

# Stigma and Barriers to Mental Health Care in Deployed Canadian Forces Personnel

Kerry Sudom

*Defence Research and Development Canada, Department of National Defence,  
Ottawa, Ontario, Canada*

Mark Zamorski and Bryan Garber

*Canadian Forces Health Services Group Headquarters, Department of National  
Defence, Ottawa, Ontario, Canada*

Mental disorders are prevalent on deployed operations, but only a small fraction of those with problems access care due to a range of barriers. A survey measuring need for care, perceived barriers, and care-seeking propensity was administered to Canadian Forces personnel during deployment in Afghanistan. Complex characteristics of barriers to care on deployment were found: stigma had no association with care-seeking propensity; perceived structural barriers were associated with *greater* care-seeking propensity; and perceived structural barriers were greater in more isolated locations. Only negative attitudes toward care had the expected negative association with care-seeking propensity. Research and practical considerations are discussed.

Approximately 15% of Canadian military personnel suffer from common mental disorders such as depression, post-traumatic stress disorder, and social phobia (Sareen et al., 2007). These disorders impair well-being and may result in a number of adverse outcomes for the military as an employer, in terms of impaired productivity and absenteeism (Rost, Smith, & Dickinson, 2004), turnover (Hoge, Auchterlonie, & Milliken, 2006), and other undesirable organizational outcomes (Vinokur, Pierce, Lewandowski-Romps, Hobfoll, & Galea, 2011).

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Correspondence should be addressed to Kerry Sudom, Defence Research and Development Canada, Department of National Defence, 101 Colonel By Drive, Ottawa, ON K1A 0K2, Canada. E-mail: kerry.sudom@forces.gc.ca

Studies in both military and civilian settings demonstrate that only a minority of those with need actually seek care. A broad range of structural and attitudinal barriers is involved in the decision to seek care (Fikretoglu, Guay, Pedlar, & Brunet, 2008; Hoge et al., 2004; Sareen et al., 2007; Wang, 2006). Past research has shown that perceptions of stigma associated with seeking care for mental health problems and structural barriers related to practical concerns about seeking treatment (e.g., difficulty getting an appointment) represent distinct factors that influence care seeking for mental health problems (e.g., Britt et al., 2008).

In an effort to overcome structural barriers to care, the Canadian Forces (CF) has invested heavily in its mental health system over the past decade. As a result, it now has about twice as many mental health clinicians per capita as the Canadian general population. Military personnel receive an unlimited amount of care at no out-of-pocket expense. They are released from their duties for treatment and are transported to care at public expense if required. As a result, structural factors are not prevalent reported barriers in the CF (Department of National Defence, 2010). Hence, attitudinal barriers such as stigma are of particular interest (Britt, 2000).

Although it would be expected that greater perceptions of stigma would be associated with lower care-seeking propensity, the findings have been mixed. Studies have shown that stigma beliefs generally demonstrate the expected inverse relationship with care-seeking propensity (e.g., Druss & Rosenheck, 1998; Schomerus & Angermeyer, 2008). However, Kim, Britt, Klocko, Riviere, & Adler (2011) found no effect of stigma on the propensity to seek care, while Brown, Creel, Engel, Herrell, & Hoge (2011) found that perceived stigma was associated with *greater* interest in care, and Rae Olmsted et al. (2011) found greater stigma beliefs in those who sought treatment.

Recent research has therefore questioned whether stigma is truly the attitudinal barrier of greatest importance. Using a more comprehensive set of survey items, Kim et al. (2011) found that in addition to stigma and structural barriers, negative attitudes toward mental health treatment (e.g., the belief that care is ineffective) represented a third, distinct dimension of barriers to care. Although stigma was not associated with treatment utilization, those with negative attitudes toward care were less likely to use mental health services (also noted by Britt et al., 2011), indicating that negative beliefs about mental health care are particularly important in the decision to seek care. Similarly, other civilian (Mojtabai et al., 2011; Schomerus & Angermeyer, 2008) and military (Stecker, Fortney, Hamilton, & Ajzen, 2007; Vogt, 2011) research has highlighted the importance of other attitudinal barriers, notably negative attitudes about the risks or efficacy of mental health care or the belief in self-management of mental health problems, that may be equally or more important than stigma in preventing care seeking. While the findings on stigma have been mixed, other negative attitudes toward care have

tended to show the expected relationship with care seeking (Brown et al., 2011; Kim et al., 2011).

Although much of the past research on barriers to care among military personnel has been conducted in garrison, less is known about whether the same pattern of relationships would be found in deployed personnel. In addition to mental health problems among military members in garrison and following deployment, mental health problems are also seen on deployed operations, where adverse impacts on operational effectiveness are possible (Garber & Zamorski, in press; Office of the Surgeon General, 2006). Delivery of mental health care on deployment poses logistical challenges, and care may be far less available and accessible in more forward areas, where need is likely to be concentrated. The deployed setting may also foster particular attitudinal barriers to care, such as the tendency to “soldier on” in the face of illness or injury, which may reflect the organizational climate of the deployed setting.

Effectively overcoming barriers to care on military operations requires a rich and complete understanding of the interrelationships among need, perceived barriers, and care-seeking propensity. To this end, this exploratory study was undertaken to examine the relationships among these variables in a group of Canadian Forces personnel deployed in Kandahar Province, Afghanistan. First, the factor structure of perceived barriers to care, including items regarding attitudes toward care, was examined. This analysis builds upon previous work (Britt et al., 2008; Kim et al., 2011; Wright et al., 2009) which has examined the structure of barriers to care and extends this work to examine barriers in deployed personnel. Specifically, using items related to negative attitudes about mental health treatment similar to those used by Kim et al. (2011), we assessed whether negative attitudes would represent a distinct factor associated with care-seeking behavior. Second, the association of deployment location with perceived barriers was explored, in order to examine whether barriers vary as a function of the accessibility of care and the organizational climate in forward areas. Although structural barriers are expected in forward areas where care is less accessible, the extent to which attitudinal barriers are prominent in such areas is unknown. Finally, the association between perceived barriers and the propensity to seek care was examined to confirm whether attitudinal barriers truly interfered with care.

## METHODS

### Participants and Procedure

All CF personnel deployed on two consecutive 7-month rotations of a combat and peace-support operation in Kandahar Province, Afghanistan, in 2009–2010, were given an opportunity to voluntarily complete an anonymous mental health survey

modeled after the U.S. Army's Mental Health Assessment Team's (MHAT) approach (Office of the Surgeon General, 2006). Potential subjects with an e-mail account received an invitation to complete an electronic survey, and those without e-mail accounts received paper surveys through unit personnel, either individually or in groups. The study was approved by a CF Research Ethics Board. In total, 2,437 surveys were completed out of approximately 5,600 eligible personnel (overall response rate = 44 percent).

## Measures

*Need for care.* Need for mental health care was assessed by using the Posttraumatic Stress Disorder (PTSD) Checklist, Civilian Version (PCL-C) (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Weathers, Litz, Herman, Huska, & Keane, 1993) to measure symptoms of traumatic stress, and a form of the Patient Health Questionnaire (PHQ) (Spitzer, Kroenke, & Williams, 1999), which was adapted slightly for the MHAT, to measure symptoms of depression or generalized anxiety. Given the known association of disorder severity and care seeking (Britt et al., 2011), two different cut-offs were used for each instrument. The less stringent cut-off used the validated civilian cut-off for the PHQ (Spitzer et al., 1999), and a cut-off of 50 or greater for the PCL-C. The more stringent cut-off (taken from the MHAT) required significant levels of perceived dysfunction as a result of the problem (for anxiety or depression), or meeting minimum symptom cluster counts for the PCL-C. For the purpose of this article, "more severe disorder" means that the respondent met the criteria for one or more disorders at the more stringent cut-off. "Less severe disorder" means that they met only the less stringent cut-off for a disorder.

*Care-seeking propensity.* Care-seeking propensity was measured by a single MHAT item: "Are you CURRENTLY interested in receiving help for a stress, emotional, alcohol, or family problem?" The response categories were "yes" and "no."

*Use of mental health services.* An MHAT item asked if the respondent had received "counselling/mental health services for a stress, emotional, alcohol, or family problem" from a mental health professional, general medical doctor, or unit medic during the deployment.

*Location of deployment.* Three to four CF mental health professionals supported deployed personnel out of Kandahar Airfield (KAF). Care was highly accessible for those in KAF, but clinical outreach into forward areas was sporadic—personnel with mental health needs were generally managed by primary care personnel or were transported to KAF for specialty care. Deployment

location was used as a proxy both for the objective accessibility of care and for the organizational climate in forward areas. Forward areas are expected to have fewer mental health resources, and to be more likely to foster a mission-focused, “soldier-on” mindset that may increase reluctance to seek care. Respondents indicated their principal deployment location as being: “Non-isolated (e.g., Kandahar Airfield)”; “Semi-isolated (e.g., forward operating base)”; or “Isolated (e.g., strong point, patrol base, police sub-station, etc.).”

*Perceived stigma and barriers to care.* To assess perceived stigma and barriers to seeking mental health care, 19 items were taken from the MHAT (Office of the Surgeon General, 2006). Respondents were asked: “Rate your level of agreement with each of the following statements pertaining to factors that might affect your decision to receive mental health counselling or services should you ever have a problem during this deployment.” The items were developed through qualitative research (Britt, 2000) and refined through the MHATs, the Land Combat Study (Hoge et al., 2004), and other work (Britt et al., 2008; Wright et al., 2009). Items were rated on a 5-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”).

### Statistical Analysis

Analyses were performed using SPSS version 19.0. First, principal components analysis (PCA) with an orthogonal (Varimax) rotation was used to assess the underlying factor structure of the perceived barriers items and to generate factor scores for further analysis. Preliminary univariate analysis to examine differences in factor scores as a function of need, propensity to seek care, and deployment location was done using the  $\chi^2$  test for categorical data and analysis of variance (ANOVA) for continuous data. Logistic regression was used to explore the association of perceived barriers with care-seeking propensity. Finally, univariate ANOVA was used with factor scores as the dependent variable to further explore the interrelationships among the variables of interest, including interactions that emerged during exploratory data analysis.

## RESULTS

### Respondent Characteristics

The majority of the respondents were junior noncommissioned members (68 percent). As well, most respondents were part of the Regular Force component (83 percent), while the remainder were Reservists. Respondents were relatively equally divided among nonisolated, semi-isolated, and isolated locations (41, 28,

and 31 percent, respectively). On average, respondents had been in theatre for 4 to 5 months at the time of the survey, and 46 percent had had prior deployments. Gender was not captured on this survey, but other data collected from the deployed population suggested that about 10% to 15% percent of respondents were likely women.

### Need and Care-Seeking Propensity

In total, 196 respondents (8%) met PHQ or PCL criteria for one or more of the three assessed disorders, of which 32% were less severe disorders. In total, 118 (5%) of respondents were currently interested in getting help, and 8% had sought care during their deployment. Those with a disorder were more likely to be interested in help (27% vs. 3%),  $\chi^2(1, N = 2395) = 222, p < 0.001$  and were more likely to have sought care (27% vs. 7%),  $\chi^2(1, N = 2325) = 81.9, p < 0.001$ .

### Perceived Barriers to Care

As shown in Table 1, an important minority of respondents perceived barriers to care. The most frequently endorsed barriers were those conceptually related to stigma, for example, "My unit leadership might treat me differently," to which 30% agreed or strongly agreed. The least frequently endorsed barriers related to the availability or accessibility of care, for example, "Mental health services aren't available," to which 7% agreed or strongly agreed.

### Principal Components Analysis

Principal components analysis (PCA) of perceived barrier items yielded three factors with eigenvalues  $> 1$ , which accounted for 66% of the variance. The rotated factor solution (Table 1) shows that the items loading on the first factor (accounting for 28% of the variance) were suggestive of stigma. The second factor (25% of the variance) reflected structural barriers to care. The third factor (13% of the variance) reflected negative attitudes toward care. Only two items cross-loaded heavily in the rotated solution, "My leaders discourage the use of mental health services" and "I might be given medication that would interfere with my job."

### Univariate Analysis of Factor Scores

Table 2 demonstrates that stigma, perceived structural barriers, and negative attitudes toward care had a univariate association with *greater* care-seeking propensity. As well, structural barriers were stronger in more forward locations; no univariate differences in stigma were seen by location.

TABLE 1  
Factor Loadings Based on Principal Components Analysis

<i>Item</i>	<i>Percentage Indicating "Agree" or "Strongly Agree"</i>	<i>Factor 1: Stigma</i>	<i>Factor 2: Structural Barriers</i>	<i>Factor 3: Negative Attitudes Toward Care</i>
Members of my unit might have less confidence in me	29.3%	<b>.89</b>		
My unit leadership might treat me differently	30.1%	<b>.87</b>		
I would be seen as weak	27.3%	<b>.84</b>	.22	
It would harm my career	22.1%	<b>.83</b>	.24	
It would be too embarrassing	17.9%	<b>.69</b>	.33	.22
My leaders would blame me for the problem	11.6%	<b>.68</b>	.32	.28
It might affect my security clearance	11.7%	<b>.62</b>	.32	.27
I might be given medicine that would interfere with my ability to do my job	18.3%	<b>.58</b>	.32	.32
It is too difficult to get to the location where the mental health specialist is	13.0%	.21	<b>.84</b>	
It is difficult to get an appointment	7.2%	.21	<b>.79</b>	
There would be difficulty getting time off work for treatment	18.5%	.32	<b>.72</b>	
I would have to go too far to get treatment	10.4%	.33	<b>.72</b>	.22
Mental health services aren't available	6.7%		<b>.72</b>	.26
Mental health professionals do not come to my location often enough	13.5%	.26	<b>.70</b>	
I don't know where to get help	7.7%		<b>.67</b>	.29
My leaders discourage the use of mental health services	3.9%	.37	<b>.45</b>	.38
Psychological problems tend to work themselves out without help	13.1%	.22	.26	<b>.79</b>
Getting mental health treatment should be last resort	14.0%	.32	.22	<b>.77</b>
I don't trust mental health professionals	16.0%		.23	<b>.63</b>

*Note.* Factor loadings < .2 are suppressed.

TABLE 2  
Barrier Factor Scores: Univariate Analysis

<i>Mean Factor Scores</i>		<i>Stigma</i>	<i>Structural Barriers</i>	<i>Negative Attitudes Toward Care</i>
Current disorder	None	-0.05*	-0.04*	-0.02*
	Less severe	0.55*	0.28*	0.14*
	More severe	0.55*	0.53*	0.25*
Currently interested in care	No	-0.01*	-0.03*	0.02*
	Yes	0.30*	0.46*	-0.32*
Sought care during deployment	No	-0.01	-0.02*	0.00
	Yes	0.04	0.17*	-0.06
Primary deployment location	Nonisolated	0.05	-0.30*	-0.11*
	Semi-isolated	-0.01	0.10*	-0.01*
	Isolated	-0.05	0.29*	0.10*

\* $p < .05$ .

### Logistic Regression Results

Logistic regression (Table 3) confirmed that those with a current disorder and those in less isolated locations were more likely to be currently interested in care. After adjustment for the other independent variables, stigma was not predictive of

TABLE 3  
Logistic Regression Results: Care-Seeking Propensity  
as a Function of Need, Past Care, Location, and Barriers

		<i>Univariate OR [95% CI]</i>	<i>Adjusted OR<sup>1</sup> [95% CI]</i>	<i>p value for adjusted OR</i>
Dependent variable: Currently interested in care				
Current disorder	None	—	—	0.000*
	Less severe	5.5 [2.6–11.6]	5.7 [2.3–14.2]	0.000*
	More severe	16.2 [10.5–25.1]	10.0 [5.3–18.7]	0.000*
Sought care during deployment	No	—	—	—
	Yes	6.0 [3.7–9.4]	3.4 [1.9–6.0]	0.000*
Location	Nonisolated	—	—	0.008*
	Semi-isolated	0.9 [0.6–1.5]	0.6 [0.3–1.1]	0.101
	Isolated	0.8 [0.5–1.3]	0.4 [0.2–0.7]	0.002*
Barriers	Stigma	1.3 [1.1–1.6]	1.1 [0.8–1.3]	0.588
	Structural barriers	1.6 [1.3–1.9]	1.5 [1.1–1.8]	0.002*
	Negative attitudes toward care	0.7 [0.6–0.9]	0.6 [0.5–0.8]	0.000*

<sup>1</sup>Adjusted for the other independent variables.

\* $p < .05$ .

interest in care. Perceived structural barriers were associated with *greater* interest in care, and, in contrast to its univariate relationship, negative attitudes were associated with less interest in care. Past care was positively associated with current interest in care.

## ANOVA Results

The logistic regression results led to questions of whether important interactions were missed, and whether need, location, and care-seeking propensity were driving perceived barriers, as opposed to the other way around. Accordingly, three ANOVAs were conducted, with the barrier factor scores as the *dependent* variables and current interest in care, location, and past care seeking as independent variables. The interactions of disorder with interest in help and with location were assessed. Since it is possible that past care seeking can influence perceived barriers to seeking mental health care, it was included as a predictor in the model.

As shown in Table 4 and Figure 1, each barrier showed a unique pattern of associations and interactions, though the models accounted for a relatively small fraction of the variance. Current disorder was associated with both stigma and structural barriers, but care seeking during deployment was not associated with any of the barrier factors. The negative association between current interest in care and negative attitudes toward care seen in logistic regression was confirmed, but the positive association between current interest in care and structural barriers was not. As expected, those in more isolated locations perceived more structural barriers, and less severe disorders appeared to magnify the perception of structural barriers in more isolated areas. Location also interacted with disorder with respect to negative attitudes toward care, though the interpretation of this interaction is not clear.

TABLE 4  
ANOVA for Barriers as a Function of Need, Care-Seeking Propensity, and Location

Barrier Factor	df	Stigma (Adjusted $R^2 = 0.028$ )		Structural barriers(Adjusted $R^2 = 0.081$ )		Negative Attitudes Toward Care(Adjusted $R^2 = 0.023$ )	
		F	p	F	p	F	p
Current interest in help	1	1.09	0.297	2.93	0.087	14.50	0.000*
Current disorder	2	16.33	0.000*	7.49	0.001*	2.01	0.135
Location	2	1.64	0.194	26.10	0.000*	2.24	0.106
Sought care while deployed	1	1.05	0.306	0.03	0.855	1.03	0.309
Disorder* Interest in help	2	0.95	0.387	4.29	0.014*	0.884	0.413
Disorder* Location	4	1.65	0.158	3.07	0.016*	2.48	0.042*

\* $p < .05$ .

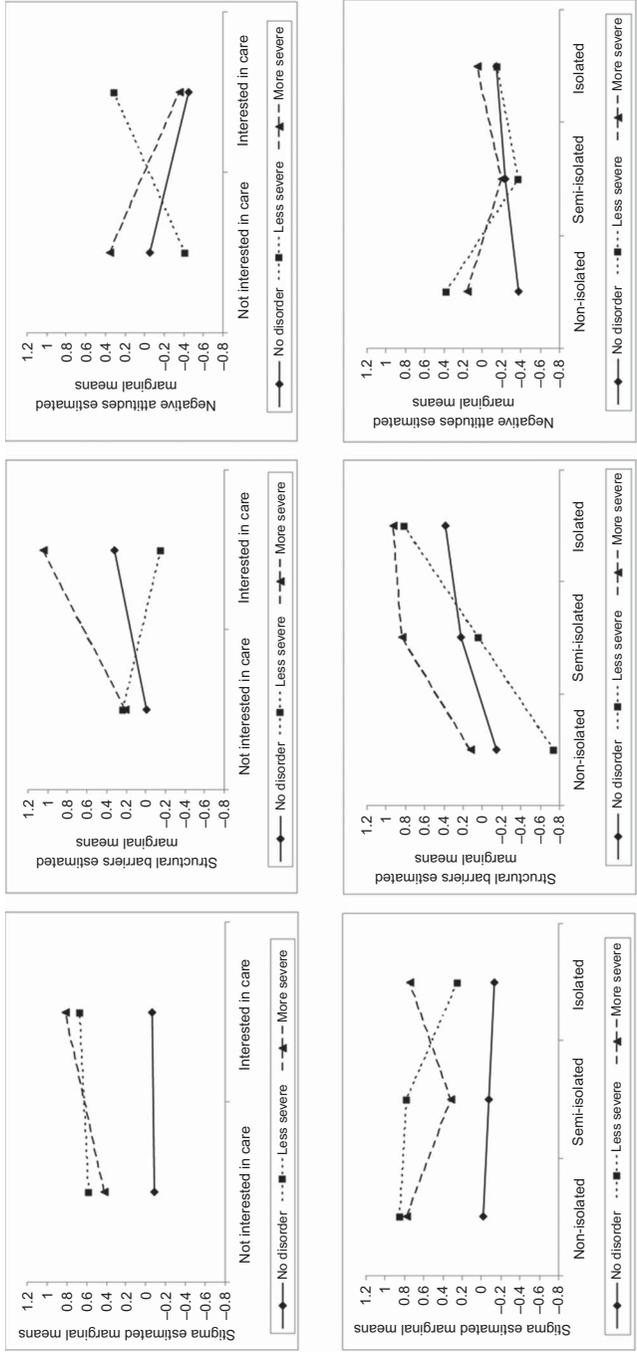


FIGURE 1 Barriers as a function of location, need for care, and care-seeking propensity.

## DISCUSSION

This study of need and barriers to care on deployment identified an important minority of individuals with current symptoms of a mental disorder. However, interest in getting professional help was limited. A number of barriers may exist on deployment that limit care seeking. To examine this, a principal components analysis of perceived barriers to mental health care was carried out, and three conceptually coherent factors were identified: stigma, structural barriers to care, and negative attitudes toward care. Items that cross-loaded appeared to reflect both attitudinal and structural barriers to care. For example, “I might be given medications that would interfere with my job” reflected stigma (being discriminated against unfairly), a structural barrier (medication could violate bona fide occupational standards), and negative attitudes toward care (i.e., that it is harmful). In contrast, concerns about career impact loaded decisively on the stigma factor, suggesting that the underlying concern is about unfair discrimination.

Preliminary analyses suggested that perceived barriers may modify the relationship between need and interest in seeking care. Although no relationship was found between stigma and care-seeking propensity in any of the models tested, structural barriers were consistently associated with *greater* care-seeking propensity. This finding makes sense if one considers the possibility that the experience of care seeking or the cognitions that precede it are driving the perceptions of barriers rather than the other way around. Only negative attitudes toward care showed the expected negative association with care-seeking propensity.

Those in forward areas were no more likely to report stigma or endorse negative attitudes toward care; this challenges the belief that these are a greater problem in combat arms personnel. As expected, though, those in forward areas did perceive greater structural barriers to care, and they were (perhaps as a result) less likely to be currently interested in care. The survey took place about 2 to 3 months before the end of the deployment—respondents in forward areas may have also simply decided to “soldier on” until their return.

For stigma, there was no evidence of an interaction between location and current disorder. For structural barriers, these did interact such that the presence of a disorder magnified the perception of structural barriers in forward areas, mainly for those with less severe disorders. A small interaction was found between location and disorder on negative attitudes toward care: there was no influence of disorder on negative attitudes toward care in semi-isolated areas. This may be due to chance or to differences in organizational climate among the locations; others (e.g., Wright et al., 2009) have shown these to be important factors for perceived barriers to care.

Need for care was initially viewed as a covariate as opposed to a potential driver of perceived barriers. The pattern of relationships that emerged demanded an explanation for the effect of need on perceived barriers, especially for stigma.

A number of potential explanations were considered. First, if barriers truly drive people away from care, those with barriers would be less likely to recover and hence more likely to be identified in point prevalence surveys. If so, one would expect that fewer perceived barriers would be associated with greater care-seeking propensity. Second, the perceived barriers of those with need may be better informed or more salient, based on personal experiences with mental health problems or attempts at care seeking. If so, we would expect more perceived barriers in those with care-seeking propensity. Third, the effects of mental illness may result in cognitive distortions, which would result in an effect of disorder on perceived barriers, independent of care-seeking propensity. Finally, need and perceived barriers may share a common substrate in brain structure, personality, early life experiences, or other variables not measured in this study.

Viewed through this lens, the unique patterns of inter-relationships of the barrier factors and covariates suggest both common and distinct mechanisms for the association of need and perceived barriers. For example, our stigma and structural barriers findings are inconsistent with the first explanation—those with more of these barriers were not less likely to have sought care. In contrast, the structural barrier findings are entirely consistent with the second explanation, which suggests that perceived barriers become more salient once respondents have experience with mental health problems or attempt to seek care, or that the current perceptions of structural barriers were informed by their care-seeking process. Those with past care were more likely to be interested in care currently; this is consistent with a beneficial effect of past care on current attitudes. Finally, the stigma findings are entirely consistent with the cognitive distortion hypothesis.

### Comparison With Findings of Other Studies

Using a nearly identical panel of items on a postdeployment sample, Kim et al. (2011) found a similar three-factor structure with the same cross-loaded items, while others (Britt et al., 2008, Wright et al., 2009) have failed to find a negative attitudes factor, though they tended to have fewer items that captured this important dimension.

The strong association found in the present study between need and care-seeking propensity has been noted by others (e.g., Fikretoglu, Liu, Pedlar, & Brunet, 2010). As well, need was associated with stigma and perceived structural barriers, which is also consistent with previous research (Kim et al., 2011; Gould et al., 2010; Hoge et al., 2004; Iversen et al., 2011; Office of the Surgeon General, 2006; Schomerus & Angermeyer, 2008; Wright et al., 2009).

Previous findings on the association between stigma and care-seeking propensity are mixed: civilian studies (summarized by Schomerus & Angermeyer, 2008) have shown the expected negative correlation, but other military studies (Britt et al., 2011; Kim et al., 2011) showed, as we did, no association whatsoever. Rae

Olmstead et al.'s (2011) finding of increased stigma in care-seekers may not be incompatible with our own, given that that study did not control for the presence of a disorder. Other studies exploring this in military personnel and veterans are lacking (Vogt, 2011). It is difficult to reconcile this finding of no association of stigma with care seeking against the lived experience of personnel who very clearly articulate that stigma was their chief barrier to care (Corrigan & Rusch, 2002; National Defence and Canadian Forces Ombudsman, 2002). It is easier to reconcile against the anecdotal experiences of CF mental health professionals who observe that when disclosure of a mental disorder does occur, the consequences are generally positive. However, it is important to keep in mind that stigma about mental illness certainly exists, and it is harmful in ways that go beyond its effects as a barrier to care.

Civilian studies have consistently found that structural barriers are associated with decreased care-seeking propensity (e.g., Druss & Rosenheck, 1998); we found the opposite, while Kim et al. (2011) found no difference. These disparities may result from important differences in the structure of care in the military vs. civilian settings, in deployed vs. nondeployed settings, and in the Canadian Forces vs. the U.S. military. Both Kim et al. (2011) and Britt et al. (2011) also demonstrated the same strong, negative association between negative attitudes toward care and care-seeking propensity. The association between disorder and stigma has also been noted in military (Kim et al., 2011) and civilian studies (Schomerus & Angermeyer, 2008).

### Limitations

The response rate of 44 percent may be considered low by standards set for national civilian surveys but reflects the reality of survey administration in a deployed setting. Although it was not possible to compare responders and nonresponders due to the voluntary nature of the survey, there was good representation of those in more isolated settings. As well, the generous sample size did allow us to detect small effects.

Our results pertain only to two rotations on a demanding CF deployment, under conditions of a particular way of delivering mental health services. Results may differ meaningfully in other contexts.

Self-reporting of need, barriers, care-seeking propensity, and perceived impairment is subject to bias, even on anonymous surveys. Although the survey was voluntary, it is possible that underreporting of mental health symptoms occurred, particularly in the deployed setting, where focus on the mission over personal issues is likely to occur. As well, the rate of care seeking seems low relative to the clinical activity reported by deployed CF mental health professionals. Supplementing self-reported data on health care utilization with other objective measures, such as administrative records, would help to ensure the accuracy of the data.

The instruments used to measure the presence of symptoms of traumatic stress, depression, and anxiety have been validated against a gold-standard clinical interview in civilian (Spitzer et al., 1999) and veteran samples (Blanchard et al., 1996), but not in deployed personnel. In addition, the presence of a disorder is not necessarily the only indicator of need for mental health care. For example, some individuals may be below the clinical cut-off for a disorder, yet still need support (Garber & Zamorski, in press). Therefore, need for care may have been underestimated in this study.

Principal components analysis can be difficult to replicate, and while orthogonal rotation helps with the interpretability of the factors, it assumes that the factors are uncorrelated, which is clearly not a realistic assumption. However, we were able to replicate our results using many other approaches (data not shown), and our factor structure was identical to that reported by Kim et al. (2011), using a different survey population and a different administration context. Finally, the barrier factors correspond to the three dimensions identified in Ajzen's well-validated Theory of Planned Behavior (1991), with stigma mapping to beliefs about the normative expectations of others (normative beliefs), perceived structural barriers mapping to beliefs about factors that may affect the performance of the behavior (control beliefs), and negative attitudes toward care corresponding to beliefs about the likely outcomes of the behavior (behavioral beliefs).

The cross-sectional nature of the study design made it difficult to establish the temporality of need and care-seeking propensity, and we could not fully control for past care seeking. Recall bias for past events is possible, but we are confident in our analysis of interest in professional help, current mental disorder, and perceived barriers, as these reflected the perspective of the person at the time of the survey. The cross-sectional design of the survey also makes it difficult to determine whether perceived barriers drive care-seeking behavior, or whether such barriers are a result of care seeking. Longitudinal data are necessary to examine the temporal relationships of the variables studied.

Finally, the list of barriers employed is not exhaustive. Additional attitude items, such as the preference for self-management and the perceived dangerousness of care, were not explored in this model but may influence care-seeking behavior (Vogt, 2011). Our limited ability to predict care seeking suggests that other important factors are at play. Particularly in the deployed setting, there may be unique structural and attitudinal barriers that previous research with in-garrison or civilian samples has not addressed. Qualitative research with deployed personnel may be of particular value in examining other potential barriers to care.

## Implications

A complex pattern of relationships and interactions emerged in the analysis, such that each category of barriers had a unique pattern of association with other

variables; disorder severity appeared to be an important effect modifier, so future research should take this possibility into account. Care should be taken in interpreting the interactions we detected—these were small effects that are as yet unsupported by other research, and our analytical approach was more exploratory than hypothesis-driven. However, the potential for these sorts of interactions should be considered in future work.

While attitudinal barriers likely reflect some combination of perception and objective reality, structural barriers, presumably, would be similar for all individuals in a given location. Yet, differences in the extent to which structural barriers were endorsed were found, indicating that such barriers likely have some attitudinal component. Developing effective methods of counteracting barriers to care hinges upon a thorough understanding of their antecedents and the extent to which the perceptions measured correspond to objective reality. In particular, assessment of the attitudinal factors unique to the deployed setting, including the “soldier on” mindset, may aid in understanding the impact of attitudinal factors on seeking mental health care while deployed.

It is important to note that intention to seek care may not translate into utilization; this is an example of what has been called the “intention-behavior gap” (e.g., Sheeran, 2002). Indeed, none of the perceived barrier factors were independently associated with use of mental health services while deployed. In terms of interventions, changing attitudes toward mental health care may thus not be sufficient to increase mental health care use. Research on interventions to overcome barriers needs to assess care seeking, not just attitude change or intent to seek care (Vogt, 2011). In addition, statistical models need to account for a larger fraction of variance than those presented here in order to accurately predict intent to seek care and actual care seeking. Longitudinal data are needed to assess the temporality of attitudes, onset of disorder, and care seeking, given the potential of mental disorders and care seeking to influence perceived barriers.

Our findings argue for the targeting of negative attitudes toward care in mental health training; changing these may have greater effects on care seeking than decreasing the tendency to stigmatize, which is deeply entrenched in human nature (Hinshaw & Stier, 2008). Training should also provide concrete strategies on how to overcome structural barriers to care—this may help close the “intention-behavior gap.” Cognitive-behavioral educational approaches (Dickstein, Vogt, Handa, & Litz, 2010) may help address that fraction of stigma (and other barriers) that is due to cognitive distortions.

The likelihood of seeking mental health care when experiencing psychological problems probably depends on some combination of attitudes and objective barriers, and attempts to overcome barriers to care must address both. Interventions to increase mental health care use may thus need to address both the intention to seek care (e.g., by addressing the negative attitudes that hinder individuals from

seeking care) and the actual care-seeking behavior (e.g., by providing concrete guidance on how to overcome structural barriers to care).

With respect to clinical care, systematic assessment and targeting of barriers early in the course of care may help: the same barriers that interfere with care seeking likely also interfere with engagement in care (Edlund et al., 2002; Vogt, 2011). Mental health screening can also be used to assess and target barriers (Warner, Appenzeller, Mullen, Warner, & Grieger, 2008). Making care extremely easy to access may also pay dividends, particularly given that our models of perceived structural barriers to care accounted for more variance than those for the other barriers. Clinical outreach into forward areas has common-sense appeal, but without additional interventions to increase the interest in receiving care, this is unlikely to have much impact.

## CONCLUSION

This article extends our understanding of barriers to care to the deployed setting. More importantly, it provides a glimpse into the complexities of the interrelationships and interactions among need, barriers, and care seeking. These challenge conventional notions of cause and effect, finding as we did evidence that the stigma of care seeking may be driven by the underlying mental disorder. That is, social stigma may be in part a projection of the devalued self onto others. If true, this would have important implications with respect to how stigma is addressed as a barrier to care (Dickstein et al., 2010). Although exploratory, the research suggests that each category of perceived barriers has its own complicated story to tell, and that further investigation into the barriers to care in the deployed setting is needed. More effective efforts to overcome these barriers depend upon a deeper understanding of them.

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