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Facebook Use and Well-Being Among Army Veterans With PTSD

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This study examines the connection between the duration of Facebook use and psychological well-being among army veterans with posttraumatic stress disorder (PTSD). An online survey determined the duration of Facebook use, PTSD online support group membership, PTSD symptom severity, depression severity, perceived social support, happiness, and health among a sample of veterans (n = 113). We found that duration of Facebook use was a predictor of PTSD symptom severity, even after controlling for demographic variables, PTSD diagnosis, institutional recognition, and depression severity. In addition, we found that membership in an online support group for veterans with PTSD was associated with an increase in happiness levels and a decrease in depression symptoms. This study offers a new understanding of the effect that social media use exerts on psychological well-being among vulnerable groups.

Keywords: Facebook, posttraumatic stress disorder, depression, social media, well-being

Academic interest in the potential impact of online social networking on well-being has increased over the past decade, with a constantly growing body of research that examines factors associated with both positive and negative mental health outcomes. The effects of social networking on the well-being of members of the general population has been studied extensively. This research has offered mixed results: Some studies have lauded social media platforms as spaces for the formation and maintenance of social capital (Ellison, Lampe, Steinfield, & Vitak, 2010) and for enhancing perceptions of social support (DeAndrea, 2015; DeAndrea, Ellison, Larose, Steinfield, & Fiore, 2012). Conversely, more and more studies have also indicated that prolonged use of social networking sites (SNSs), such as Facebook, may be related to signs and symptoms of depression, leading O'Keeffe et al. (2011) to coin the term *Facebook depression*. This term was originally defined as "depression that develops when preteens and teens spend a great deal of time on social media sites, such as Facebook, and then begin to exhibit classic symptoms of depression" (O'Keeffe et al., 2011, p. 802).

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Research has increasingly pointed to the maladaptive effects that Facebook use may have on members of the general population. Nevertheless, the possible association of Facebook use with well-being among vulnerable populations, such as persons coping with posttraumatic stress disorder (PTSD), has not been given sufficient attention in communication studies. People with PTSD are likely to be socially isolated (Shnoor, Ziv, Brodesky, & Naom, 2017), and Facebook may provide them with social support from their online friends, thus satisfying their need for belonging and improving their mood (Ellison et al., 2010; Steinfield, Ellison, & Lampe, 2008).

Consequently, the chief aim of this study was to examine the association between time spent on Facebook and mental health disorder levels among Israel Defense Forces (IDF) veterans with PTSD. Israel is an exemplary venue for academic inquiry into Facebook use among vulnerable groups because of its extremely high social media use rates, in particular through Facebook (Bezeq, 2020).

An assessment of the connection between Facebook use and well-being may be useful in understanding the role that social media use plays in PTSD coping efforts, constituting the foundation for future studies that examine other illnesses and other vulnerable groups as well. In the following section, we review the extensive research conducted on the association between Facebook use and well-being, and between SNS use and mental illness, especially PTSD, presenting the case of Facebook use among Israeli veterans with PTSD.

Online Social Networking and Well-Being

Communication research is dramatically conflicted about the effects of SNSs on well-being. Earlier research acclaimed social media platforms as spaces for facilitating social relationships (Pempek, Yermolayeva, & Calvert, 2009), enhancing perceptions of social support (DeAndrea, 2015; DeAndrea et al., 2012), and boosting life satisfaction, social trust, civic engagement, and political participation (Valenzuela, Park, & Kee, 2009). On the other hand, an increasing number of studies have indicated that prolonged use of SNSs, such as Facebook, may be related to signs and symptoms of depression. Four recent meta-analyses of research on Facebook use and well-being (Błachnio, Przepiórka, & Pantic, 2015; Huang, 2017; Pantic, 2014; Yoon, Kleinman, Mertz, & Brannick, 2019) support the notion of Facebook depression. One reason for the association of time spent on SNSs with depressive symptoms is the altered (and often erroneous) impression of other users' physical and personality traits typical of computer-mediated communication, leading to an overexaggeration of positive traits such as physical appearance, education level, intelligence, moral integrity, and numerous other characteristics of one's online friends (Baker & Algorta, 2016; Pantic, 2014).

Studies of general populations have already confirmed a robust connection between the duration of Facebook use and a decrease in well-being (for a review, see Yoon et al., 2019), but this topic has not been discussed in research on vulnerable groups. Facebook use has the potential to forge social connections for socially isolated individuals whose situation demands coping with stigma. On social networking sites, such as Facebook, members of stigmatized and vulnerable populations can share their problems with others and receive advice (DeAndrea, 2015). For example, a review of publications examining Facebook use among

homeless people found that it exerted a positive health effect by mitigating the consequences of living on the street (Calvo & Carbonell, 2019).

Online Social Networking and Mental Illness

Digital interventions for health promotion are increasing in frequency, yet few studies have focused on Facebook use by individuals with mental illness. To date, there have been several studies that addressed SNS use by psychiatric clinic patients, with other studies addressing patients who cope with specific disorders, such as psychosis and schizophrenia. The results of these studies have varied: Some have found no evidence of a relationship between SNS use and mental health, whereas others have noted a maladaptive effect.

Carras, Mojtabai, Furr-Holden, Eaton, and Cullen (2014) compared patients at a local clinic with a general community sample and found that the former used the Internet more intensively for e-mail, instant messaging, accessing health information, and SNSs. In a study of social media use by patients attending an adult psychiatric hospital program, baseline depression and anxiety symptoms were not associated with frequency of texting, e-mail, or social media use (Beard et al., 2019). Another study examined social media use among 232 individuals with severe mental illness (depression, bipolar disorder, and schizophrenia) and found no significant association between social media use and loneliness, psychiatric symptoms, or quality of life (Brusilovskiy, Townley, Snethen, & Salzer, 2016). By contrast, a recent study comparing the mental health of Facebook users and nonusers in an inpatient sample found that the duration of daily Facebook use was significantly negatively associated with emotional, psychological, and social well-being (Brailovskaia, Margraf, Schillack, & Köllner, 2019).

Highton-Williamson, Priebe, and Giacco (2015) reviewed 11 studies and found that people with psychosis appeared to use the Internet for social networking more frequently than did control groups and found Facebook less preferable than other online networking tools. Furthermore, Jakubowska, Kaselionyte, Priebe, and Giacco (2019) examined 13 studies and found no evidence that online social networking worsened psychosis symptoms. Rekhi, Ang, and Lee (2019) studied social media use among 265 individuals with schizophrenia and found that the severity of symptoms, especially a decrease in motivation and pleasure, was associated with a higher likelihood of social media use, as was the intensity of depression indicators. In addition to the mixed findings concerning mental illness and SNS use, and the limited research focusing on mental illness and Facebook use, even fewer studies have focused specifically on the use of Facebook among veterans coping with PTSD, as will be discussed next.

PTSD and Online Social Networking

PTSD is a mental health disorder that may develop after people experience or witness a life-threatening event, such as in combat, a natural disaster, traffic accident, or sexual assault (American Psychiatric Association, 2013). Armed forces veterans are at a high risk of developing PTSD (Able & Benedek, 2019; Naifeh et al., 2019; Solomon, Neria, Ohry, Waysman, & Ginzburg, 1994; Williamson, Stevelink, Greenberg, & Greenberg, 2018), often manifesting the following prominent symptoms: (1) reexperiencing symptoms, such as intrusive traumatic memories (e.g., flashbacks, nightmares) or emotional and/or physiological distress triggered by cues associated with the trauma; (2) avoidance symptoms affecting

thoughts, feelings, or situations that evoke memories of the trauma; and (3) hyperarousal symptoms, such as sleep and concentration problems, irritability or anger, hypervigilance, and excessive startle responses. PTSD symptoms usually start soon after the traumatic event, but may not appear until months or years afterward (American Psychiatric Association, 2013).

PTSD patients, like individuals with other mental disorders, often suffer from at least one other psychiatric condition. For example, epidemiological findings indicate that PTSD is particularly associated with major depressive disorder (Ginzburg, Ein-Dor, & Solomon, 2010; Rytwinski, Scur, Feeny, & Youngstrom, 2013). Depressive disorder is the most prevalent psychiatric comorbidity (33%–52.3%), followed by generalized anxiety disorder (14%–15%) and substance use disorders (1.9%–11.3%; for a review, see Kang, Xu, & McConnell, 2019). Moreover, depression among PTSD patients is consistently associated with negative interpersonal functioning (Beck, Grant, Clapp, & Palyo, 2009), as well as self-reported physical health problems and poor health-related quality of life (Dobie et al., 2004).

Besides contending with mental and physical health problems, veterans with PTSD also have to cope with the mental health stigma surrounding PTSD within and outside the military organization (Hernandez, Morgan, & Parshall, 2017; Roscoe, 2021). PTSD, like other mental disorders, is sometimes seen as a mark of moral weakness because, unlike physical war injuries, it is invisible and concealable (Goffman, 1963). Public perceptions play a role in how veterans manage stigma, ultimately affecting their decision not to seek professional services. Furthermore, PTSD may exacerbate the effects of combat-related trauma and reduce the availability of social support. An increase in social support, however, may improve the effects of therapy and retard or halt the progression of PTSD (Fredette, El-Baalbaki, Palardy, Rizkallah, & Guay, 2016; Pietrzak & Cook, 2013). A recent study (Teo et al., 2020) among 30 primary care patients with symptoms of major depression at a Veterans Health Administration (VA) medical center discovered that social connectedness exerted a powerful positive influence on health, even in cases of major depression and suicide. Connections of this type may be achieved through a supportive network of people in close physical proximity with the patient, who constitute frequent or responsive contacts or are perceived as available for support. Furthermore, online social support exchanged via SNSs may improve well-being (Teo, Chan, Saha, & Nicolaidis, 2019).

In accordance with the above findings concerning PTSD stigma and the empowering nature of social support, SNSs such as Facebook may fulfill the role of a ubiquitous support network. Research has suggested that social media networking may reduce social isolation by creating diverse social networks through which military families may connect with others and build relationships via online communication (Kuhn et al., 2014; Matthews-Juarez, Juarez, & Faulkner, 2013; Ruiz & Stadtlander, 2015). Nevertheless, few studies have focused specifically on the use of online social networks among veterans coping with PTSD.

The Present Study

The current study is part of a mixed-methods study exploring the role of online support groups in coping with combat-related PTSD. In the first stage of the study, we used in-depth interviews with 33 PTSD online support group members to examine the motivations, benefits, and disadvantages that veterans with PTSD assign to online support group membership and the role media properties play in membership

retention. We used these qualitative assessments to adapt the section of a quantitative survey instrument that relates to digital coping activities, as presented in this article. We examined the association between time spent on Facebook and well-being among IDF veterans with PTSD. Israel is an excellent venue for an academic study of Facebook use among veterans with PTSD, for two reasons: First, more and more Israelis are communicating via this social media platform. As of January 2020, 85% of Israel's adult population used Facebook and belonged to an average of 16 Facebook groups (Bezeq, 2020), compared with 69% in the United States (Gramlich, 2019). Second, Israel constitutes a unique setting for the study of veterans with PTSD. Although the country has been involved in several wars and large-scale military operations, and military service is mandatory for men and women alike, systematic postwar data on PTSD prevalence in Israel is scarce. A recent study by Levi and Lubin (2018) found that there was a disparity of 3%–11% between treatment sought by IDF veterans following war deployment and the actual prevalence of PTSD in this military population, underscoring the need to screen all war participants as soon as possible after active duty. Consequently, many IDF veterans coping with PTSD receive no mental health treatment whatsoever. Furthermore, even those who are under the care of the Ministry of Defense were found to be in a rather grim social situation. A report funded by the Ministry's Disabled Veterans Department (Shnoor et al., 2017) revealed that 75% of the IDF veterans who have a mental illness and have received Ministry of Defense services suffered from social isolation (in contrast to 30% of the sample of disabled veterans with no diagnosed mental disorders), 43% (vs. 14%) reported that they had no friends, 14% (4%) reported that they did not leave their homes, and only 30% (60%) were employed. Furthermore, in nearly all respects, the health status of disabled veterans with mental health disorders is more severe than that of their counterparts who exhibit no such disorders.

It is of particular importance to determine how Facebook use affects the well-being of IDF veterans with PTSD, considering the following factors: the extensive use of Facebook in Israel and its potential for forging connections among the socially isolated, the lack of official support for Israeli veterans with PTSD, the social isolation they experience, and the absence of professional literature concerning the association between Facebook use and PTSD severity. This study examined such associations more closely by addressing the following research questions:

RQ1: Does Facebook use have associations with negative mental health for Israeli veterans coping with PTSD?

RQ2: What factors explain a change in PTSD symptom severity of Israeli veterans coping with PTSD?

Although previous studies have indeed examined similar associations between SNS use and mental health, the present research contributes to both the theoretical and empirical literature in two ways. First, earlier studies focused primarily on the association between Facebook use and depressive disorders in the general population (Błachnio et al., 2015; Huang, 2017; Yoon et al., 2019) or in psychiatric populations (Beard et al., 2019; Brusilovskiy et al., 2016; Carras et al., 2014; Jakubowska et al., 2019; Rekhi et al., 2019), whereas in this study we aimed specifically to examine the association between Facebook use and mental health among veterans with PTSD. Second, previous studies of SNS use by populations with mental health disorders recruited participants in a treatment setting—people who were either admitted to or were receiving treatment at psychiatric clinics. Unlike clinical setting studies, our Internet-based survey, which

solicited the participation of Facebook users who are IDF veterans coping with PTSD, is likely to reduce bias in responses concerning sensitive and potentially stigmatizing topics (Cantrell & Lupinacci, 2007; McCabe, Boyd, Couper, Crawford, & D'Arcy, 2002; Ramo & Prochaska, 2012; Rhodes, Bowie, & Hergenrather, 2003; Schonlau et al., 2004).

Methodology

Design

The target population consisted of Israeli men and women who declared that they were coping with PTSD as a result of military service. To capture the wide swath of veterans with PTSD across Israel, data collection included five recruitment strategies: First, the first author contacted organizations that support veterans with PTSD and invited members to participate. Second, we invited administrators and members of Facebook PTSD online support groups to distribute the survey invitation through their own online groups. Third, the first author created a Facebook page that included a survey invitation. Fourth, we posted invitations in Facebook groups that support Israeli veterans with PTSD. Finally, we posted a link to the survey, with the administrator's permission, in a Facebook ad that targeted members of a Facebook group for veterans with PTSD that had 8,500 followers. Candidates who clicked on the link to the online survey were first presented with an informed consent form, emphasizing that participation in the study was anonymous and voluntary. All participants consented to participate in the study. Those who completed the survey (duration: 15–25 minutes) were invited to participate in a raffle for one of 20 100-shekel (equivalent to approximately US$25) gift cards. Because of the survey's sensitive nature, a list of relevant resources (e.g., PTSD counseling centers and online resources) was provided to ensure participants' access to support if needed. Before we began collecting data, the study was reviewed and approved by the Institutional Review Board of Ben-Gurion University of the Negev for compliance with standards for the ethical treatment of human participants. Table 1 presents sample characteristics.

Table 1. Sample Characteristics.

Variable	*n* (%)
Gender	
Male	96 (.85)
Female	15 (.13)
Age	
18–30	22 (.20)
31–40	23 (.20)
41 and above	66 (.58)
PTSD clinical diagnosis	85 (.75)
Institutional recognition	
Recognized	46 (.41)
Applied for recognition	18 (.16)
Did not apply for recognition	21 (.19)
PTSD Facebook group member	70 (.62)
Education	
Elementary school	2 (.18)
High school	32 (.28)
Certification studies	30 (.27)
B.A. student	17 (.15)
B.A.	20 (.18)
M.A. and higher	12 (.11)
Marital status	
Single	35 (.31)
Married	61 (.53)
Divorced	18 (.16)
Parenting (yes/no)	72 (.63)
Monthly income (NIS)	
0–5000	37 (.33)
5,001–10,000	40 (.35)
10,001–20,000	28 (.25)
20,001 and above	7 (.06)

Measures

In the survey we examined the duration of Facebook use, depression severity, perceived social support, happiness, health, and the severity of PTSD symptoms.

Time Spent on Facebook

Time spent on Facebook is part of the Facebook intensity scale (Ellison et al., 2007) designed to measure the extent to which a participant is actively engaged in Facebook activities. Time spent on Facebook

assesses the duration of an individual's Facebook use with the phrase: "How many minutes a day, on average, did you use Facebook over the past week?" and is measured on a 4-point scale (0 = *0 minutes*, 1 = *60*, 2 = *120*, 3 = *180*).

PTSD Online Support Group Membership

We asked respondents to indicate whether they were members of a PTSD Facebook support group (yes = 1, no = 0).

PTSD Symptoms

The severity of PTSD symptoms was measured using the Posttraumatic Stress Disorder Checklist for the *DSM-5* (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015). PCL-5 is a self-reporting diagnostic questionnaire. Participants were asked to indicate whether or not they experienced the symptom in the past month, on a 5-point scale, ranging from 1 (*not at all*) to 5 (*I usually did*). The inventory consists of 17 items such as "When I was exposed to elements that reminded me of the war, I felt stress and anxiety." Drawing on these items, we calculated an index where higher values reflect higher levels of PTSD symptoms (Cronbach's α = .90).

Depression

Depressive symptoms were measured by the Iowa Short Form (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993) of the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), asking 11 of the original 20 questions about the participants' mood over the past week, with five rather than four response categories, ranging from 1 (*rarely or none of the time*) to 5 (*most or all of the time*). Questions included items such as "In the past week, I felt depressed." Drawing on these items, we calculated an index where higher values reflect higher levels of depression (Cronbach's α = .70).

Self-Reported Happiness

The subjective assessment of an individual's happiness, taken from the International Social Survey Program (ISSP Research Group, 2013), consisted of one item: "If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole?'' The participants rated the item on a 7-point scale, ranging from 1 (*completely happy*) to 7 (*completely unhappy*). This item was recoded so that higher rates represented a greater sense of happiness.

Self-Reported Health

The subjective assessment of an individual's health from the International Social Survey Program (ISSP Research Group, 2013) consisted of one item: "In general, would you say your health is . . .?" Participants rated the item on a 5-point Likert scale, ranging from 1 (*excellent*) to 5 (*poor*). This item was recoded so that higher rates indicated better health.

Perceived Social Support

Social support perception was measured using the Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988), a 12-item scale that measures perceived support from family, friends, and a significant other. The scale consists of items such as "My family tries to help me," rated on a 5-point Likert scale, ranging from 1 (*very strongly disagree*) to 5 (*very strongly agree*; α = 0.927).

Data Analysis

Data analysis was conducted using SPSS 26 (IBM) software. Pearson correlations were calculated for the study variables to examine the correlations between main constructs and multicollinearity. Based on the results of the test, four-step hierarchical multiple regressions were conducted to examine our research question about the role of Facebook use in the severity of PTSD symptoms, with variables added at each step: (1) Facebook use; (2) sociodemographics (age, marital status, and education); (3) PTSD diagnosis and institutional recognition; (4) depression. To include the categorical measures of education and institutional recognition in the test, they were dichotomized. The variable of education was recoded into 1 = higher education, 0 = other. The variable of institutional recognition was recoded into 1 = recognized, 0 = other, because 41% of the respondents had received institutional recognition of PTSD, whereas the rest had not. After three months of data collection, we reached 177 participants who identified themselves as veterans coping with PTSD. After list wise deletion of cases with missing demographic (age, marital status, or education) information, the analytical sample included 113 respondents. Furthermore, to include missing data on independent variables, missing values were substituted by the means (Cohen, Cohen, West, & Aiken, 2014).

Findings

We will begin with descriptive statistics. As illustrated in Table 1, 75% of the participants were officially diagnosed as suffering from PTSD, whereas the rest (25%) were not. Furthermore, 41% were recognized by Israel's Ministry of Defense as individuals with PTSD; 16% were in the process of obtaining such recognition; and 19% had not approached the Ministry about this matter. The mean duration of Facebook use among participants identifying themselves as veterans with PTSD was 113.86 minutes per day (*SD* = 43.98).

As previous studies (Beard et al., 2019; Brailovskaia, Margraf, et al., 2019; Brusilovskiy et al., 2016; Carras et al., 2014) have offered mixed evidence about the association between SNS use and mental health among vulnerable populations, our first aim was to determine whether Facebook use was associated with mental health indicators of Israeli veterans coping with PTSD (RQ1). As shown in Table 2, we conducted a bivariate correlation test on the analytical sample. Correlations between the variables revealed a positive and significant association between time spent on Facebook and PTSD symptom severity (r = .31, p = .001), a positive and significant association between time spent on Facebook and depression among Israeli veterans with PTSD (r = .28, p = .003), and a significant negative association between time spent on Facebook and self-reported happiness (r = −.21, p = .017). Furthermore, a correlation between PTSD online support group membership and depression severity yielded a negative association (r = −.24, p = .011). In addition, PTSD online support group membership and self-reported happiness revealed a positive association

(r = .19, p = .046). The association of time spent on Facebook with self-reported health was nonsignificant (p = .159). Similarly, the association of time spent on Facebook and perceived social support was nonsignificant (p = .273).

Hence, this analysis revealed that the more time veterans with PTSD spent on Facebook, the more they exhibited severe PTSD symptoms and depression symptoms, and the less happy they felt. However, when we looked into a specific online behavior, such as online PTSD group membership, we discovered a significant negative relationship, though a relatively weak one, between PTSD online group membership and depression severity. In addition, we found a positive and significant association between PTSD online group membership and self-reported happiness.

Table 2. Bivariate Correlation Analysis.

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. PTSD symptoms	3.90	.76	__	.695**	−.482**	−.410**	−.302**	−.140	−.263**	.185*	.313**
2. Depression	3.40	.90		__	−.685**	−.464**	−.565**	−.244*	−.218*	.192*	.276**
3. Self-reported happiness	3.71	1.42			__	.464**	.555**	.193*	.143	.005	−.223**
4. Self-reported health	2.74	.92				__	.305**	.080	.222*	−.150	−.133
5. Perceived social support	3.08	.99					__	.024	.018	.017	−.104
6. PTSD OSG membership[1]	–	–						__	.166	−.049	−.126
7. PTSD diagnosis[1]	–	–							__	.476**	.073
8. Recognition[1]	–	–								__	−.121
9. Facebook use	113.85	43.98									__

*$p < .05$. **$p < .00$.

[1] Dichotomous variable

To investigate how much variance in PTSD symptom severity was accounted for by Facebook use in the presence and absence of demographic factors, PTSD diagnosis and recognition (on the one hand) and depression severity (on the other), a four-stage hierarchical multiple regression was deemed a suitable method of analysis. We excluded the variables self-reported happiness and self-reported health from the model because these direct measures duplicate variance accounted for by depression. Before conducting the analysis, relevant assumptions of this statistical analysis were examined. Tests concluded that the data met the assumptions for no multicollinearity (Hair et al., 2010; Pallant, 2016) and no independent errors (Durbin–Watson = 1.252). A further analysis of standard residuals identified that the data obtained no outliers (Std. Residual Min = −2.827; Std. Residual Max = 2.102), and scatter plots that demonstrated the assumptions of linearity and homogeneity were all satisfied (Hair et al., 2014). As all the assumptions were met, the hierarchical multiple regression analysis commenced. Through a fixed order of entry, the extent to which the predictor variables predicted the criterion was determined (see Table 3).

Table 3. Summary of Hierarchical Regression Analysis for Variables Predicting PTSD Symptom Severity.

Predictor variables	Model 1	Model 2	Model 3	Model 4
Age (continuous)	.280*	.250*	.269*	.156
Married (1 = yes, 0 = other)	.041	.045	−.003	.023
Divorced (1 = yes, 0 = other)	.001	.022	−.011	−.047
Education (1 = higher education, 0 = other)	−.241*	−.201	−.213	−.069
Facebook use		.254**	.287**	.142*
PTSD diagnosis (1 = yes, 0 = no)			−.189*	−.107
Institutional recognition (1 = yes, 0 = no)			.220*	.091
Depression severity				.570***
R^2	.127	.189	.308	.543
R^2 change	.127**	.062**	.118***	.235***

*$p \leq .05$. **$p < .01$. ***$p < .001$.

The hierarchical multiple regression revealed that at Stage 1, the demographic variables (age, marital status, and education) explained 13% of the variance in PTSD symptom severity. Introducing Facebook use explained an additional 6% of the variance in PTSD symptom severity, $F(1, 105) = 4.9$, $p < .01$. Adding PTSD diagnosis and institutional recognition to the regression model explained an additional 12% of the variance in PTSD severity, $F(2, 103) = 6.54$, $p < .001$. Finally, the addition of depression to the regression model explained an additional 24% of the variance in PTSD severity, $F(1, 102) = 15.2$, $p < .001$. In the final model, only Facebook use and depression were significant predictors of PTSD severity. Although depression severity was the most important predictor of PTSD severity (beta = .57, $p < .001$), Facebook use (beta = .14, $p = .05$) still explained 14% of the variance. Together the seven independent variables accounted for 54% of the variance in PTSD severity.

Discussion

In this study we aimed to explore how social media use might impact the well-being of Israeli army veterans with PTSD. Beginning with our first research question (RQ1), our findings showed that there was a positive and significant association between time spent on Facebook, PTSD severity, and depression severity, and a negative significant association between time spent on Facebook and self-reported happiness. At least two explanations may account for these findings. First, studies (Frost & Rickwood, 2017; Yoon et al., 2019) have indicated that extensive passive Facebook use (perusing photos, comments, and activities of other users rather than actively engaging with them) may lead to social comparison with others, culminating in negative self-evaluations. These, in turn, may lead to poor mental health and increase symptom severity. Perceiving others as more successful does not necessarily result in PTSD, but it may well impact mental health negatively among individuals who already have certain depressive predispositions and other psychiatric comorbidities. As Rekhi et al. (2019) suggested, depressed individuals may pay more attention to negative social interactions and may be more sensitive to social acceptance and rejection alike.

Another possible explanation for the Facebook use-PTSD association is that participants' perception of the social stigma of PTSD may result in social withdrawal and a dependence on social media for social interaction and support. It is possible that SNSs can serve as a place for individuals with PTSD to receive virtual social support that they might not be able to attain in face-to-face interactions.

Continuing with RQ1, our findings in regard to membership in a PTSD online support group are interesting. We found a negative and significant association between membership in a PTSD online support group and depression severity, and a positive and significant association with self-reported happiness. These findings can be accounted for in at least two ways. Becoming a member in a PTSD online support group enables veterans with PTSD to share their problems with others and receive advice (DeAndrea, 2015) and may therefore decrease their depression levels and increase their happiness. Another explanation is that participants who already have relatively lower levels of depression and higher levels of happiness may be more likely to become members in PTSD online support groups. Our finding that 62% of the sample reported membership in a Facebook group for people with PTSD may support these explanations. However, as the total number of participants was relatively small, we could not test this assumption any further. More research is needed to investigate this association between PTSD online support group and members' well-being.

In our second research question (RQ2), we asked what factors would predict PTSD symptom severity among Israeli army veterans coping with PTSD. Our data indicated that time spent on Facebook predicted PTSD symptom severity among veterans with PTSD, and this association existed when controlling for demographic variables (age, marital status, and education), PTSD diagnosis, and institutional recognition. Interestingly, this association was maintained even when we controlled the largest predictor of PTSD severity—depression severity. These findings suggest that it is important to assess and consider Facebook use by veterans who are diagnosed with PTSD, as Facebook use may amplify their PTSD symptoms and decrease their well-being. Previous cross-sectional research among inpatient populations indicated that duration of Facebook use contributed positively to the level of addictive Facebook use (Brailovskaia, Margraf, et al., 2019; Brailovskaia, Rohmann, et al., 2019; Koc & Gulyagci, 2013). Facebook use might cause conflict with family members or friends due to the individual's neglect of responsibilities, such as being punctual for everyday appointments or meetings. Presumably, such individuals might pay less attention to what is happening around them in the offline world, might feel more isolated, and in turn might feel sad, guilty, or pessimistic—symptoms of depression.

This study has several implications. In terms of theory, our study proposes a new view of online impairment. Increasing interest in the potential impact of online social networking on well-being has already led to research supporting the Facebook depression phenomenon, wherein studies among the general population found that more time spent on SNSs was associated with greater depression symptom severity (Huang, 2017; Yoon et al., 2019). By examining PTSD symptoms, the current study offers a new understanding of the detrimental effect that time spent on Facebook may exert on the psychological well-being of populations who cope with mental health issues.

Empirically, this study demonstrates that extensive time spent on Facebook is deleterious for people with PTSD. Moreover, unlike previous studies that were conducted primarily among younger and/or more heterogeneous groups from the general population (Huang, 2017; Yoon et al., 2019), the present study reveals the effect of social networking on a sample mostly comprising older men and women (58% were 41 years of age and above) who are members of a high-risk mental health group. Although it is too early to identify a Facebook PTSD phenomenon, studying the mechanism by which SNS use is associated with PTSD severity is important. Additional research is required to examine which types (active/passive, PTSD vs. non-PTSD content) of social media use may be associated with the well-being of veterans with PTSD.

Our findings have practical implications for mental health providers working with PTSD patients, community-based organizations catering to this population, and designers of digital interventions for people with PTSD. We recommend that mental health providers assess and consider the type and amount of an individual's SNS use when planning therapeutic treatment. Furthermore, we would advise that community-based organizations catering to this population, as well as designers of digital interventions for people with PTSD, design and adapt SNS use in a manner that will contribute to the well-being of people with PTSD, such as membership in an online support group. Considering the abundance of PTSD support groups on Facebook, there should also be a more intensive evaluation of the conditions and personal qualities that determine whether these groups are harmful or effective; by undertaking such an evaluation, professionals in the field could suggest methods for maximizing effectiveness in digital support delivery.

Limitations and Future Research

This study has several limitations. First, it examined time (number of hours) spent on Facebook among people with PTSD. In addition to participation in PTSD support groups and communication with other Facebook users suffering from PTSD, Facebook use may also have included activities unrelated to PTSD. As such, we cannot know what specifically about participants' Facebook use reduced their well-being. Second, as a result of the study's cross-sectional design, no causality can be inferred. Third, the study sample overrepresented older adults (58%) and men (85%). As such, in terms of the latter point, gender may have had an effect on the association between Facebook use and PTSD.

In future studies, it would be helpful to more carefully consider the conditions under which Facebook use would contribute to users' well-being, for instance by determining whether the various Facebook activities are related to PTSD or not, or whether they involve participation in PTSD support groups and communication with other PTSD patients. Furthermore, additional studies are required to examine the association between Facebook use among other groups at high risk of poor mental health.

In conclusion, the findings of the current study increase our understanding of the mechanisms that link social networking use with mental health outcomes, suggesting that a continued emphasis be put on examining the specific social contexts in which social networking may be pathogenic. Although risk modeling was limited by the cross-sectional design, our results suggest that social network use may be a determinant of negative mental health, at least among veterans with PTSD. Although we recommend further longitudinal research, the results of this study suggest that, among vulnerable groups, the extent of Facebook activity is associated with decrease psychological health.

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