behavioral Health Than Private-Sector Providers and Relied Heavily on Audio Virtual Behavioral Health

Prior to the pandemic, few soldiers or spouses received VBH as part of their BH care. In February 2020, just before a national public health emergency was declared in the United States, VBH represented 9 percent of BH care visits in direct care and 2 percent in private-sector care. While both direct and private-sector care had a similar spike in VBH visits shortly after the start of the pandemic (April 2020), the trends in VBH in these two sources of care subsequently diverged. In direct care, the proportion of BH visits by VBH consistently decreased over time, from a peak of 74 percent in April 2020 to 16 percent in March 2022. In contrast, in private-sector care, the proportion of BH visits by VBH decreased from its peak of 61 percent but leveled off to 46 percent over that same period. The proportion of BH visits by VBH was lower for soldiers than spouses in both direct care and private-sector care. For instance, in March 2022, the proportion of BH visits by VBH for soldiers was 14 percent in direct care and 33 percent in private-sector care, while the proportions for spouses were 28 percent and 51 percent, respectively.

During the six-month period of October 2021 to March 2022, we found that, for soldiers, there were differences between direct and private-sector care in the characteristics of visits most commonly provided by VBH. In direct care, primary care providers and psychiatrists provided the largest proportion of BH visits by VBH, whereas in private-sector care there were proportionately more VBH visits by clinical psychologists and social workers. Regarding the type of visit, more VBH was used in direct care for E&M/medication management, whereas in private-sector care, use of VBH was highest for initial intake assessments and individual psychotherapy. While spouses had most of their BH care in the private sector and received a higher proportion of visits by VBH in both direct and private-sector care, the differences in receipt of VBH across provider and visit types were generally similar to those among soldiers.

When we examined the modality for VBH visits, we found that the majority of VBH visits in direct care (80 percent) were audio visits, while nearly all VBH visits in private-sector care were video visits (99.5 percent). However, these results should be interpreted in light of potential misclassification of modality due to variations in coding guidance and practices. On the survey, among those with any VBH, more soldiers

reported receiving audio visits (79 percent) than video visits (58 percent). Nearly all soldiers reported using their cell phone for one or more VBH visits (92 percent). Only about one-third of soldiers reported using any type of computer or tablet, and the home was the most common location for receiving VBH visits.

Soldiers Who Received Virtual Behavioral Health Typically Received a Mix of Virtual Behavioral Health and In-Person Visits

Among soldiers who had received at least three treatment visits at an MTF (the BH treatment cohort), VBH was typically received as part of a mix of VBH and in-person care; 53 percent received a mix of VBH and in-person visits, but only 2 percent had all their visits by VBH. In the BH treatment cohort, soldiers with a large number of BH visits had about the same proportion of their BH care by VBH as soldiers with fewer visits, suggesting that both VBH and in-person visits continued to be part of treatment, even for soldiers with large numbers of visits. Soldiers who received VBH generally had, on average, between three and four VBH visits over a period of six months. Findings from our survey also showed that soldiers frequently received a mix of VBH and in-person visits when VBH was part of their care. Close to half of all soldiers reported receiving both types of care (46 percent). About half of soldiers reported that they received one or more VBH visits (49 percent), and nearly all received at least some in-person BH care (97 percent). Consistent with our analyses of administrative data, very few soldiers reported receiving all their care by VBH (3 percent).

Among soldiers in the BH treatment cohort, receipt of VBH was more common among Black non-Hispanic soldiers compared with White non-Hispanic soldiers; among soldiers who were divorced, separated, or widowed than among those who were never married; among those age 45–64 than those age 18–24; and among officers than those with ranks of C-1 or E-1–E-4. However, these differences were generally small in magnitude, just over our threshold for noting them of 5 percentage points. The largest difference in use of VBH was across age groups; VBH was used by 60 percent of those age 45–64 and 51 percent of those age 18–24. Survey analyses did not identify any significant differences by demographic or service characteristics on receipt of VBH. Thus, while we found few notable differences in receipt of VBH by demographic or service characteristics, it will be important to continue to monitor VBH delivery to ensure that it is equitable.

Receipt of Virtual Behavioral Health Was Associated with More Positive Perceptions of Virtual Behavioral Health

Soldiers generally reported positive perceptions of VBH convenience, regardless of whether they had received VBH as part of their BH care. For example, soldiers perceived that VBH visits save time (61 percent), are more convenient (60 percent), and take less time away from their military duties compared with in-person BH visits. Additionally, two-thirds of soldiers endorsed the importance of being able to continue their care by VBH while deployed (67 percent), and over half agreed that having the option of using VBH to continue their care after moving to a new location (59 percent) was important.

Soldiers who had received VBH were significantly more likely to endorse VBH advantages (e.g., convenience, effectiveness, clinical appropriateness) and less likely to endorse privacy concerns (e.g., about the security of their connection, difficulty finding a private place to be during the visit) compared with soldiers who had no VBH experience in the past six months. For example, nearly three-quarters of soldiers who had received VBH as part of their care agreed that VBH visits are more convenient (72 percent), whereas only about half of soldiers with no VBH agreed (48 percent). While only a fraction of soldiers with any VBH experience endorsed concern about the privacy of their connection with their provider (19 percent), one-third of soldiers with no VBH experience endorsed that concern (34 percent). Finally, soldiers with any VBH experience were more likely than those with no VBH to endorse the importance of having the option to receive VBH generally and to receive VBH to continue treatment while deployed or after moving to a new location.

This suggests that soldiers who have received VBH are likely to agree that there should be a continued option to receive VBH to support BH care in the future. Consistent with findings in civilian literature, our analyses suggested that perceptions of VBH were generally more favorable among soldiers who had more experience receiving VBH as part of their care (Fischer et al., 2022; Predmore et al., 2021). For example, soldiers who received two or more VBH visits had significantly more positive perceptions of their providers, their visits, and the VBH technology than did soldiers who had only one VBH visit.

Soldiers Who Received Virtual Behavioral Health Rated Their Military Behavioral Health Care Similarly to Those Who Received Only In-Person Behavioral Health Care

The rapid growth in receipt of VBH in recent years has represented a significant change in the way BH care is delivered, thus we sought to assess whether experiences or perceptions of BH care differed by whether soldiers received VBH. We found no significant differences in perceptions of BH care quality, access, privacy, convenience, working alliance, helpfulness, or global ratings of care between soldiers who received VBH and those who did not. Most soldiers had positive perceptions of their interpersonal interactions and their working alliance with their providers (e.g., working well together, working toward shared goals, and agreeing on the best approach for addressing problems). Soldiers endorsed some concern about difficulty getting BH appointments as soon as they wanted, and a minority reported feeling concerned about their privacy during appointments, but these perceptions did not differ significantly by receipt of VBH as part of their care. Mean global ratings of all BH care, VBH care, and in-person BH care were similar and also did not vary significantly by whether soldiers had received VBH as part of their care. These findings suggest that the integration of VBH did not negatively affect soldier perceptions of overall BH care delivery.

Few Soldiers Declined Virtual Behavioral Health in Favor of In-Person Care, but Nearly One-Third Were Not Offered Virtual Behavioral Health

While nearly half of soldiers reported that they had received VBH in the prior six months (49 percent), nearly one-third indicated that they did not receive it and were not offered it (30 percent), one-sixth reported that they did not receive it despite being offered VBH (17 percent), and the remainder did not receive it and were unsure whether VBH had been offered (4 percent). Among soldiers who did not receive VBH, most reported that they had not been offered the option of receiving VBH as part of their care (59 percent). These results suggest that some portion of soldiers who did not receive VBH may have been interested in it but were simply not given the option.

Previous research suggests that there may be some portion of the overall population who prefer *not* to receive VBH as part of their care (Fischer et al., 2022; Predmore et al., 2021). In our survey, we found evidence that such a group does exist but that it is a small group of those receiving BH treatment. In the survey, only 17 percent of the sample did not use VBH despite having had the option to use it. Of that group, the majority (91 percent) indicated a preference for in-person BH care. It is difficult to know how much this preference was influenced by a lack of familiarity or experience with VBH, as opposed to a preference for receiving all BH care in person. Studies suggest that patients with more experience receiving VBH are more willing to continue to receive virtual care (Fischer et al., 2022; Predmore et al., 2021). In contrast, among those who had the opportunity to use VBH, who were the majority of the sample, 75 percent had used VBH. There is no way to know why soldiers may not have been offered the option of receiving VBH as part of their care. However, research has identified possible barriers to VBH implementation in direct care settings, such as inadequate technology or equipment or hesitation among some military providers to implement VBH (e.g., due to clini-

cal or privacy concerns) (Connolly, Charness, and Miller, 2023; Cowan et al., 2019; Hepner, Sousa, et al., 2021; Lopez et al., 2019).

Recommendations

In this section, we provide three recommendations related to the role of VBH in military BH care delivery.

Recommendation 1. Support the Expanded Delivery of Virtual Behavioral Health Among Military Treatment Facility Providers by Developing a Virtual Behavioral Health Care Strategic Plan

Our data suggest that VBH might currently be underutilized, particularly in direct care settings. Administrative analyses revealed that the proportion of BH visits in March 2022 that were delivered by VBH was smaller in direct care than in private-sector care, for both soldiers (33 versus 14 percent) and spouses (51 versus 28 percent). While the proportion of VBH visits in direct care decreased over time through 2021 and early 2022, VBH remained relatively stable in private-sector care during this period. This pattern of sustained, comparably high levels of VBH in private-sector care is consistent with patterns observed in civilian health care settings during this period (McBain et al., 2023). The survey data indicated that limited availability of VBH contributes to its low use in direct care. Most soldiers who did not receive VBH indicated that they had not been offered it, and few who were given the opportunity refused VBH. Though our analyses of survey data did identify a small cohort of soldiers with no VBH experience who reported a preference for in-person care, evidence of VBH use in civilian settings indicates that when patients have more experience with telehealth, they may become more willing to receive it again in the future (Fischer et al., 2022; Predmore et al., 2021). This willingness to receive VBH may also increase over time as more soldiers are given the opportunity to experience VBH as part of their care (Fischer et al., 2022; Predmore et al., 2021).

Large-scale integration of VBH into care delivery is complex and can be hindered by different technical, clinical, administrative, and structural barriers (Connolly et al., 2021; Dang et al., 2019; Pamplin et al., 2019). Research suggests that the use of an implementation plan with clearly articulated goals and priorities may support the dissemination of VBH (Greenhalgh et al., 2004; Lindsay et al., 2015). For example, U.S. Department of Veterans Affairs (VA) researchers have theorized that rapid VBH expansion in response to the pandemic was successful at least in part because of the national targets set by the VA prior to the pandemic for increasing the percentage of BH providers who delivered at least one video visit by the end of fiscal year 2019 (Connolly et al., 2021; Connolly, Sullivan, et al., 2022). The VA launched its videoconferencing platform, VA Video Connect, in the same year (U.S. Department of Veterans Affairs, 2018). Other key facilitators of VBH implementation within the VA included strong leadership support, awareness of research suggesting that VBH is largely as effective as in-person BH care, and the availability of hands-on support from VBH technicians and champions (Connolly, Sullivan, et al., 2022). Elements of the VA strategic plan for virtual health implementation also included training and technical support and expansion of technology infrastructure (e.g., investments in equipment and broadband) (Heyworth et al., 2020). The plan also called for expansion of a program allowing the use of a national on-call pool of physicians with authorization to provide virtual health services across state lines when needed to address demand (Heyworth et al., 2020). A centralized communication plan included specific guidance to ensure that the needs of high-risk patients were met (e.g., by distributing tablets to high-risk veterans who faced access barriers) (Heyworth et al., 2020).

The MHS has already developed an overarching strategic plan for integrating the use of virtual health care throughout direct and private-sector care (U.S. Department of Defense, 2022c). In developing a specific plan for implementation of VBH (rather than virtual health more broadly), it is important to consider

the clinical, technical, and administrative aspects of VBH. The MHS might begin by stipulating goals with respect to the target VBH volume in direct and private-sector care and by stipulating the appropriate situations in which to offer VBH as an option. It is also important to standardize how video and audio visits are to be coded, in both direct and private-sector settings, to ensure accurate data capture of the use of these modalities. This information might be communicated through an updated DHA Procedural Instruction or other formal document to ensure that it is distributed to MTF BH staff across service branches and to private-sector providers who deliver BH care through TRICARE. The plan should also indicate which staff are to receive clinical and technical training in VBH and articulate any minimum training competencies or credential requirements. Clinical training for VBH would cover key clinical and administrative aspects of VBH delivery, including processes for documenting consent, strategies for risk-mitigation management, and handling of crises (e.g., active suicidal ideation). Technical training would aim to increase provider familiarity with MHS Connect (a web-based virtual health platform developed by DHA), review strategies for addressing soldier privacy concerns, and identify the resources that are available for technical support. Technical training might also include best practices for delivering psychotherapy and medication visits by VBH (e.g., sharing of homework assignments, use of symptom assessments). With respect to technology more broadly, the plan should establish minimum requirements for outfitting military providers with equipment for VBH (e.g., computer, webcam) and ensuring that MTFs have adequate broadband connectivity.

Recommendation 2. Assess Barriers to Virtual Behavioral Health and Ensure That Military Treatment Facility Providers Are Equipped and Trained to Deliver Virtual Behavioral Health

The comparison between direct care and private-sector care with respect to VBH delivery and the proportion of VBH visits that were video suggest that there may be distinct barriers to delivery of VBH—and video visits in particular—for direct care providers. Our analyses of different types of visits strongly suggest that these barriers were most acute for specialty BH providers who provide psychotherapy (or other counseling services). However, in this study we were not able to examine the reasons for relatively low use of VBH by providers in direct care, and we were thus limited in our ability to identify specific barriers.

Prior work documented several concerns among MTF BH providers early in the pandemic (Hepner, Sousa, et al., 2021). At that time, most providers were using audio visits and voiced the need for adequate technology to provide video visits, including support in how to best use the technology. Some providers were also concerned about managing challenging clinical issues through VBH and felt that they lacked clear guidance on when VBH was and was not clinically appropriate. For example, providers expressed concern about using VBH—and audio visits in particular—to treat patients at high risk or with high symptom severity. However, that work was limited in that it was not based on a representative sample of BH providers and it focused on the early period of the pandemic, when providers in and outside of the military still had limited experience with implementing hybrid in-person/VBH care.

Conducting a survey of BH providers to fully assess the scope of their needs related to technology and clinical training would address these gaps in knowledge. Although the MHS has already discussed plans for equipping all direct care providers with VBH equipment (U.S. Department of Defense, 2022a), a BH provider survey could be used to identify where resources are most needed. Similarly, while the MHS has already outlined plans to develop two standardized trainings, including one specific to VBH and one more-general training on virtual health (U.S. Department of Defense, 2022a; discussed above), a BH provider survey could help identify content to incorporate into training curricula. The survey could assess current technology resources available to specialty BH providers in MTFs, including technology for providing video visits, and

identify areas of clinical practice where additional clinical guidelines and training in VBH clinical protocols are needed to ensure that providers are comfortable providing VBH care.

Recommendation 3. Evaluate the Utility of Virtual Behavioral Health in Supporting Continuity of Behavioral Health Care Across Military Treatment Facilities

Most soldiers endorsed the importance of being able to continue seeing the same provider through VBH while deployed (67 percent) or after moving to a new location (59 percent). An even larger share of soldiers with VBH experience endorsed these statements: Over three-quarters indicated that it would be important to be able to see the same provider through VBH while deployed (76 percent), and about two-thirds agreed that it would be important to continue seeing the same provider through VBH after moving to a new location (65 percent). Taken together, these findings suggest that soldiers—and particularly those who have experience receiving VBH—feel that VBH should be used to facilitate continuity of BH care.

Restarting BH care at a new MTF after a permanent change of station (PCS), or during a deployment, requires a number of steps (e.g., reaching out to a BH provider to schedule an appointment, completing any assessment or treatment planning process with a new provider). If the service member does not complete these promptly upon arrival at a new location, the delay could create a gap in care (e.g., time without medication or psychotherapy). Even if the service member can initiate this process quickly, it could result in higher costs and utilization if there is no systematic method for coordinating care between the former BH provider and the new BH provider (Defense Health Board Task Force on Mental Health, 2007; DeFraia et al., 2014). This process could be further complicated by the receipt of private-sector BH care, which could make it more difficult for the transmission of information between the former and new BH provider.

The MHS is already exploring opportunities for leveraging VBH to deliver care to service members located worldwide, mainly to address access shortages in direct care settings. One key element of MHS efforts to expand VBH is the development of the Virtual Medical Center, which is a “multi-hub enterprise” for delivering virtual health care (i.e., care for BH and other services) to service members around the world (U.S. Department of Defense, 2022c). The Virtual Medical Center was a component of the virtual health strategic plan developed by the MHS in 2017 (U.S. Department of Defense, 2022c). It comprises MTFs (including San Antonio, San Diego, and Landstuhl) that deliver virtual health care to service members in the region and specialty hubs that provide virtual visits for specialty care (e.g., VBH, critical care) to service members worldwide (U.S. Department of Defense, 2022c). Recent U.S. Department of Defense (DoD) reports suggest that the MHS is expanding this system of specialty VBH hubs to support increased delivery of VBH to service members at MTFs and in deployed settings (U.S. Department of Defense, 2022b; U.S. Department of Defense, 2022c).

If the Virtual Medical Center or other method of allowing BH providers to continue treating service members after PCS or deployment is to be effective, several barriers will need to be addressed. First, there must be an administrative means of allowing for privileging by proxy if the BH provider delivering VBH is not credentialed at the MTF where the service member is located after their move or deployment (Department of Defense Manual 6025.13, 2013). Second, BH providers (Defense Health Agency Procedural Instruction 6025.11, 2018) must be able to receive “credit” toward their measured productivity (e.g., average visit rate) for treating service members empaneled at a different MTF (Defense Health Agency Procedural Instruction 6025.11, 2018). Third, it will be important to establish policies and supporting guidance for BH providers on how to implement VBH with service members after a PCS or deployment. For example, such guidance might establish a maximum period or other criteria for providing BH care remotely (e.g., for six months or until BH care is established with a new provider). It may also be useful to identify specific situations in which VBH

might be best used to support continuity of care during a transition. For example, VBH could be useful in supporting service members with active BH prescriptions or those engaged in a course of psychotherapy but may not be optimal for someone who is newly referred to BH care prior to a PCS or deployment.

Before determining whether to implement VBH with service members after PCS or deployment more broadly, the MHS could pilot and evaluate this effort. For example, an evaluation could assess quality of care using process and outcome measures, and cost-effectiveness. It will be important to identify whether there are any differences in efficiency or quality of care associated with such a program (e.g., improved medication compliance, fewer visits required to achieve remission). An evaluation would provide an assessment of the potential value of a broader implementation of VBH to support care continuity in cases of service member PCS or deployment.

Summary

The rapid expansion of VBH during the pandemic provided an opportunity to learn about the potential for VBH to enhance access to BH care for soldiers and their spouses. The key findings and recommendations from this report may be used to inform policymaking and planning regarding the role that VBH will play as a permanent part of BH care delivery.

Technical Specifications

This appendix contains technical specifications related to defining VBH and eligibility criteria for analyses. Table A.1 lists the sources of provider guidance for telehealth coding for MHS providers that we reviewed for this study.

TABLE A.1
Military Telehealth Coding Guidance

Source	Coding	Comment
<i>TRICARE Policy Manual 6010.60-M</i> , Chapter 7, “Telemedicine/Telehealth” (Military Health System, 2022b)	Synchronous telehealth: CPT or HCPCS code AND GT or 95 modifier	<ul style="list-style-type: none"> Revised C-100, August 3, 2022 Real-time, 2-way transmission “Common type” is clinical video-teleconferencing (VTC) For an established patient
	Telephonic office visit: CPT codes 98966-68, 99441-43, HCPCS code G2012	
“Frequently Asked Questions: COVID-19 and Virtual Health for Providers” (Military Health System, 2020)	Audio and visual encounters: E&M service code AND [GT modifier (MTF to MTF) OR 95 modifier (provider to patient location other than MTF)] Telephone-only encounters: E&M service code AND T2025 (waiver services, nos)	<ul style="list-style-type: none"> Current as of June 1, 2020
Interim virtual encounter coding guidance, attachment 3c, DHA (Defense Health Agency, 2020)	Synchronous visual and audio telecommunications: Procedure code AND E&M code or 99499 or leave blank AND [GT modifier (MTF to MTF) OR 95 modifier (provider to patient location other than MTF)] Telephone only: G2012 AND E&M code 99499 or leave blank	<ul style="list-style-type: none"> Dated March 18, 2020 Audio and visual Source is National Capital Consortium Pediatrics, residency Walter Reed

Table A.1—Continued

Source	Coding	Comment
“Telemedicine Cheat Sheet” DHA resource (National Capital Consortium Pediatrics, 2020)	Audio/visual face-to-face encounters (Adobe Connect): ICD10-diagnosis code AND E&M-office visit code AND Modifier-95 or GT 95 = synchronous audio/visual virtual encounter, patient is somewhere other than MTF (home or other appropriate setting). GT = synchronous audio/visual virtual encounter when the patient is at another MTF GQ = asynchronous virtual encounter, consulting provider is reviewing stored documentation to provide interpretation/opinion to requesting provider Telephone consultation coding criteria (i.e., virtual encounter, SPEC-HC): ICD-10 code for the encounter AND E&M-99499 (unlisted E&M) AND HCPCS-T2025 code	<ul style="list-style-type: none"> Dated April 22, 2020 Audio/visual Source is National Capital Consortium Pediatrics, residency Walter Reed For established patients. Does not include Nurse Advice Line.
“Telemedicine Billing Tips” (TRICARE West resource) (Health Net Federal Services, undated)	Synchronous telemedicine services (two directions): CPT/HCPCS code AND [GT or 95 modifier (distant site) OR Q3014 (applicable originating site)] Asynchronous telemedicine services (one direction): CPT/HCPCS code AND GQ modifier Audio-only visits: CPT 99441–43, 98966–68 and HCPCS code G2012	<ul style="list-style-type: none"> Undated. <i>Synchronous</i> defined as interactive electronic information exchange in at least <i>two directions</i> in the same time period. Does not specify audio and visual. <i>Asynchronous</i> defined as storing, forwarding, and transmitting information in <i>one direction</i> at a time.
“Coronavirus Disease (COVID-19) and TRICARE’s Telemedicine Benefit” (Humana Military, 2020)	Synchronous (two directions): CPT or HCPCS code AND GT modifier for distant site and Q3014 for an applicable originating site. Place of Service “POS 02” is to be reported in conjunction with the GT modifier. Asynchronous (one direction): CPT or HCPCS codes AND GQ modifier	<ul style="list-style-type: none"> Updated April 29, 2020 <i>Synchronous</i> defined as interactive electronic information exchange in at least <i>two directions</i> in the same time period. Does not specify audio and visual. <i>Asynchronous</i> defined as storing, forwarding, and transmitting information in <i>one direction</i> at a time.

NOTE: Bold text reflects language used in the guidance document. CPT = Current Procedural Terminology; HCPCS = Healthcare Common Procedure Coding System.

Table A.2 provides the coding that we applied hierarchically to categorize telehealth modalities for direct care and private-sector care visits.

TABLE A.2
Coding for Telehealth Modality

Direct Care	Private-Sector Care
Requirements for inclusion	
CAPER/GENESIS BH visit with provider HIPAA taxonomy code associated with: CAPER skill level 1 or 2 OR CAPER skill level 4 counselor: Counselor, counselor: addiction; counselor: mental health; counselor: professional	TED-NI BH visit with provider HIPAA taxonomy code associated with: CAPER skill level 1 or 2 OR CAPER skill level 4 counselor: Counselor, counselor: addiction; counselor: mental health; counselor: professional
Exclusions	
<ul style="list-style-type: none"> • Originating procedure code (Q3014) • Visit with technical procedure • Provider-to-provider consultation 	<ul style="list-style-type: none"> • Originating procedure code (Q3014) • Visit with technical procedure • Provider-to-provider consultation • PPS product line = 3 (facility)
Hierarchical categorization of telehealth visits	
Video/synchronous: [Modifier GT or 95 AND No telephone-only procedure code] OR [MEPRS = BFDR AND DMIS ID = 0047 or 0052 or 0109 (telehealth hub)]	Video/synchronous: [Modifier GT or 95 OR Place of service (POS) = 2] AND No telephone-only procedure code
Asynchronous: Not synchronous AND No telephone-only procedure code AND [Modifier GQ OR Asynchronous procedure code]	Asynchronous: Same as direct care
Audio only/telephone only: Not synchronous AND Not asynchronous AND Telephone-only procedure code	Audio only/telephone only: Same as direct care

NOTE: BH encounter: Encounter with ICD-10 F-code. We did not include the modifier GO because it did not occur in our data. HIPAA = Health Insurance Portability and Accountability Act.

HIPAA taxonomy, counselor: 101Y00000X, 101YA0400X, 101YM0800X, 101YP2500X. These counselor codes with skill level 4 were included because of our focus on BH care and the observed frequency in our data of this type of provider being associated with encounters with a psychotherapy CPT code. Technical procedure: 95700, 95705-95716. Provider-to-provider consultation: 99446-99452. Telephone-only procedure: 99441-99143, 98966-98968, T2025, G2012. Asynchronous procedure: 92227, 92228, 93264, 95717-95726, 99453, 99454, 99457, 99458, D9996, G9868-G9870, G0071, G2010.

Table A.3 lists the procedure codes and code modifiers that defined synchronous and asynchronous telehealth and procedure codes that defined E&M encounters delivered by telephone.

TABLE A.3
Telehealth Encounter Procedure Codes and Modifiers

Code/Modifier	Description
Video/Synchronous	
GT modifier	Telehealth encounter, synchronous
95 modifier	Telehealth encounter, synchronous
Asynchronous	
GQ modifier	Telehealth encounter, asynchronous
G2010	<i>Remote evaluation of recorded video and/or images</i> submitted by an established patient (e.g., store and forward), including interpretation with follow-up with the patient within 24 business hours, not originating from a related e/m service provided within the previous 7 days nor leading to an e/m service or procedure within the next 24 hours or soonest available appointment
Audio only/Telephone	
99441	Telephone evaluation and management, physician, or qualified health care professional, established patient, 5–10 minutes
99442	11–20 minutes
99443	21–30 minutes
98966	<i>Telephone assessment and management</i> service provided by a qualified nonphysician health care professional to an established patient, 5–10 minutes
98967	11–20 minutes
98968	21–30 minutes
G2012	<i>Brief communication technology-based service</i> , e.g., virtual check-in, by a physician or other qualified health care professional who can report evaluation and management services, provided to an established patient, not originating from a related e/m service provided within the previous 7 days nor leading to an e/m service or procedure within the next 24 hours or soonest available appointment: 5–10 minutes
T2025	Waiver services, not otherwise specified (<i>nos</i>)

Table A.4 lists procedure codes used to define BH assessment and treatment visits.

TABLE A.4
Procedure Codes for Behavioral Health Visit Types

BH Visit Type	CPT Codes
Intake/assessment	90791, 90792, 96150, 96151, 96156
Treatment visits	
Individual psychotherapy	90832, +90833, 90824, +90836, 90837, +90838, 90839, +90840, 90845
Group psychotherapy	90853
E&M/medication management	99201, 99202, 99203, 99204, 99205, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 90862, +90863, [98966, 98967, 98968, 99441, 99442, 99443 with a Type 1 or 2 provider]

SOURCE: Information from American Medical Association, 2022.

NOTE: BH visit = Visit with an ICD-10 F-code in any position.

Table A.5 lists the diagnosis codes used to select the soldiers and spouses for inclusion in the BH treatment cohorts.

TABLE A.5
Behavioral Health Treatment Cohort Diagnosis Codes

Diagnosis Category	ICD-10 Codes
Acute stress reaction	F43.0
ADHD	F90.*
Adjustment disorder	F43.2*, F43.8, F43.9
Anxiety	F40.0*, F40.10, F40.11, F40.21*, F40.22*, F40.23*, F40.24*, F40.29*, F40.8, F40.9, F41.*, F42.*, F44.9, F45.8, F45.9, F48.8, F48.9
Depression	F32.*, F32.89, F32.9, F33.*, F33.4*, F33.8, F33.9, F34.1, F34.89, F34.9
Eating disorder	F50.0*, F50.2, F50.8*, F50.9
PTSD	F43.1*
Sleep disorder	F51.0*, F51.1*, F51.3, F51.4, F51.5, F51.8, F51.9
SUD	F10.10, F10.11, F10.12*, F10.13*, F10.14, F10.15*, F10.18*, F10.19, F10.20, F10.21, F10.22*, F10.23*, F10.24, F10.25*, F10.26, F10.27, F10.28*, F10.29, F11.10, F11.11, F11.12*, F11.13, F11.14, F11.15*, F11.18*, F11.19, F11.20, F11.21, F11.22*, F11.23, F11.24, F11.25*, F11.28*, F11.29, F12.10, F12.11, F12.12*, F12.13, F12.15*, F12.18*, F12.19, F12.20, F12.21, F12.22*, F12.23, F12.25*, F12.28*, F12.29, F13.10, F13.11, F13.1**, F13.14, F13.15*, F13.18*, F13.19, F13.20, F13.21, F13.22*, F13.23*, F13.24, F13.25*, F13.26, F13.27, F13.28*, F13.29, F14.10, F14.11, F14.12*, F14.13, F14.14, F14.15*, F14.18*, F14.19, F14.20, F14.21, F14.22*, F14.23, F14.24, F14.25*, F14.28*, F14.29, F15.10, F15.11, F15.12*, F15.13, F15.14, F15.15*, F15.18*, F15.19, F15.20, F15.21, F15.22*, F15.23, F15.24, F15.25*, F15.28*, F15.29, F16.10, F16.11, F16.12*, F16.14, F16.15*, F16.18*, F16.19, F16.20, F16.21, F16.22*, F16.24, F16.25*, F16.28*, F16.29, F18.10, F18.11, F18.12*, F18.14, F18.15*, F18.17, F18.18*, F18.19, F18.20, F18.21, F18.22*, F18.25*, F18.27, F18.28*, F18.29, F19.10, F19.11, F19.12*, F19.13*, F19.14, F19.15*, F19.16, F19.17, F19.18*, F19.19, F19.20, F19.21, F19.22*, F19.23*, F19.24, F19.25*, F19.26, F19.27, F19.28*, F19.29

SOURCE: Information from World Health Organization, 2022.

NOTE: * indicates all values of that digit.

Survey Sampling and Weighting

This appendix provides details on survey sampling and weighting procedures.

Survey Sampling

As described in Chapter 2, eligible participants included active-component soldiers, age 18 to 64 years old, who had received at least three eligible BH specialty care outpatient treatment visits at an MTF during the most recent three months for which data were available at the time of sampling (January 1, 2022–March 31, 2022). To ensure that the sample included sufficient diversity in the experience of VBH, eligible soldiers were sampled from three strata (or groups) based on their experiences receiving VBH in the past three months: VBH only, in-person BH care only, or both VBH and in-person BH care. Table B.1 provides the number of eligible soldiers in each stratum, the sampling rate in each, and the sample size. The rate at which we sampled soldiers from those three populations (VBH only, in-person BH care only, or both VBH and in-person BH care) varied based on the size of the population. For example, we sampled all soldiers in the VBH-only group to ensure that an adequate number of soldiers could tell us about their experiences with VBH. For the in-person, BH-only population, we sampled at a much lower rate because they make up the largest group of soldiers. These rates provided us with sufficient statistical power to detect small-to-medium effect size differences between our three groups.

Nonresponse Analysis

Table B.2 presents the response rates overall and by sampling strata broken down by key sociodemographic and military characteristics. These response rates are not the same as those reported in Chapter 2, which follow the American Association for Public Opinion Research rules for computing response rates. Instead, the response rates in Table B.2 were computed by taking the number of respondents within a stratum and dividing by the size of the sampled stratum. Here, a respondent was considered to be any individual who consented and started the survey. This includes individuals who (1) consented and completed 80 percent of the questions in the survey ($N = 419$), (2) consented and completed less than 80 percent of the questions ($n = 23$), and (3) consented but were excluded from the survey based on their eligibility ($n = 40$).

TABLE B.1
Eligible Soldiers in the Population and Sampling by Type of Behavioral Health Care

	VBH Only	In-Person BH Only	In Person and VBH	Total
Eligible soldiers	313	6,953	2,280	9,546
Sampling rate (%)	100.0	9.3	28.2	16.8
Sample size	313	644	643	1,600

TABLE B.2
Raw Response Rate by Sampling Strata and Overall

Characteristic	Response Rate (%)
Overall	30.1
Strata	
VBH only	31.9
In-person BH only	28.9
In-person and VBH	30.5
Gender	
Female	29.8
Male	30.3
Race and ethnicity	
Hispanic	30.7
White, non-Hispanic	31.5
Black, non-Hispanic	26.4
Other	33.6
Marital status	
Married	32.1
Divorced, separated, or widowed	31.5
Never married	25.5
Age***	
18–24 years	21.7
25–34 years	29.3
35–44 years	35.8
45–64 years	40.3
Rank**	
C-1, E-1–E-4	23.8
E-5–E-6	30.5
E-7–E-9	35.9
O-1–O-9, W-1–W-5	36.6
Region	
Northeast or Midwest	28.0
South Atlantic	31.8
East South Central	29.5
West South Central	28.6
West	28.3

NOTE: ** $p < 0.01$, *** $p < 0.001$ based chi-squared test of the difference in response rates within each characteristic. C = cadet, E = enlisted, O = officer.

As shown, there were only a few notable factors upon which responders and nonresponders in the survey differed. Black non-Hispanic soldiers had slightly lower response rates than other race and ethnicity groups (26.4 percent versus >30 percent in the other groups). As expected, there were strong trends in response rates related to age, with older soldiers having much higher response rates than the youngest age group (40.3 percent versus 21.7 percent). Relatedly, higher-ranking soldiers and those who were married were also more likely to respond. Considering these findings, we proceeded to estimate the weights for this study, described in the next section.

Survey Weighting

Survey weights were developed to support generalization from the study sample to the population of soldiers receiving BH care. The weighting process accounted for the probability of selection of the soldier into the survey and for the probability that a soldier responded to the survey after being sampled. For this analysis, soldiers who completed over 80 percent of the survey items were considered responders ($N = 419$). The non-response adjustment is important to account for differential response by characteristics, such as race and ethnicity, age, rank, and marital status, and to ensure that the final weighted sample matched the characteristics of our target population.

To implement this process, we performed three steps:

1. Compute sample selection weights: This is the inverse probability of selection into the survey sample.
2. Compute survey nonresponse weights: This is the inverse of the modeled probability of a soldier completing this survey. These weights were generated using a logistic regression model predicting the probability of response on the set of characteristics (i.e., gender, race and ethnicity, age, rank, marital status, and region).
3. Compute final weights: The final weights are the product of the sampling selection and nonresponse weights.

Table B.3 shows our analytic sample in comparison with the target population before and after application of the weights. We obtained data on our target population by using administrative data from January 2022 through March 2022. Before weighting, our analytic sample was more likely to be female, and less likely to be Black, non-Hispanic, older and of higher rank, and married than the target population. After weighting, our analytic sample looked very close to the target population of interest in this study.

Considerations in Survey Weighting

Preliminary analyses identified differences in soldiers' receipt of VBH between the administrative data, on which the sample strata were defined, and the survey responses. For instance, several soldiers who had not had any VBH when sampled, according to administrative records, reported that they had received VBH in the past six months at the time that we conducted the survey. Differences could have arisen because of errors in the administrative data, soldiers' inaccurate reporting due to recall error, or VBH care that occurred between the time of the sampling and the time of the survey. These differences raised concerns about our original weighting strategy, which, following a classic design, involved weighting the sample to the original sample strata based on the administrative data.

We explored an alternative weighting strategy that would use a generalizability weight to weight our final analytic sample back to the target population characteristics shown in Table B.3. We estimated this generalizability weight and compared our findings with the more classic design weighting above that controls

TABLE B.3
Comparison of Our Analytic Sample with Target Population Before and After Weighting

Characteristic	Target Population (%)	Unweighted Analytic Sample (%)	Weighted Analytic Sample (%)
Gender			
Female	25.2	28.4	26.1
Male	74.8	71.6	73.9
Race and ethnicity			
Hispanic	16.1	16.0	14.7
White, non-Hispanic	50.0	50.8	50.2
Black, non-Hispanic	27.6	23.9	25.9
Other	6.3	9.3	9.2
Marital status			
Married	59.2	65.2	61.7
Divorced, separated, or widowed	9.8	10.5	9.2
Never married	31.0	24.3	29.1
Age group			
18–24 years	30.5	18.4	28.7
25–34 years	35.3	34.6	34.2
35–44 years	26.6	34.6	27.5
45–64 years	7.6	12.4	9.6
Rank			
C-1, E-1–E-4	40.6	27.9	38.0
E-5–E-6	26.0	27.0	24.9
E-7–E-9	18.3	23.6	21.7
O-1–O-9, W-1–W-5	15.1	21.5	15.4
Region			
Northeast or Midwest	8.1	7.6	8.6
South Atlantic	44.9	49.2	39.5
East South Central	11.6	10.7	11.6
West South Central	23.1	22.2	26.3
West	12.3	10.3	14.0

NOTE: C = cadet, E = enlisted, O = officer.

for selection and nonresponse. The procedures yielded highly similar results, so we opted to stick with the weighting that adjusts for both our sampling design and nonresponse to adhere fully to the central study design used in this study. Ultimately, we had two key concerns about use of the generalizability weights that drove this decision. First, estimation of the generalizability weights depends critically on how we select

the target population from administrative data. The weights were highly sensitive to decisions about which population should be considered the target, making our analysis potentially unstable. Second, the statistical power was slightly greater using the design weights.

Post Hoc Power

Prior to conducting the study, we anticipated comparisons across the three groups defined by the sample strata, i.e., those who received VBH only, those who received in-person care only, and those who received a mixture of VBH and in-person care. However, the sizes of these groups based on the survey responses differed from the sizes of the groups based on the administrative data that were used for sampling. To accommodate the actual distribution of VBH in the sample, we decided to focus on a two-group comparison between those who had any experience with VBH and those who had no experience with VBH. We performed post hoc power calculations that incorporated the design effect of the weights (1.58) and the observed weighted proportion of individuals receiving any VBH (~50%) to determine that we were powered to detect medium effect size differences between our two groups of size 0.38 for continuous measures.

Development of Survey Domains and Items

In this appendix, we describe the process we used to develop the survey and provide additional details about each survey domain and associated items. We describe the development process, source, and rationale for inclusion of individual items within each of the survey domains. The survey is provided in Appendix D.

Survey Development Process

To develop the survey, we began by identifying domains related to VBH that would be most useful to the Army in making policy decisions and reviewing the existing literature on telehealth to identify potential measurement strategies for assessing these domains, including specific survey items that had been used successfully in prior studies. The process of identifying domains was informed by discussions with our sponsor. Eight domains, which are described below, were identified. To develop the individual items within each domain, we started by listing items from survey instruments that have been used in the peer-reviewed literature. Wherever possible, we used items from validated instruments. However, in most cases we were not able to identify existing items that fit the needs of the survey. In these cases, we modified existing items, developed new items modeled on existing items, or developed new items. For instance, item response formats were modified so that a group of items had a consistent format. In the sections below, we describe how the items for each domain were developed.

The survey included 70 total items, but soldiers answered slightly different numbers of items, depending on their experience with VBH. Specifically, there were 63 applicable items for soldiers who received only VBH in the past six months, 51 applicable items for soldiers who received only in-person BH care, and 68 applicable items for soldiers who received both VBH and in-person BH care.

Survey Items by Domain

The survey included several domains designed to assess perceptions of receiving BH care and the role of VBH. Table C.1 provides an overview of survey domains, associated items, and eligible respondents for items (e.g., soldiers who received any VBH, any in-person BH visits).

Eligibility Screening

To verify eligibility for the survey, we included a single item to assess receipt of any BH care from an MTF in the past six months. BH care was defined for respondents as “any counseling, treatment, or medication you receive for a stress-related or psychological problem, such as anxiety, depression, trauma, or use of alcohol or drugs.” Soldiers who indicated no BH service use in the past six months were determined to be ineligible for the survey; they answered no additional questions.

TABLE C.1
Survey Content and Sources

Domain	Topics Assessed	Items	Source	Respondents	Number of Items
Eligibility and utilization of BH care in past 6 months	Received BH care	Received BH care from an MTF in past 6 months	RAND	All	1
	All BH visits	Number of BH visits	RAND	All	1
	In-person BH visits ^a	Number of in-person BH visits	RAND	All	2
	In-person medication visits ^a	Number of in-person BH visits for medication	RAND	Any in-person BH visits ^b	2
	In-person psychotherapy visits ^a	Number of in-person BH visits for counseling or psychotherapy	RAND	Any in-person BH visits	2
	VBH visits ^a	Number of VBH visits	RAND	All	2
	VBH medication visits ^a	Number of VBH visits for medication	RAND	Any VBH	2
	VBH psychotherapy visits ^a	Number of VBH visits for counseling or psychotherapy	RAND	Any VBH	2
Experience of BH care in past 6 months	Any private-sector BH care	Received BH care from community providers	RAND	All	1
	Access	Ability to get appointments when desired	Adapted from CAHPS ECHO	All	1
	Convenience	Ability to make it to appointments	RAND	All	1
	Interpersonal quality	Ability of provider to listen and explain	Adapted from CAHPS ECHO	All	2
	Quality	Provider gives information on how to manage condition	Adapted from CAHPS ECHO	All	1
	Privacy	Concern about privacy during appointments	Adapted from CAHPS ECHO	All	1
	Shared decisionmaking	Patient involvement in treatment plan decisions	Adapted from "Client Satisfaction and Experience with Telepsychiatry"	All	1
	Working alliance	Provider and patient have a good relationship, work toward common goals, and agree on best approaches	BHDP (VA/DoD Therapeutic Alliance and Patient Satisfaction Items)	All	3
Helpfulness	Helpfulness	How much did the BH care help?	Adapted from CAHPS ECHO	All	1

Table C.1—Continued

Domain	Topics Assessed	Items	Source	Respondents	Number of Items
	Global rating of BH care	Ratings of all military BH care	Adapted from CAHPS ECHO	All	3
		Ratings of in-person military BH care		Any in-person BH visits	
		Ratings of military VBH care		Any VBH	
Experience of VBH care in past 6 months	Type of VBH	Use of video visits, audio visits, or both	RAND	Any VBH	1
	VBH technology	Technology used when receiving VBH	RAND	Any VBH	1
	VBH location	Patient location when receiving VBH	RAND	Any VBH	1
	Technology	Technology was easy to use, trusted to work, and had good sound and video quality	Adapted from TSUQ/RAND	Any VBH ^c	4
	Provider VBH competence	Provider struggled with technology	RAND	Any VBH	1
	Privacy	Satisfaction with privacy during VBH	Adapted from Telehealth Satisfaction Scale	Any VBH	1
	Connection issues	Connection during visit was slow or got disconnected	RAND	Any VBH	2
	Interpersonal quality	Provider understood patient's concerns	Adapted from Client Satisfaction and Experience with Telepsychiatry	Any VBH	1
	Shared decisionmaking	Patient involvement in treatment plan decisions	Adapted from Client Satisfaction and Experience with Telepsychiatry	Any VBH	1
Reasons for not receiving VBH care in past 6 months	Satisfaction	Satisfaction with VBH visits	RAND	Any VBH	1
	Offered VBH	Was VBH an option for BH care?	RAND	Only in-person BH visits ^d	1
	Reasons for no VBH	Reasons contributing to deciding against VBH	RAND	Only in-person BH visits ^d	1
Perceptions of VBH care	Privacy	Difficulty finding a private location and concerns about security of the connection	RAND	All	2
	Technology	Concerns about not having the needed equipment or a quality connection	RAND	All	2

Table C.1—Continued

Domain	Topics Assessed	Items	Source	Respondents	Number of Items
	Cost	Concerns about the time spent on the phone	RAND	All	1
	Audio vs. video	Comfortability of having either an audio-only or video session	RAND	All	2
Comparison of VBH and in-person care	Effectiveness	VBH is as effective as in-person visits	Adapted from Client Satisfaction and Experience with Telepsychiatry	All	1
	Convenience	VBH visits are more effective and save time	Adapted from TSUQ	All	4
		VBH takes less time away from duties and is less likely to be missed	RAND	All	
	Clinical appropriateness	As comfortable receiving VBH no matter how bad symptoms are	RAND	All	1
	Privacy	Soldiers are less likely to find out about VBH treatment	RAND	All	1
Importance of VBH options	VBH option	VBH allows appointments when patients prefer	RAND	All	1
	VBH from home	Ability to see provider while at home	RAND	All	1
	VBH from work	Ability to see provider while at work	RAND	All	1
	Family	Ability to involve family in care	RAND	All	1
	Continuity of care	Ability to continue care with the same provider through deployment and travel to different geographic locations	RAND	All	2
Respondent characteristics	Demographics	Type of housing	Adapted from HRBS	All	1
	Demographics	Race, ethnicity, education, and marital status	RAND	All	4

NOTE: Survey items generally used the term *telehealth* rather than *VBH*. CAHPS ECHO = Consumer Assessment of Healthcare Providers and Systems Experience of Care and Health Outcomes survey; TSUQ = Telemedicine Satisfaction and Usefulness Questionnaire.

^a Nonresponders received a follow-up prompt, which is reflected in the survey items count.

^b “Any in-person visits” refers to respondents who reported receiving in-person BH visits only or a combination of both VBH and in-person BH visits. “Any VBH” refers to respondents who reported receiving VBH only or a combination of both VBH and in-person visits.

^c The item pertaining to video quality was asked only of the subset of respondents with any VBH who reported receiving video visits.

^d Items pertaining to reasons for not receiving VBH in the past six months were asked only of respondents who reported receiving no VBH visits.

Utilization of Behavioral Health Care

To assess specific information about receipt of VBH and in-person BH care at MTFs, we developed 14 survey items that ask about the number and types of BH visits received in the past six months (i.e., VBH versus in-person visits, psychotherapy versus medication).¹ Soldiers who indicated that they had received any BH care from an MTF in the past six months were asked how many total BH visits they had, how many were primarily for psychotherapy or medication management, and how many were VBH or in person. A visit was defined as a scheduled appointment with a clinician for BH care. VBH was defined as a visit by video or telephone conducted either in a clinic or at another location (e.g., the patient's home). A visit for psychotherapy was defined as a visit focused on "talk therapy" (with or without a received prescription for medication). A visit for medication treatment was defined as a visit in which a prescriber gave a prescription for a new medication or a medication refill or checked on how the patient was doing on their current medication. If an item was skipped or if the soldier was unable to answer, we prompted with a binary follow-up question asking whether *any* of the type of treatment in question was received. Responses to these utilization items were used to determine whether the soldier received any VBH, any in-person BH care, or a mix of VBH and in-person BH care in the past six months and to inform how the soldier progressed through the branching logic on subsequent survey items.

Last, we asked whether participants had received BH care from TRICARE providers in the community.

Experience of Receiving Behavioral Health Care

We asked all soldiers about their experiences receiving BH care in order to make comparisons between soldiers who received VBH and those who received only in-person BH visits. Key constructs in this section included convenience of accessing care, provider-patient working alliance, perceived quality of care, privacy, and shared decisionmaking. The survey included 14 items on experiences receiving BH care in this section, but soldiers who had received VBH only or in-person BH care only were each asked a subset of 13 items. Nine of the items in this section were modeled after or adapted from the Experience of Care and Health Outcomes (ECHO) survey, which is part of the CAHPS family of surveys (Daniels et al., 2004). To modify these items for our survey, we changed the look-back period from 12 months to six months and changed the terminology in both the survey items and the instructions to make the language consistent with our survey (e.g., replacing *counseling or treatment* with *behavioral health care*). For some items, we changed the response format or altered the text to better align with language used in other parts of the survey. The first five of these adapted CAHPS ECHO items were structured to provide soldiers with four response options ranging from "never" to "always." We also developed one RAND item to assess convenience of accessing care, and we adapted one item on shared decisionmaking from "Client Satisfaction and Experience with Telepsychiatry" (Serhal et al., 2020). For both of these items, we used the same question stem ("In the past 6 months, how often") and response options (ranging from "never" to "always") as the adapted CAHPS ECHO items.

To assess soldiers' perceptions of the patient-provider relationship, we used three items from the Working Alliance Inventory that are currently used in the BHDP to assess experiences of working with BH provider(s) (Horvath and Greenberg, 1989). For each of these items, respondents were asked to assess their relationship with their provider on a scale of 0 to 10. We also included one item adapted from CAHPS ECHO to assess how much soldiers said that they were helped by their BH care, with a four-point response scale ranging from "Not at all" to "A lot." Last, we adapted three CAHPS ECHO items to assess global ratings of BH care: one for all BH care, one for VBH care, and one for in-person BH care. To adapt these items, we changed the

¹ We included eight items to capture soldiers' use of outpatient BH care, and nonresponders to six of these items received a follow-up prompt, which is reflected in the total survey items count of 14 for this section.

terminology to make the language consistent with our survey (e.g., replacing *health care* with *military behavioral health care*). For the items related to VBH and in-person care, we added language to each survey item to ask specifically about soldier ratings of that particular type of care. For all three of the global rating items, respondents who reported receiving each type of care were asked to assess the care they received on a scale of 0 to 10.

Experience of Receiving Virtual Behavioral Health Care

The survey included 14 items on soldier experiences receiving VBH care, asked only of soldiers who reported at least one VBH visit. We developed three items with a check-all-that-apply response format to assess the types of VBH visits soldiers had with respect to modality (e.g., video, telephone), technology used (e.g., computer, telephone), and visit location (e.g., home, work). Remaining items in this section assessed perceptions of the technology used for VBH visits and perceptions of the quality of VBH. To assess perceptions of technology, we adapted two items from the Telemedicine Satisfaction and Usefulness Questionnaire pertaining to ease of use and trust in technology, making minor changes to terminology (e.g., replacing *telemedicine equipment* with *technology*) (Bakken et al., 2006). We also adapted one additional item from the Telehealth Satisfaction Scale regarding protection of privacy, modifying the item to probe specifically about satisfaction (i.e., “I was satisfied with how”) and removing language that was specific to video visits (Wynn, 2021). We developed five items to evaluate sound quality, video quality, provider telehealth competence, and connection issues. The item related to video quality was asked only if the respondent indicated that they had received video visits. To assess perceptions of the quality of VBH care, we adapted two items from the Client Satisfaction and Experience with Telepsychiatry scale pertaining to interpersonal quality and shared decisionmaking (Serhal et al., 2020), making minor changes to terminology (i.e., replacing *psychiatrist* with *provider*). We developed one item assessing overall satisfaction with VBH visits. All items in this section of the survey used five-point Likert response options ranging from “strongly agree” to “strongly disagree.”

Reasons for Not Receiving Virtual Behavioral Health Care

Among respondents who reported no experience with VBH, we asked about the reasons for not receiving any BH care by VBH. Since no relevant items were identified in existing surveys, we developed two items. The first item asked respondents to indicate whether they had ever been offered VBH (video and/or audio visits) in the past six months (“yes,” “no,” or “don’t know”). The second item was asked only if soldiers reported that they were offered VBH in the past six months and included a check-all-that-apply list of response options of reasons that went into the respondent’s decision not to receive VBH (e.g., no appointments available, preferred to receive care in person, did not have the needed equipment). To avoid bias due to the tendency of respondents to select the first items from a list, the order of response options for this second item was randomized, retaining “other reason” as the last option.

Perceptions of Virtual Behavioral Health

We developed seven items that assessed perceptions of VBH with respect to privacy, technology, cost, comfort with audio visits, and the importance of a video connection in all soldiers, regardless of whether they had received VBH or not. Response options were on a five-point Likert scale ranging from “strongly agree” to “strongly disagree.”

Comparison of Virtual Behavioral Health and In-Person Care

We included seven items in which soldiers were asked to compare VBH with in-person care, regardless of whether the respondent had received VBH. We used a combination of items from existing validated scales and items developed for this survey. To evaluate perceptions of the relative effectiveness of VBH, we adapted an item from the Client Satisfaction and Experience with Telepsychiatry (Serhal et al., 2020). To adapt this item, we revised the terminology (i.e., replacing *telepsychiatry* with *telehealth visits*) and shortened it (i.e., removing comparison language, “as an in-person psychiatry appointment,” given that instructions in this section prompted respondents to compare VBH with in-person care). To evaluate perceptions of the convenience and time savings of VBH relative to in-person visits, we adapted two items from the Telemedicine Satisfaction and Usefulness Questionnaire (TSUQ), shortening one item and modifying terminology (e.g., changing *video* to *telehealth*) for both items. We also developed two items to assess other dimensions of convenience, including the likelihood of missing an appointment by VBH and the time away from military duties for VBH visits. To assess soldier perceptions of privacy and clinical appropriateness, focusing on issues of specific concern to the Army (e.g., time away from military duties), we developed two items. Response options for all items were on a five-point Likert scale ranging from “strongly agree” to “strongly disagree.”

Importance of Virtual Behavioral Health Treatment Options

We included six items that asked soldiers about the importance of various treatment options, focusing on issues that could inform Army or DHA policy. These items were asked of all respondents. Because our literature review did not identify any appropriate existing survey items, we developed six items regarding the timing of the visit, the location of the soldier during the visit (option for home or office), the involvement of family members, and the ability to receive VBH to continue seeing the same provider after moving to a new location or to continue receiving treatment while deployed. Response options were on a five-point Likert scale ranging from “not important” to “very important.”

Respondent Characteristics

All soldiers were prompted to answer all five items on demographic and background characteristics. We developed four items to obtain respondent race and ethnicity, education level, and marital status. We included a fifth item to assess respondent housing by adapting the response options for an item from the HRBS, removing parenthetical text (i.e., examples of “other housing”) and merging two of the response options (civilian housing that you own and civilian housing that you rent) (Meadows et al., 2021). To minimize the number of additional demographic questions included in the survey, we obtained administrative data from DHA on respondent gender, age, and region and the DMDC on respondent rank.

Informed Consent and Fielded Survey

This appendix consists the informed consent and fielded survey reprinted verbatim, including instructions for skipping items that did not apply to the respondent.

Soldier Experiences in Receiving Care Survey

Informed Consent

You have been invited to participate in this important survey aimed at improving how the Army provides care to Soldiers for stress-related or psychological problems. You have been invited to participate because you have sought services or received care in the recent past. The Defense Manpower Data Center and Defense Health Agency provided certain information about you and health care you have recently received. This information was used to select you for the survey and to reduce the number of questions we need to ask. This brief survey will ask about your experience of receiving care and your thoughts about receiving some care through video or telephone.

The U.S. Army has asked the RAND Corporation, a non-profit research organization, to lead this study, and Davis Research is working with RAND to conduct the survey.

The survey will take approximately 20 minutes. While there is no direct benefit to you for your participation, our findings could help to improve the care delivered to Soldiers. If you complete the survey during off-duty time, you will be offered a choice of a \$35 Amazon electronic gift card, \$35 Starbucks electronic gift card, or \$35 check as a token of appreciation. You may also complete the survey during duty time, if you decline the gift card incentive.

Your participation in this survey is voluntary. Your participation is not required by your Command or the Army. Your health care will not be impacted if you decide not to participate.

The study's procedures were reviewed and approved by RAND's Human Subjects Protection Committee and the Army Human Research Protection Office. Risks of participation are minimal and include discomfort or breach of confidentiality. You may experience some discomfort in answering questions about the care you received. To minimize discomfort, you can skip questions or stop taking the survey at any time. As with any survey, there is a risk that our confidentiality protections will be breached, resulting in disclosure of survey responses that could cause personal or professional embarrassment. However, the risk of disclosure is minimal due to the difficulty in identifying individuals and the rules that must be followed by the personnel who have access to the data. We will protect the confidentiality of your responses, and only project personnel will have access to the information you provide. RAND will not link your responses on the survey to your name or any other information that could identify you. RAND will not include any participant names or other potentially identifying information in any reports. To ensure that no individual participant can be identified, study reports will present results only for groups of 5 or more individuals. Representatives of the DoD are authorized to review our research records.

If you have questions about this study, you may contact Dr. Kimberly Hepner at (310) 393-0411 ext. 6381 or KimberlyHepner@soldiersurvey.org.

If you have questions about your rights as a research participant or need to report a research-related injury or concern, you can contact RAND's Human Subjects Protection Committee toll-free at (866) 697-5620 or by emailing hspcinfo@rand.org. If possible, when you contact the Committee, please reference Study # 2021-N0210.

Please indicate whether you consent to participate in this study.

☐ Yes, I agree to participate.

☐ I do not want to participate in this study, and I would like to exit the survey now.

Survey Items

Behavioral Health Care Eligibility Screener (S)

In this survey, we ask about behavioral health care that you received from a military treatment facility. Behavioral health care means counseling, treatment, or medication you receive for a stress-related or psychological problem, such as anxiety, depression, trauma, or use of alcohol or drugs.

S01. Have you received any behavioral health care from a military treatment facility in the past 6 months?

☐ Yes

☐ No

(If S01 = Yes, continue onto UB01. If S01 = No, display message "Thank you for your time, but you are not eligible to participate in this survey.")

(For all subsequent items, allow respondents to skip any item. WEB: Display a warning message the first time a question is left blank. If left blank again, respondent can proceed without responding.)

(The following items are for all respondents.)

Utilization of Behavioral Health Care (UB)

This survey focuses on visits for behavioral health care. By 'visit' we mean a scheduled appointment with a clinician for behavioral health care. People have behavioral health care visits in person with a provider or by telehealth. By telehealth, we mean visits by video or telephone. For a telehealth visit you can be in a clinic or at another location, such as your own home.

UB01. Thinking about ALL your behavioral health care visits with providers at military treatment facilities or clinics, what is the total number of visits you had in the past 6 months? Include ALL visits, including both in-person and telehealth visits. Give your best estimate. ____

(If this question is skipped, remind participants they can provide their best estimate.)

UB02. Of the [total number of] behavioral health visits you received in the past 6 months, how many were in-person with a provider? Exclude video or phone telehealth visits. Give your best estimate ____

(If this question is skipped, remind participants they can provide their best estimate.)

(If UB02 is skipped, then proceed to UB02a.)

UB02a. Of the [total number of] behavioral health visits you received in the past 6 months, were any in-person with a provider?

- ☐ Yes
☐ No

(If UB02 is 0 or UB02a is No, then skip to UB05.)

The next questions are about the types of in-person behavioral health visits you had. Behavioral health visits can be for medication treatment or for counseling or psychotherapy. A visit for medication treatment is one in which a prescriber gives a prescription for a new medication or medication refill, or checks how you are doing on your current medication. A visit for counseling or psychotherapy is focused on “talk therapy,” though you may also receive prescriptions for medication at the same time.

UB03. Of those [number of visits in person] in-person behavioral health visits you had in the past 6 months, how many were primarily for medication treatment? Give your best estimate ____

(If this question is skipped, remind participants they can provide their best estimate.)

(If UB03 is skipped, then proceed to UB03a.)

UB03a. Of those [number of visits in person] in-person behavioral health visits you had in the past 6 months, were any primarily for medication treatment?

- ☐ Yes
☐ No

UB04. Of those [number of visits in person] in-person visits, how many were primarily for counseling or psychotherapy? These are visits that are focused primarily on “talk therapy.” Give your best estimate ____

(If this question is skipped, remind participants they can provide their best estimate.)

(If UB04 is skipped, then proceed to UB04a.)

UB04a. Of those [number of visits in person] in-person visits, were any primarily for counseling or psychotherapy?

- ☐ Yes
☐ No

The next set of questions ask only about your behavioral health visits that you received by telehealth in the past 6 months, including visits for medication treatment and counseling or psychotherapy. By telehealth, we mean visits by video or telephone. For a telehealth visit you can be in a clinic or at another location, such as your own home.

UB05. Of the [total number of visits] behavioral health visits you received in the past 6 months, how many were telehealth visits? Include video or phone telehealth visits. Give your best estimate ____

(If this question is skipped, remind participants they can provide their best estimate.)

(If UB05 is skipped, then proceed to UB05a.)

(If UB05 = 0 or UB5a = No, then proceed to UB08.)

UB05a. Of the [total number of visits] behavioral health visits you received in the past 6 months, were any telehealth visits?

☐ Yes

☐ No

(If UB01 = 0, or UB02 = 0/UB02a = No and UB05 = 0/UB05 = No, display message “Thank you for your time, but you are not eligible to participate in this survey.”)

(If UB02 is 0 or UB02a is No, include the text below before proceeding to UB06.)

The next questions are about the types of behavioral health visits you had by telehealth. Behavioral health visits can be for medication treatment or for counseling or psychotherapy. A visit for medication treatment is one in which a prescriber gives a prescription for a new medication or medication refill, or checks how you are doing on your current medication. A visit for counseling or psychotherapy is focused on “talk therapy,” though you may also receive prescriptions for medication at the same time.

UB06. Of those [number of telehealth visits] video or phone visits, how many were primarily for medication treatment? Give your best estimate ____

(If this question is skipped, remind participants they can provide their best estimate.)

(If UB06 is skipped, then proceed to UB06a.)

UB06a. Of those [number of telehealth visits] video or phone visits, were any primarily for medication treatment?

☐ Yes

☐ No

UB07. Of those [number of telehealth visits] video or phone visits, how many were primarily for counseling or psychotherapy? Give your best estimate ____

(If this question is skipped, remind participants they can provide their best estimate.)

(If UB07 is skipped, then proceed to UB07a.)

UB07a. Of those [number of telehealth visits] video or phone visits, were any primarily for counseling or psychotherapy?

☐ Yes

☐ No

UB08. Prior questions asked about behavioral health care at military treatment facilities or clinics. Did you receive behavioral health care from TRICARE providers in the community?

☐ Yes

☐ No

Experience of Receiving Behavioral Health Care (RB)

The next few questions are about all the behavioral health care that you have received over the past 6 months with providers at military treatment facilities. Behavioral health care includes counseling, treatment, or medication for stress-related or psychological problems, such as anxiety, depression, trauma, or alcohol problems.

RB01. In the past 6 months, how often did you get an appointment for behavioral health care as soon as you wanted?	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Usually <input type="checkbox"/> Always
RB02. In the past 6 months, how often were you able to make it to your behavioral health care appointments with your provider?	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Usually <input type="checkbox"/> Always
RB03. In the past 6 months, how often did you feel that the provider you went to for behavioral health care listened carefully to the concerns you wanted to address?	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Usually <input type="checkbox"/> Always
RB04. In the past 6 months, how often did the provider you went to for behavioral health care explain things in a way you could understand?	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Usually <input type="checkbox"/> Always
RB05. In the past 6 months, how often were you given the information you needed about what you could do to manage your behavioral health condition?	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Usually <input type="checkbox"/> Always
RB06. In the past 6 months, how often were you concerned about privacy during your appointments with your behavioral health provider?	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Usually <input type="checkbox"/> Always
RB07. In the past 6 months, how often did you feel like you were involved in the decisions regarding your treatment plan?	<input type="checkbox"/> Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Usually <input type="checkbox"/> Always

The next few questions are about all the military behavioral health care you have received in the past 6 months.

On a 0–10 point scale, with 0 being Never and 10 being Always, please rate how often the following statements describe how you feel about your behavioral health providers.

(WEB: Display as 0-10 with radio buttons and labels on 0 and 10.)

RB08. My provider(s) and I have a good relationship and work well together.	[enter number, 0–10: ____]
RB09. My provider(s) and I are working towards mutually agreed upon goals.	[enter number, 0–10: ____]
RB10. My provider(s) and I agree upon the best approach for addressing my problems.	[enter number, 0–10: ____]
RB11. In the past 6 months, how much were you helped by the <u>behavioral health care</u> that you received?	<input type="checkbox"/> Not at all <input type="checkbox"/> A little <input type="checkbox"/> Somewhat <input type="checkbox"/> A lot

RB12. Using any number from 0 to 10, where 0 is the worst behavioral health care possible and 10 is the best behavioral health care possible, what number would you use to rate ALL your military behavioral health care in the past 6 months? _____

(If UB02≥1 or UB02a = Yes, display RB13. If UB05≥1 or UB05 = Yes, display RB14.)

RB13. Using any number from 0 to 10, where 0 is the worst behavioral health care possible and 10 is the best behavioral health care possible, what number would you use to rate your military behavioral health care in the past 6 months that you received <u>in-person</u> (exclude telehealth visits)? _____
RB14. Using any number from 0 to 10, where 0 is the worst behavioral health care possible and 10 is the best behavioral health care possible, what number would you use to rate your military behavioral health care in the past 6 months that you received through <u>telehealth</u> (exclude in-person visits)? _____

(If UB05 > 0 or UB05a = yes, continue onto RV items, then proceed to skip NV items and continue onto PV items. If UB05 = 0, skip RV and continue onto NV items and PV items.)

Experience of Receiving Virtual Behavioral Health (RV)

The next set of questions are about behavioral health care you received through telehealth in the past 6 months. This includes both video and telephone visits.

RV01. In the past 6 months, what kinds of telehealth visits have you had for behavioral health care?

- ☐ Video
- ☐ Telephone or audio only
- ☐ Both Types

RV02. In the past 6 months, which of the following have you used for telehealth visits for behavioral health care? (check all that apply)

- ☐ A cell phone
- ☐ A home landline
- ☐ A work phone
- ☐ Home computer or tablet
- ☐ Work computer or tablet
- ☐ Clinic computer or tablet
- ☐ Something else. Please specify: _____

RV03. In the past 6 months, where were you when you used telehealth for behavioral health care? (check all that apply)

- ☐ Home
- ☐ Work
- ☐ Clinic or health care facility
- ☐ Public space (like a park or store)
- ☐ Car/vehicle
- ☐ Other location. Please specify: _____

(If RV01 = Telephone or audio only, skip RV07.)

Indicate how much you agree or disagree with each of these statements.	
In the past 6 months, when I used telehealth for a behavioral health visit:	
RV04. The technology was easy to use.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
RV05. I could trust the technology to work correctly.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree

Indicate how much you agree or disagree with each of these statements. In the past 6 months, when I used telehealth for a behavioral health visit:	
RV06. The sound quality was good.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
RV07. The video quality was good.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
RV09. I was satisfied with how my privacy was protected.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
RV10. It took too much time to connect at the beginning of the visit.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
RV11. I was disconnected from the provider in the middle of the visit.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
RV12. The provider understood my concerns.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree

Indicate how much you agree or disagree with each of these statements. In the past 6 months, when I used telehealth for a behavioral health visit:	
RV13. The provider involved me in decisions about my treatment plan.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
RV14. I was satisfied with my visits.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree

Reasons for Not Receiving Virtual Behavioral Health (NV)

The next few questions are about all the military behavioral health care you have received in the past 6 months.

NV01. In the past 6 months, were you offered telehealth for your behavioral health care? Telehealth includes visits by video and telephone.

- ☐ Yes
☐ No
☐ Don't know

(If NV01 = Yes, continue onto NV2, if NV01 = No or Don't know, go onto PV items).

[WEB: Randomize order of options, while retaining Other as the last option.]

NV02. The following list includes reasons why people may decide not to receive telehealth for their behavioral health care. Which of these reasons went into your decision not to receive telehealth? Select all that apply to you.

- ☐ No appointment available
☐ Preferred to receive care in-person
☐ The provider I was seeing was not available through telehealth
☐ Didn't have the equipment needed (e.g., computer, internet connectivity)
☐ Didn't have a comfortable, private place for the visits
☐ Thought I would have trouble communicating with my provider
☐ Other reason. Please specify: _____

Perceptions of Virtual Behavioral Health

<p>PV. People have different opinions about the pros and cons of telehealth for behavioral health care. Indicate how much you agree or disagree with each of these statements.</p> <p>In my opinion, with telehealth...</p>	
PV01. I'd have a hard time finding a private place to be during the visit.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
PV02. I'd be concerned about the security of my connection with the provider.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
PV03. I'd be concerned about having the needed technology or equipment.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
PV04. I'd be concerned about the cost of minutes on my phone.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
PV05. I'd be concerned about the quality of my connection.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
PV06. It would be important to me to have a video connection rather than just a voice connection.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
PV07. I would be as comfortable with an audio-only telehealth session as with one that involves video.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree

Comparison of VBH to In-Person Care

<p>The next questions are about your opinions and preferences about telehealth compared to in-person visits for behavioral health care. Indicate how much you agree or disagree with each of these statements.</p> <p>In my opinion, compared with in-person visits...</p>	
CV01. Telehealth visits are just as effective.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
CV02. Telehealth visits are more convenient.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
CV03. Telehealth visits save time.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
CV04. Telehealth visits take less time away from my military duties.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
CV05. I'd be less likely to miss my appointments if they were telehealth visits.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
CV06. I'm just as comfortable receiving telehealth no matter how bad my symptoms are.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree
CV07. Telehealth makes it less likely that other Soldiers will find out about my treatment.	<input type="checkbox"/> Strongly Agree <input type="checkbox"/> Agree <input type="checkbox"/> Neither Agree nor Disagree <input type="checkbox"/> Disagree <input type="checkbox"/> Strongly Disagree

Importance of Virtual Behavioral Health Options (IVO)

For behavioral health care, how important are each of the following to you?	
IVO01. Having the option to see my provider by telehealth when I prefer.	<input type="checkbox"/> Not Important <input type="checkbox"/> Slightly Important <input type="checkbox"/> Moderately Important <input type="checkbox"/> Important <input type="checkbox"/> Very Important
IVO02. Being able to remain home while I see my provider by telehealth.	<input type="checkbox"/> Not Important <input type="checkbox"/> Slightly Important <input type="checkbox"/> Moderately Important <input type="checkbox"/> Important <input type="checkbox"/> Very Important
IVO03. Being able to see my provider from a private space at work by telehealth.	<input type="checkbox"/> Not Important <input type="checkbox"/> Slightly Important <input type="checkbox"/> Moderately Important <input type="checkbox"/> Important <input type="checkbox"/> Very Important
IVO04. Being able to involve my family in my care by telehealth.	<input type="checkbox"/> Not Important <input type="checkbox"/> Slightly Important <input type="checkbox"/> Moderately Important <input type="checkbox"/> Important <input type="checkbox"/> Very Important
IVO05. Being able to continue to see the same provider through telehealth when I move to a new location.	<input type="checkbox"/> Not Important <input type="checkbox"/> Slightly Important <input type="checkbox"/> Moderately Important <input type="checkbox"/> Important <input type="checkbox"/> Very Important
IVO06. Being able to receive treatment through telehealth when I am deployed.	<input type="checkbox"/> Not Important <input type="checkbox"/> Slightly Important <input type="checkbox"/> Moderately Important <input type="checkbox"/> Important <input type="checkbox"/> Very Important

(The following items are for all respondents.)

Respondent Characteristics (RC)

This last set of questions requests important background and demographic information that will help us to describe the group of respondents to this survey.

RC01. Which of the following best describes where you currently live?

- ☐ Dorms/barracks
- ☐ Military housing ON base/installation
- ☐ Military housing OFF base/installation
- ☐ Civilian housing
- ☐ Some other housing

RC02. Are you of Hispanic or Latino origin or descent?

- ☐ No
- ☐ Yes
- ☐ Prefer Not to Answer

RC03. What is your race? Please select one or more.

- ☐ White
- ☐ Black or African American
- ☐ Asian; Native Hawaiian or Other Pacific Islander
- ☐ American Indian or Alaskan Native
- ☐ None of these (Please describe) _____.
- ☐ Prefer not to answer

RC04. What is the highest level of education you completed?

- ☐ Some high school
- ☐ GED or high school diploma
- ☐ Some college
- ☐ Technical/vocational school
- ☐ College graduate (4-year)
- ☐ Post-graduate
- ☐ Prefer not to respond

RC05. What is your current marital status?

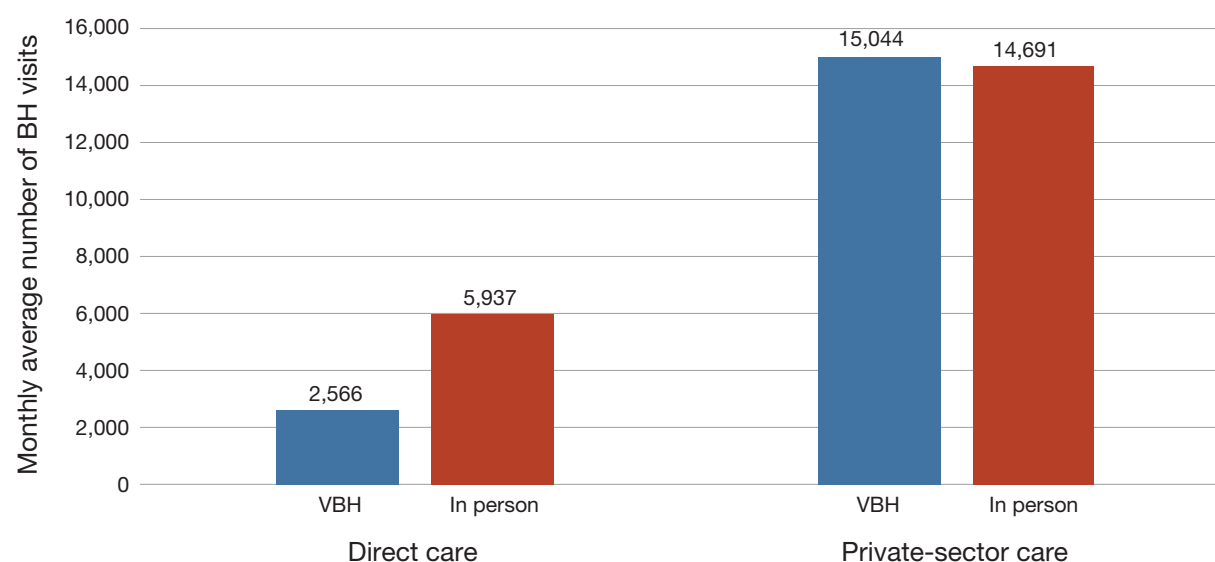
- ☐ Married
- ☐ Living as married
- ☐ Separated
- ☐ Divorced
- ☐ Widowed
- ☐ Never married

Patterns of Receipt of Virtual Behavioral Health Among Spouses

This appendix summarizes administrative data analyses of the receipt of BH care by active-component soldiers' spouses during the six-month period of October 2021–March 2022, in parallel with the findings for soldiers in Chapter 3. The analyses included spouses who received at least one BH visit (any ICD-10 F-code in primary position) in either direct or private-sector care during the period of observation, excluding spouses who were themselves in the active component ($n = 14,141$). Analyses of BH visits included all BH visits (i.e., F-code in the primary or nonprimary position). Figure E.1 shows the monthly average number of BH visits for spouses delivered by VBH and in person for direct care and private-sector care. As expected, but in contrast to soldiers' visits, spouses' visits were more likely to be in private-sector care, where the proportion of BH visits by VBH was higher than direct care.

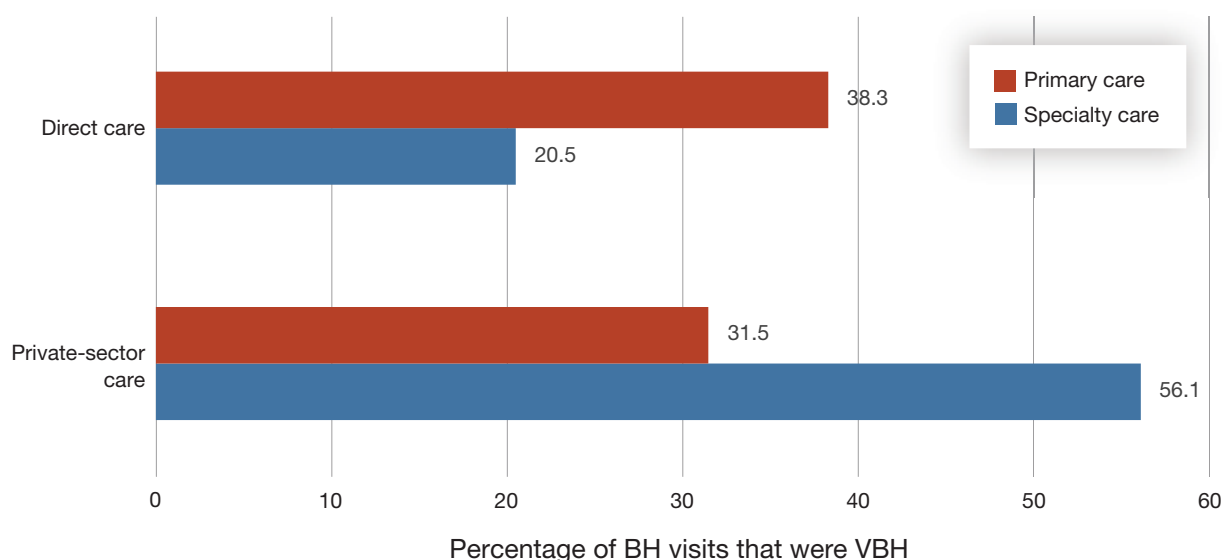
As with soldiers' visits, the proportion of BH visits by spouses that were VBH in primary care and specialty BH settings varied by source of care (Figure E.2). In direct care, BH visits were more likely to be VBH in primary care settings than in specialty care settings (38 percent versus 21 percent). However, in private-sector care, BH visits were more likely to be VBH in a specialty care setting than in a primary care setting (56 percent versus 32 percent).

FIGURE E.1
Monthly Average Number of Virtual Behavioral Health and In-Person Behavioral Health Visits Among Spouses, by Source of Care



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022.

FIGURE E.2

Percentage of Spouses' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Care Setting

NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022. Differences between primary care and specialty care were statistically significant for both direct care and private-sector care ($p < 0.0001$).

The proportion of BH visits that were VBH also varied by provider type and source of care (Figure E.3). For direct care, BH visits were more likely to be VBH when the provider was a primary care provider (38 percent). Similar to findings among soldiers, BH visits in private-sector care were more likely to be VBH when the provider was a clinical psychologist (56 percent) or social worker (61 percent).

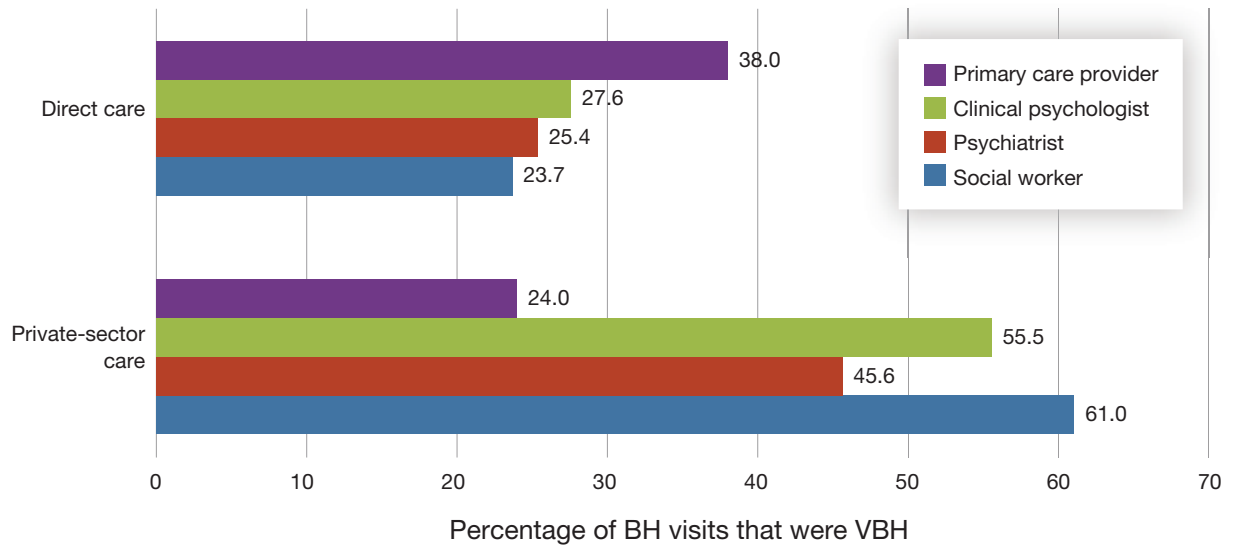
The proportion of BH visits delivered by VBH for spouses also differed by visit type (Figure E.4). Similar to our findings for soldiers, the proportion of visits delivered by VBH in direct care was highest for E&M/medication management visits (37 percent) and lowest for group psychotherapy (3 percent). In private-sector care, the proportion of BH visits that were VBH was highest for individual psychotherapy (59 percent) and group psychotherapy (54 percent). In contrast, the proportion of visits by VBH in private-sector care was lowest for E&M/medication management (42 percent).

Finally, Figure E.5 shows the proportion of BH visits by VBH for spouses by primary diagnosis for direct and private-sector care for the five most common BH diagnoses. For direct care, the proportion of BH visits by VBH was highest for adjustment disorder (39 percent) and anxiety (38 percent) and lowest for PTSD (24 percent) and SUD (26 percent). Spouses' results for private-sector care showed similar patterns to those of soldiers. The proportion of VBH visits was highest for PTSD (58 percent) and anxiety (57 percent) and lowest for SUD (39 percent).

The modality of VBH varied by the source of care (Figure E.6). While most direct care VBH visits were audio, most private-sector care visits (the primary source of care for spouses) were video. Among private-sector care VBH visits, most were video visits for individual therapy (Figure E.7). This is in contrast to results for soldiers, for whom direct care visits (the primary source of care for soldiers) that were VBH were mostly audio and for E&M/medication management. As noted in Chapter 3, results regarding modality of VBH must be viewed in the context of variations in coding guidance and practices among direct care and private-sector care providers.

FIGURE E.3

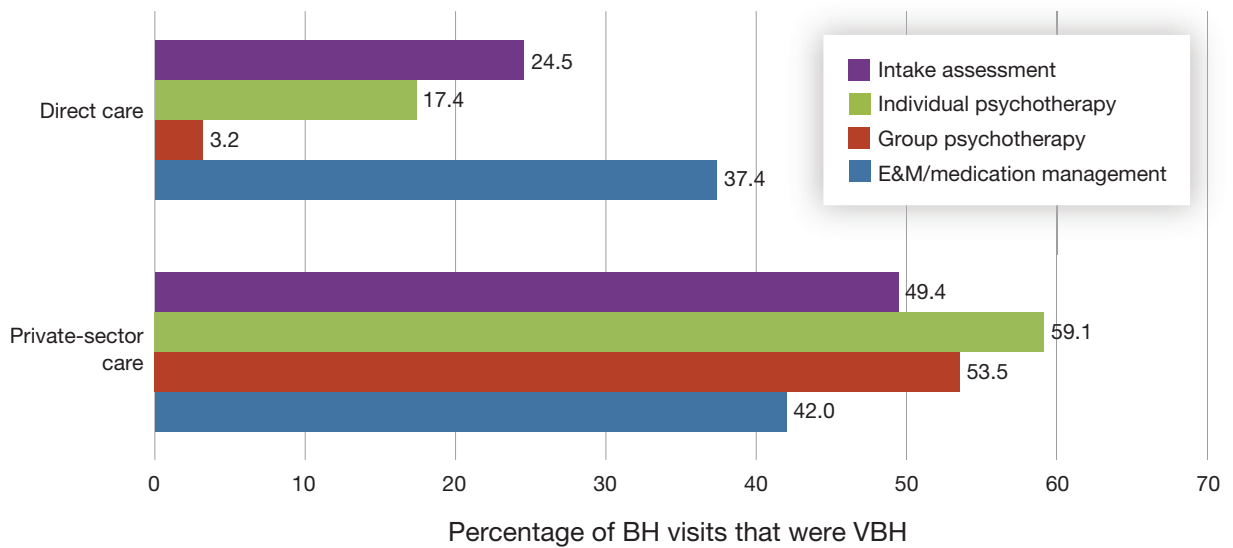
Percentage of Spouses' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Provider Type



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022. Differences by provider type are statistically significant for both direct care and private-sector care ($p < 0.0001$).

FIGURE E.4

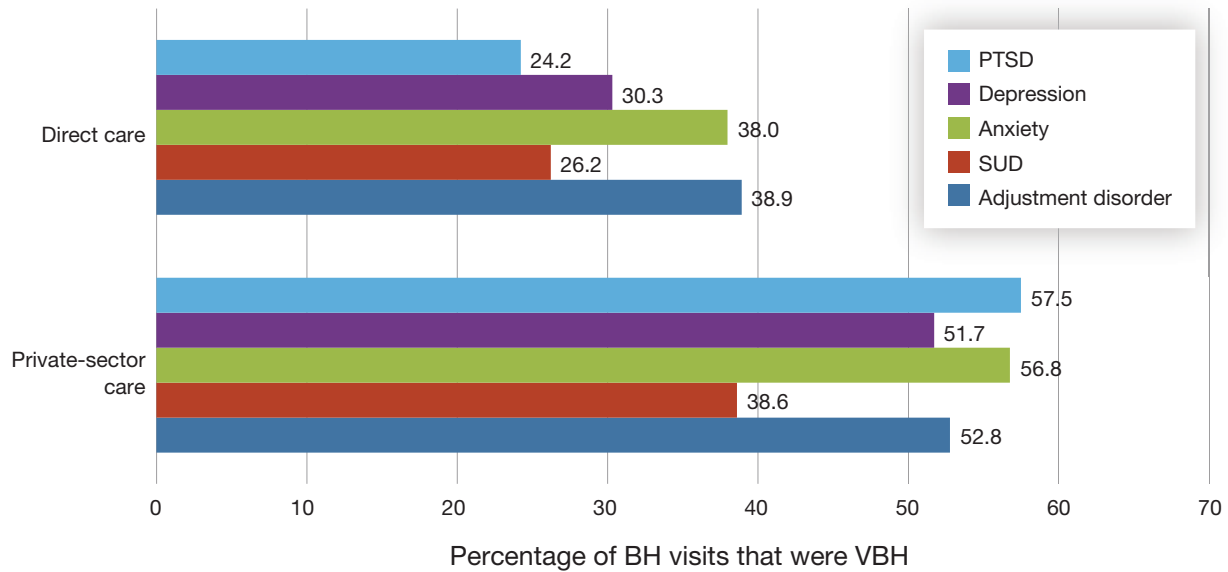
Percentage of Spouses' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Visit Type



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022. Differences by visit type were statistically significant for both direct care and private-sector care ($p < 0.0001$).

FIGURE E.5

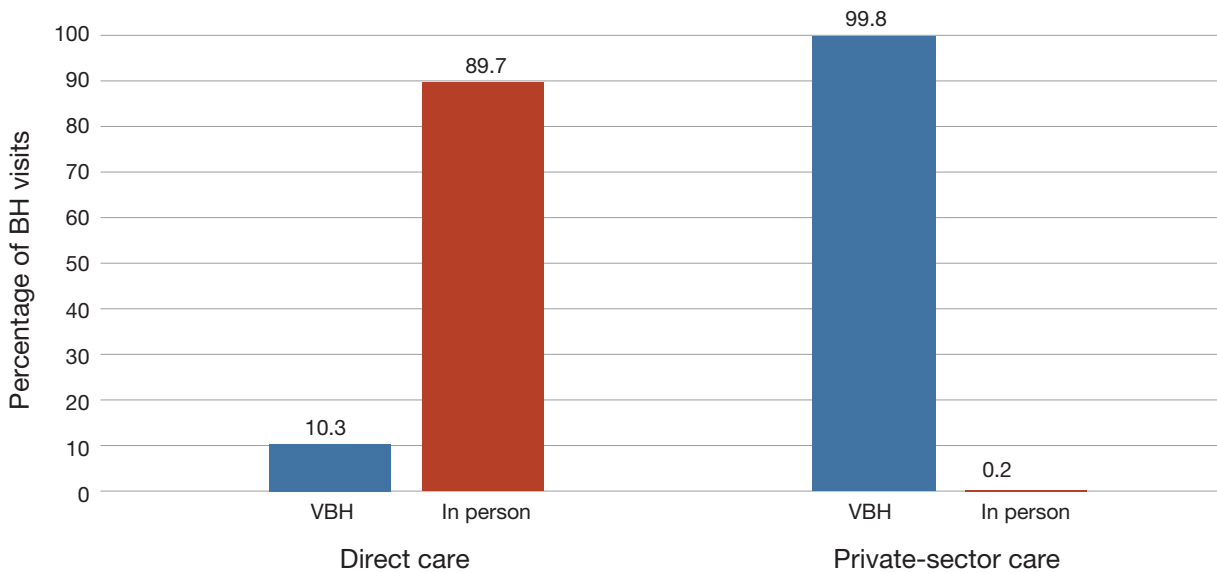
Percentage of Spouses' Behavioral Health Visits Delivered by Virtual Behavioral Health, by Source of Care and Diagnosis



NOTE: BH visits coded with a BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022. Differences by provider type are statistically significant for both direct care and private-sector care ($p < 0.0001$).

FIGURE E.6

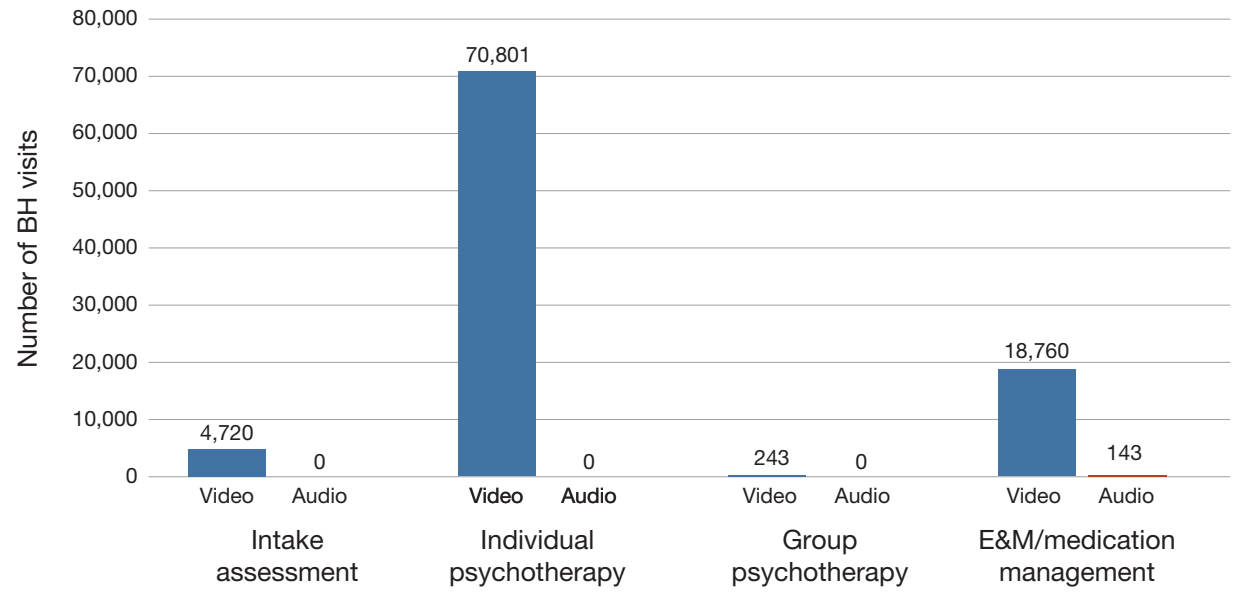
Modality of Virtual Behavioral Health Visits Among Spouses, by Source of Care



NOTE: VBH visits coded with the BH diagnosis (any ICD F-code) in any position, October 2021–March 2022.

FIGURE E.7

Modality of Private-Sector Care Virtual Behavioral Health Visits Among Spouses, by Visit Type



NOTE: VBH visits coded with the BH diagnosis (any ICD F-code) in any position, October 2021–March 2022.

Receipt of Virtual Behavioral Health Among Spouses Receiving Behavioral Health Treatment

The previous appendix described spouses' receipt of BH care with a *visit-level* analysis. In this appendix, we summarize receipt of VBH among spouses who received BH treatment with a *person-level* analysis. In parallel with the soldier BH treatment cohort described in Chapter 5, BH treatment was defined as three or more BH treatment visits (i.e., individual psychotherapy, group psychotherapy, or E&M/medication management) in BH specialty care with a primary diagnosis of a selected BH condition¹ from October 2021 through March 2022. Because spouses were more likely to be treated in the private sector, the three visits could be at an MTF or in the private sector.

Characteristics of Spouses Receiving Behavioral Health Treatment

Of the 14,141 spouses who had at least one BH treatment during the six-month period of interest, 7,836 (55 percent) had three or more treatment visits and met eligibility criteria. Table F.1 shows demographic characteristics and receipt of VBH for the spouses in the BH treatment cohort. As with soldier characteristics presented in Chapter 4, we focused here on differences of 5 percentage points or more between the highest and lowest percentage within each characteristic. Rank and marital status were not included, as we assumed that most spouses were not in the military, and all were married. Race and ethnicity were not reported because of incomplete data. Over three-quarters of the BH treatment cohort had at least one VBH visit (77 percent). Among all spouses with at least one VBH visit, the average number of VBH visits was seven, which is higher than the soldiers' mean of three visits. Receipt of VBH was more common among female spouses than male spouses and more common among spouses 25 and older than among younger spouses. Most spouses in the BH treatment cohort had at least one BH visit through private-sector care (87 percent). Spouses with treatment in private-sector care were more likely to receive VBH (79 percent) and had more VBH visits when they did (eight visits) than spouses who were treated entirely in direct care (53 percent and three visits). These numbers were somewhat lower for spouses who had any BH care in direct care.

Receipt of Virtual Behavioral Health by Spouses Receiving Behavioral Health Treatment

The likelihood of having a VBH visit was not as strongly related to the total number of BH visits for spouses as it was for soldiers (Figure F.1). Among the spouses in the BH treatment cohort, 71 percent had a VBH visit,

¹ Selected BH conditions were acute stress reaction, ADHD, adjustment disorder, anxiety, depression, eating disorder, PTSD, sleep disorder, or SUD.

TABLE F.1

Characteristics of Spouses in the Behavioral Health Treatment Cohort and Receipt of Virtual Behavioral Health, October 2021–March 2022

Characteristic	BH Treatment Cohort (<i>n</i> = 7,836) (%)	Received Any VBH (<i>n</i> = 6,010) (%)	VBH Visits Among Those with at Least 1 VBH Visit (Mean)
Overall	100.0	76.7	7.3
Gender			
Female	96.2	77.1	7.3
Male	3.8	66.3	6.0
Age			
18–24	14.5	69.8	6.2
25–34	50.9	77.7	7.5
35–44	28.5	77.8	7.3
45–64	6.2	78.7	7.5
Any BH visits in private-sector care			
Yes	87.0	79.5	7.7
No	13.0	52.6	3.0
Any BH visits in direct care			
Yes	35.4	75.3	6.3
No	64.6	57.5	2.9

NOTE: Differences in receipt of any VBH across characteristics in the table were statistically significant ($p < 0.0001$ in all cases). Differences in the average number of VBH visits among VBH users across characteristics were also all statistically significant ($p < 0.0001$ in all cases).

while 80 percent of spouses that had 25 or more visits had a VBH visit. This suggests that spouses were likely to receive VBH early in their treatment or not receive it at all. Unlike soldiers, few of whom had only VBH care (1.8 percent), a quarter of spouses (25.3 percent) had all their BH care through VBH (not shown). As shown in Figure F.2, the proportion of BH visits by VBH ranged between 47 and 65 percent.

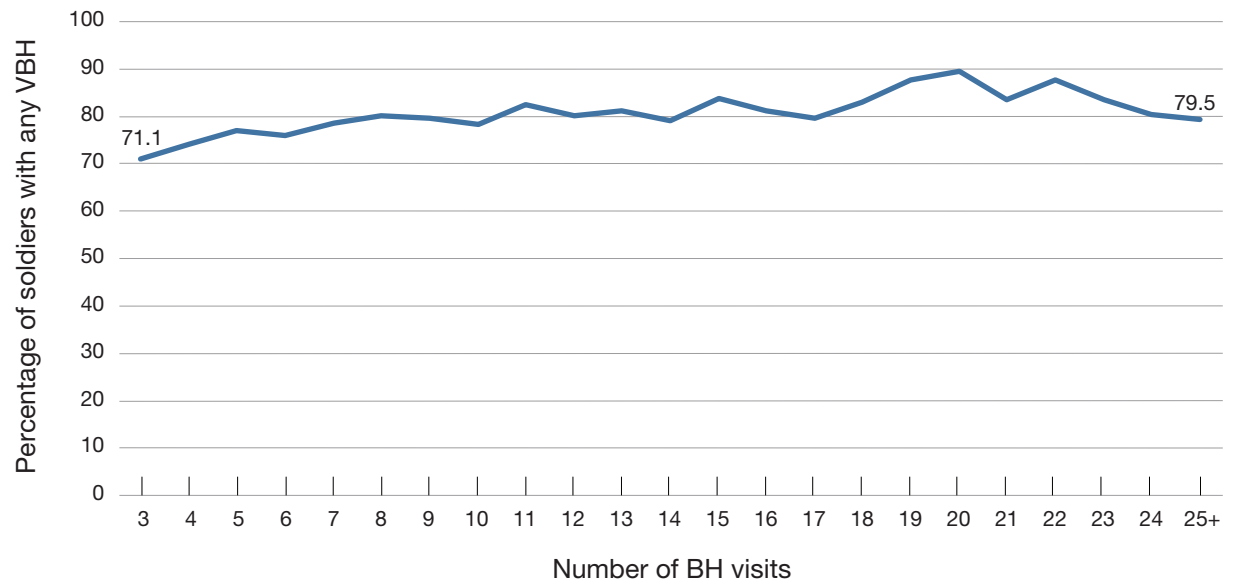
Differences in the Receipt of Virtual Behavioral Health

This section describes how the receipt of VBH differed among spouses in the BH treatment cohort by visit type, provider type, and primary diagnosis.

Visit Type

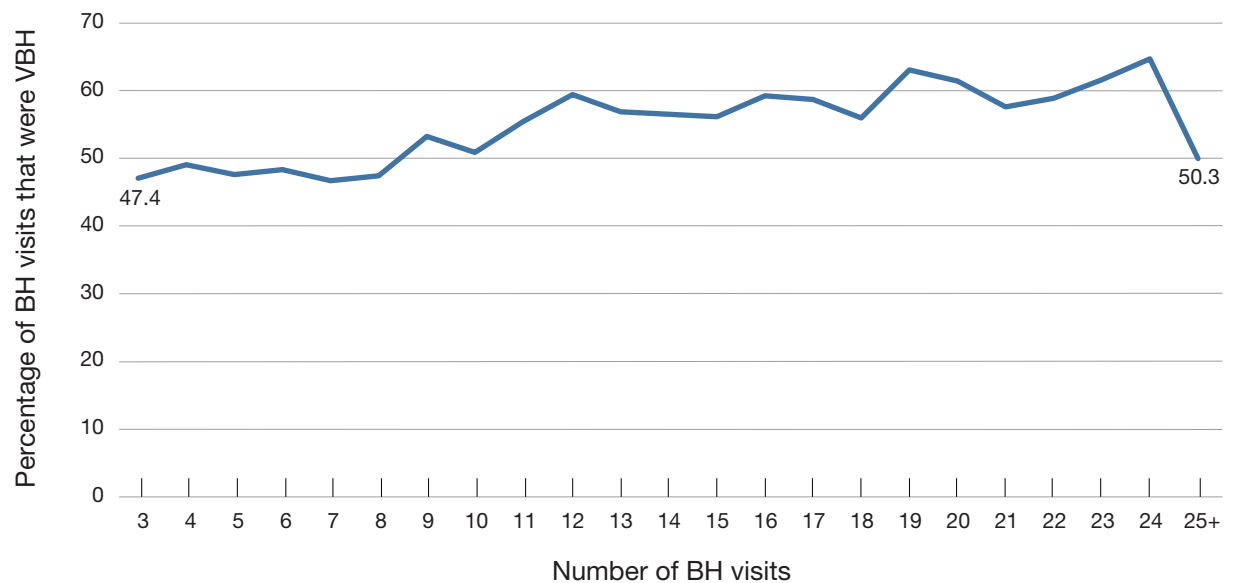
Figure F.3 shows how the receipt of VBH varied across the different types of visits. Spouses who had E&M medication management visits or individual psychotherapy were most likely to have at least some of that care virtually; 66 percent of them had at least one of that type of visit by VBH. Of spouses who had at least one intake assessment, 47 percent had at least one intake assessment by VBH. Use of VBH was least common for group psychotherapy. Among spouses who had group psychotherapy visits, just over one-quarter (27 percent)

FIGURE F.1
Percentage of Spouses in the Behavioral Health Treatment Cohort with a Virtual Behavioral Health Visit, by Total Number of Behavioral Health Visits

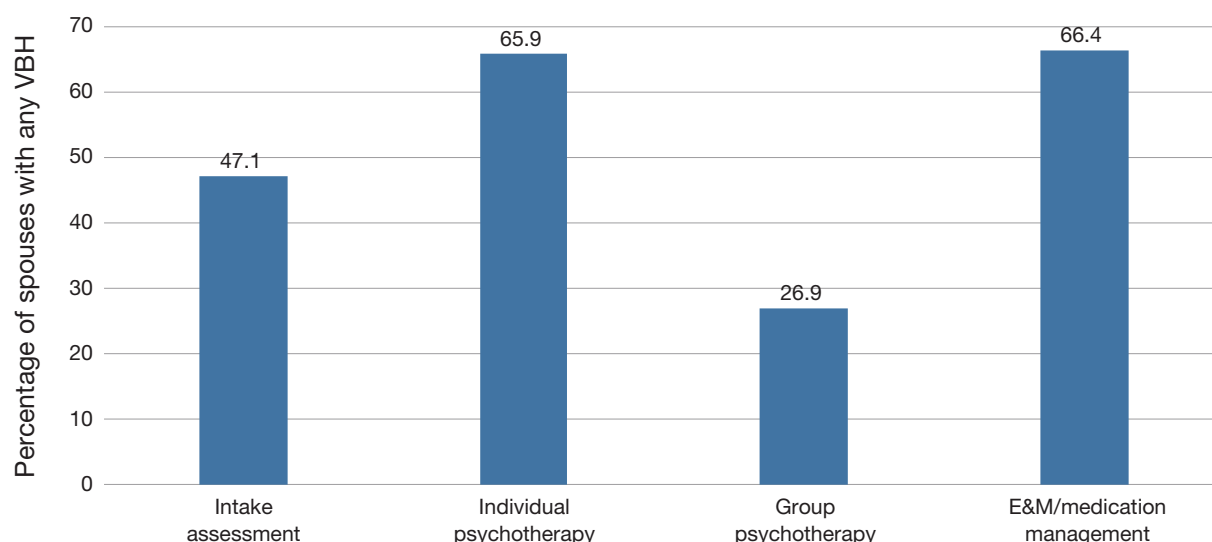


NOTE: BH visits coded with any BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022.

FIGURE F.2
Percentage of Behavioral Health Visits by Spouses in the Behavioral Health Treatment Cohort Delivered by Virtual Behavioral Health, by Total Number of Behavioral Health Visits



NOTE: BH visits coded with any BH diagnosis (any ICD-10 F-code) in any position, October 2021–March 2022.

FIGURE F.3**Percentage of Spouses in the Behavioral Health Treatment Cohort Who Had Any Virtual Behavioral Health, by Behavioral Health Visit Type**

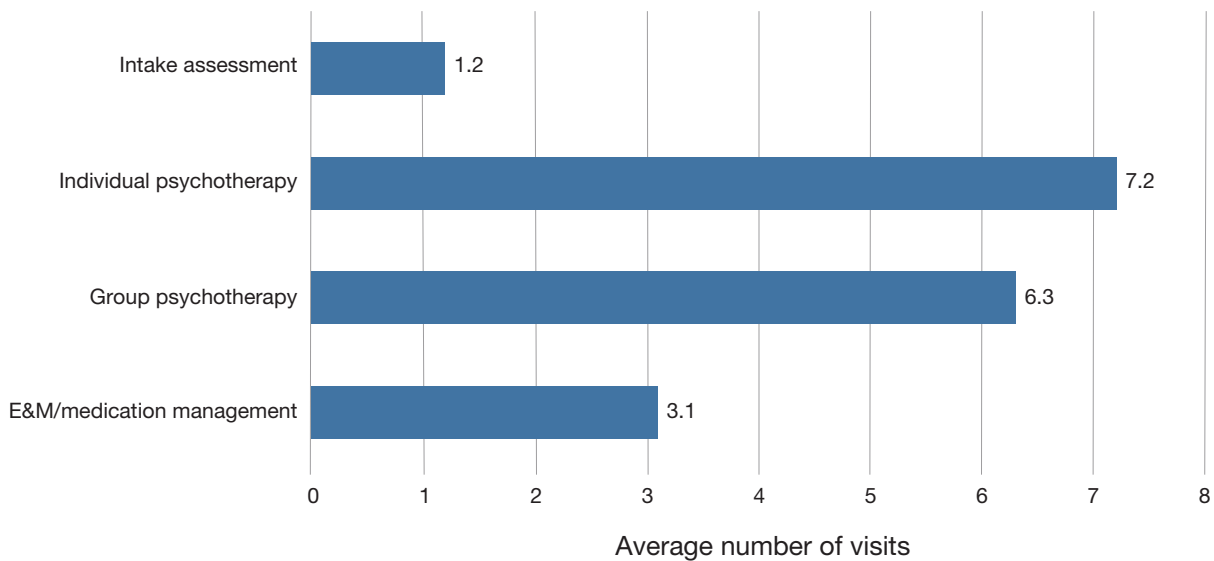
NOTE: Denominator is spouses who had at least one visit of the specified type, October 2021–March 2022. Numerator is spouses who had at least one visit of the specified type delivered by VBH. Differences in the percentage of spouses with a VBH visit across visit types are statistically significant ($p < 0.0001$).

had a psychotherapy visit by VBH. Compared with soldiers, spouses were more likely to have VBH visits for all types of visits.

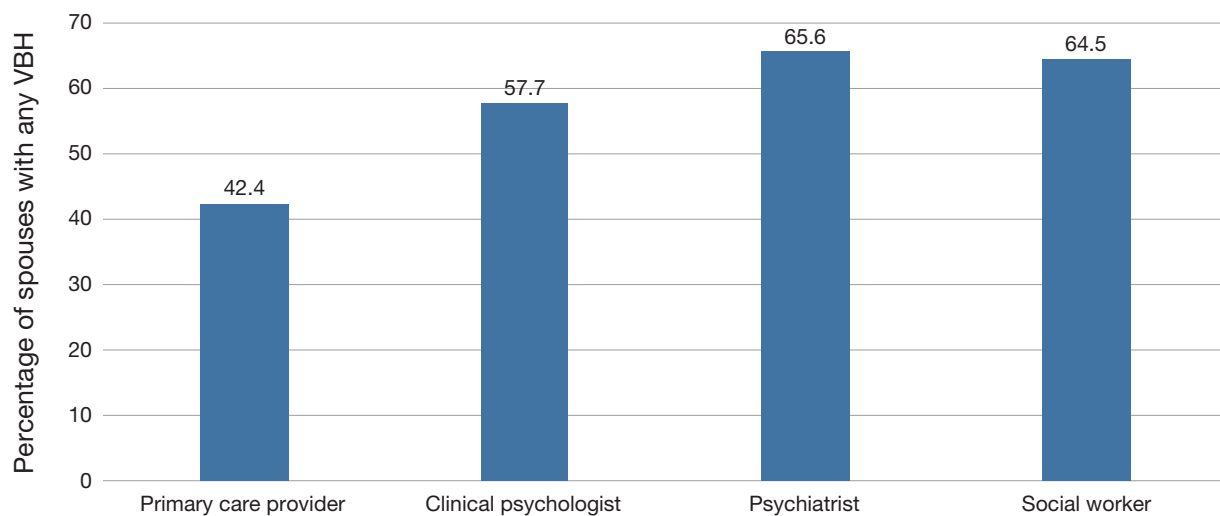
In a similar pattern as soldiers, the number of VBH visits among spouses also differed by visit type (Figure F.4). Spouses who received any VBH for individual psychotherapy, group psychotherapy, or E&M/medication management typically received, on average, more VBH visits than soldiers. The mean numbers of visits for spouses and soldiers were 7.2 and 2.7, respectively, for individual psychotherapy and 6.3 and 2.4, respectively, for group psychotherapy.

Provider Type

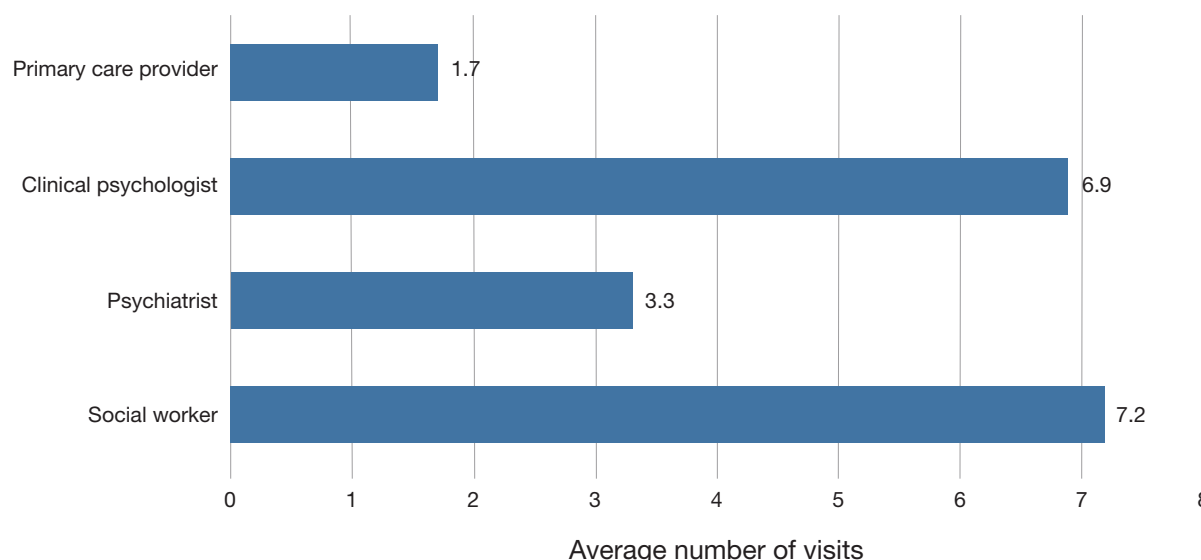
The likelihood of having at least one VBH visit varied across provider types (Figure F.5). Receiving a VBH visit was more common for visits with a psychiatrist (66 percent) or social worker (65 percent) than a clinical psychologist (58 percent) or primary care provider (42 percent). The average number of VBH visits among spouses also varied across provider types (Figure F.6). Spouses visiting a social worker had the highest average number of visits (seven visits), and spouses visiting a primary care provider had the lowest average number of visits (two visits). While spouses with psychiatrist visits were most likely to have a VBH visit, those who had a VBH visit had the second lowest average number of VBH visits (three visits)—lower than both clinical psychologists and social workers.

FIGURE F.4**Average Number of Virtual Behavioral Health Visits Among Spouses in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Visit Type**

NOTE: Visits among soldiers who had at least one visit of the specified type, October 2021–March 2022. Differences in the mean number of VBH visits across visit types are statistically significant ($p < 0.0001$).

FIGURE F.5**Percentage of Spouses in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Provider Type**

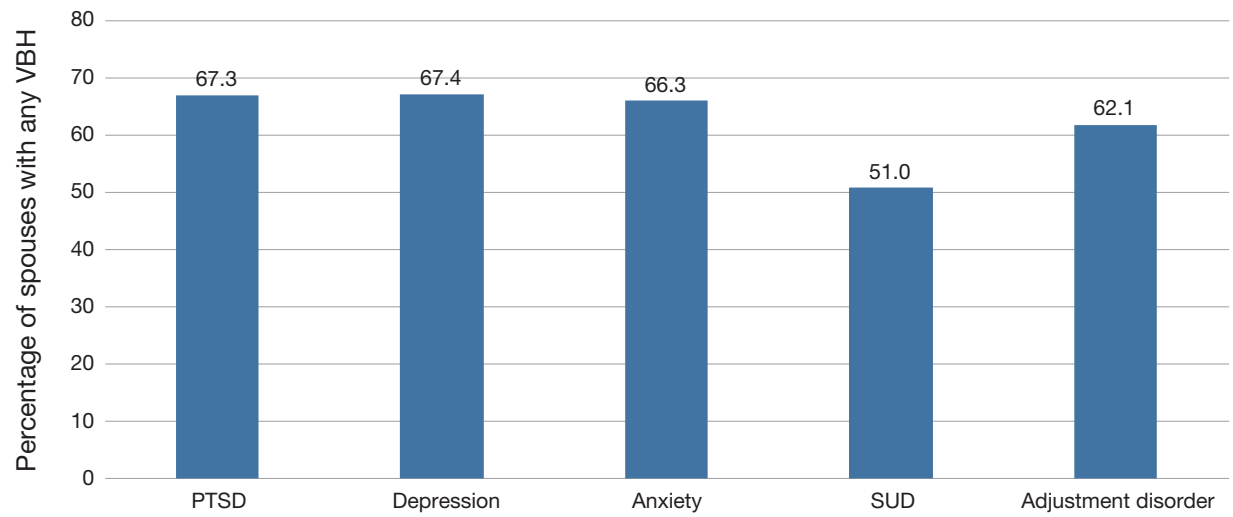
NOTE: Denominator is spouses who had at least one visit with the specified provider type, October 2021–March 2022. Numerator is spouses who had at least one visit with the specified provider type delivered by VBH. Differences in the percentage of spouses with a VBH visit across provider types are statistically significant ($p < 0.0001$).

FIGURE F.6**Average Number of Virtual Behavioral Health Visits Among Spouses in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Provider Type**

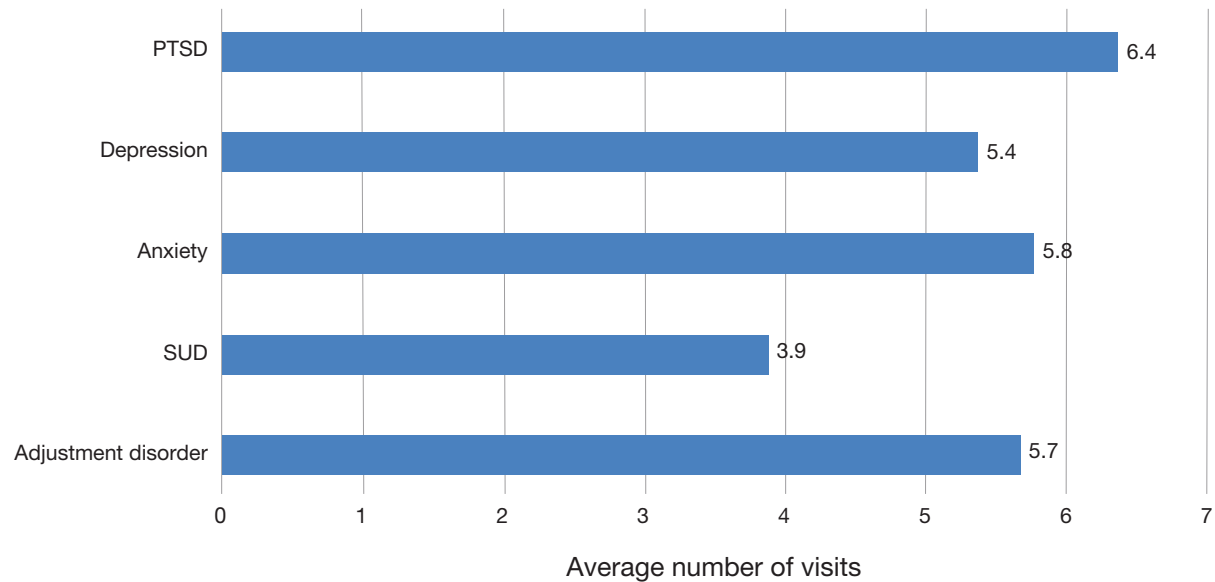
NOTE: Visits among spouses who had at least one visit with the specified provider type, October 2021–March 2022. Differences in the mean number of VBH visits across provider types are statistically significant ($p < 0.0001$).

Primary Diagnosis

Figure F.7 shows spouses' receipt of VBH by their primary diagnosis. Receipt of any VBH was highest for visits with a primary diagnosis of PTSD (67 percent), depression (67 percent), or anxiety (66 percent). It was lowest for adjustment disorder (62 percent) and SUD (51 percent). Interestingly, SUD visits were the most likely to include VBH among soldiers, but one of the least common for spouses. The average number of VBH visits per person varied among the different primary diagnoses, from four to six visits (Figure F.8). PTSD was associated with the highest average number of VBH visits.

FIGURE F.7**Percentage of Spouses in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Primary Diagnosis**

NOTE: Denominator is spouses who had at least one visit with the specified primary diagnosis, October 2021–March 2022. Numerator is spouses who had at least one visit with the specified diagnosis delivered by VBH. Differences in the percentage of spouses with a VBH visit across diagnoses are statistically significant ($p < 0.0001$).

FIGURE F.8**Average Number of Virtual Behavioral Health Visits Among Spouses in the Behavioral Health Treatment Cohort with Any Virtual Behavioral Health, by Primary Diagnosis**

NOTE: Visits among spouses who had at least one visit with the specified primary diagnosis, October 2021–March 2022. Differences in the mean number of VBH visits across diagnoses are statistically significant ($p < 0.0001$).

Abbreviations

ADHD	attention deficit hyperactivity disorder
BH	behavioral health
BHDP	Behavioral Health Data Portal
CAHPS	Consumer Assessment of Healthcare Providers and Systems
CAPER	Comprehensive Ambulatory Professional Encounter Record
COVID-19	coronavirus disease 2019
CPT	Current Procedural Terminology
DHA	Defense Health Agency
DMDC	Defense Manpower Data Center
DoD	U.S. Department of Defense
E&M	evaluation and management
ECHO	Experience of Care and Health Outcomes
GED	General Educational Development certificate
HCPCS	Healthcare Common Procedure Coding System
HIPAA	Health Insurance Portability and Accountability Act
HRBS	Health Related Behaviors Survey
ICD-10	International Classification of Diseases, 10th revision
MHS	Military Health System
MTF	military treatment facility
PCS	permanent change of station
PTSD	posttraumatic stress disorder
SIDR	Standard Inpatient Data Record
SUD	substance use disorder
TED-I	TRICARE Encounter Data–Institutional
TED-NI	TRICARE Encounter Data–Noninstitutional
TSUQ	Telemedicine Satisfaction and Usefulness Questionnaire
VA	U.S. Department of Veterans Affairs
VBH	virtual behavioral health

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Delivery of high-quality behavioral health (BH) care is essential to supporting the readiness of the U.S. armed forces and their families. The coronavirus disease 2019 (COVID-19) pandemic led to a dramatic expansion of virtual behavioral health (VBH) care: remote patient access to BH care using technology such as a computer or cellular phone. The U.S. Army asked RAND Arroyo Center to examine the use of VBH to inform recommendations on the role of VBH care in the future of BH care in the Military Health System.

The authors analyzed administrative data on VBH and in-person BH care from prior to the pandemic through March 2022 and surveyed soldiers who received BH care to assess their perceptions of VBH care. Administrative data analyses showed that direct care providers were less likely to deliver VBH care than private-sector providers and relied heavily on audio rather than video VBH. In addition, soldiers who received VBH care typically received a mix of VBH and in-person visits. Survey respondents who used VBH care had similar perceptions of the quality of their care and more-positive views of VBH than respondents who did not use VBH care. Few respondents had declined VBH care in favor of in-person care. Using these findings, the authors make recommendations on the role of VBH care in overall BH delivered by the military.

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