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Review

Pathways to mental health care in active military populations across the Five-Eyes nations: An integrated perspective☆

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ABSTRACT

Military service is associated with increased risk of mental health problems. Previous reviews have pointed to under-utilization of mental health services in military populations. Building on the most recent systematic review, our narrative, critical review takes a complementary approach and considers research across the Five-Eyes nations from the past six years to update and broaden the discussion on pathways to mental healthcare in military populations. We find that at a broad population level, there is improvement in several indicators of mental health care access, with greater gains in initial engagement, time to first treatment contact, and subjective satisfaction with care, and smaller gains in objective indicators of adequacy of care. Among individual-level barriers to care-seeking, there is progress in improving recognition of need for care and reducing stigma concerns. Among organizational-level barriers, there are advances in availability of services and cultural acceptance of care-seeking. Other barriers, such as concerns around confidentiality, career impact, and deployability persist,

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however, and may account for some remaining unmet need. To address these barriers, new initiatives that are more evidence-based, theoretically-driven, and culturally-sensitive, are therefore needed, and must be rigorously evaluated to ensure they bring about additional improvements in pathways to care.

1. Introduction

Military service and deployment experiences can be stressful, and are associated with increased rates of mental health problems during and after service (Rusu, Zamorski, Boulos, & Garber, 2016; Stevelink et al., 2018). Indeed, recent surveys with nationally representative samples (Rusu et al., 2016), as well as cohort studies of personnel deployed to missions such as Iraq and Afghanistan (Stevelink et al., 2018) have consistently captured the high prevalence of mental health problems in military populations. With increased recognition of the extent and consequences of mental health problems, military leaders, policy makers, researchers, and the larger public have called upon governments to provide timely and appropriate mental health treatment services to serving members (Hoge et al., 2016; Zamorski et al., 2016).

Historically, the focus of such calls has been treatment for military service-related posttraumatic stress disorder (PTSD). This focus is understandable in light of PTSD's often extensive psychiatric comorbidity and impact on health (Ramchand, Rudavsky, Grant, Tanielian, & Jaycox, 2015), and the implicit social contract to provide care for conditions developed as a result of military service (Adler & Castro, 2013). However, PTSD is one of many sequelae of military service; others, such as major depressive disorder (MDD), generalized anxiety disorder (GAD), and suicidal ideation, plans, and behaviours, are also common (Rusu et al., 2016; Stevelink et al., 2018; Taillieu et al., 2018). Further, such conditions may be due to risk exposures that are not solely related to military service (Richardson et al., 2020; Rusu et al., 2016; Sheriff, Van Hooff, Malhi, Grace, & McFarlane, 2020a; Stevelink et al., 2018). Two Canadian studies found that prevalence of MDD, GAD, and suicidal ideation were higher by 4.5%, 3%, and 2%, respectively in military than in comparable civilians (Rusu et al., 2016) and that exposure to non-military trauma made a stronger contribution to having these conditions than deployment (Boulos & Zamorski, 2016a). An Australian Defence Force (ADF) study reported similar findings (Sheriff, Van Hooff, Malhi, Grace, & McFarlane, 2020b). Another Canadian study found that non-military trauma had an association with service use independent of demographic, deployment, and mental health factors (Turner et al., 2017).

Previously, Forbes and colleagues summarized the scientific literature on PTSD and its treatment in military and veteran populations (Forbes et al., 2019) from the unique perspective of the Five-Eyes nations (Australia, Canada, New Zealand, United Kingdom, and United States). Given the afore-mentioned findings, which point to the need to have a broader view of mental health conditions and services in the military setting, the goal of the current paper is to leverage the same perspective to review extant research on mental health service use across the full range of mental health conditions and associated features experienced by active military personnel.

Summaries of this topic to date have been published previously, including a systematic review (Hom, Stanley, Schneider, & Joiner, 2017). Nevertheless, there are several factors that call for a new review paper. First, the most recent systematic review (Hom et al., 2017) included papers published up to 2015, thereby not referencing the considerable body of research published in the past six years, including Australia's Transition and Wellbeing Research Programme, Canada's epidemiological survey of mental health in the military, U.K.'s cohort studies on the Iraq and Afghanistan missions, and U.S.'s administrative and medical-records based studies on quality of care (Forbes et al., 2018; Hepner et al., 2017; Rusu et al., 2016; Stevelink et al., 2018). Papers published from these and other landmark studies are not captured in extant reviews.

Second, previous reviews by and large focused on only one aspect of care (i.e., initial engagement) (Hom et al., 2017), only a subset of barriers to care (e.g., stigma; (Sharp et al., 2015), or care for a particular mental health condition (e.g., PTSD or MDD; (Smith, Workneh, & Yaya, 2020; Theriault et al., 2020). However, initial engagement is only one aspect of access to care; others such as adequacy and timeliness are also important. Obtaining care is comprised of multiple steps, from initial engagement to symptom resolution and maintenance of treatment gains, with different individual- and organizational-level barriers and facilitators at each step (Rafferty, Wessely, Stevelink, & Greenberg, 2019). Focusing on a particular condition or a step thus provides a narrow perspective. Finally, to identify research gaps and priorities, methodological and theoretical issues should be considered. Reviews to date generally discussed these issues in a limited fashion. This paper aims to address these shortcomings.

To guide the reader, we outline a pathway to care schematic to highlight the components of this review (Online Supplemental Fig. 1). We consider research for key steps in this pathway: recognizing a mental health difficulty, realizing that care is needed, deciding to seek care, followed by experiences within clinical settings of engaging in, leaving, and sometimes re-engaging in care. In our review, we focus on research from the Five-Eyes nations. These nations have diverse civilian healthcare systems that differ in size, per capita spending, the mix of public-private funding, and coverage and performance indicators for mental healthcare (Barua & Moir, 2020; Papanicolas, Woski, & Jha, 2018). However, the civilian systems are rarely accessed by active Regular Force members and utilized only to some extent by active Reservists (Boulos & Fikretoglu, 2018; Forbes et al., 2018). The majority of care for active duty personnel in all five nations is provided within military health systems, which have more similarities than differences. These military care systems provide direct and indirect (purchased) mental health services at no out-of-pocket expense, differing mainly in size (Forbes et al., 2018; Ministry of Defence, 2016; New Zealand Defence Force, 2018; Tanielian & Farmer, 2019; Zamorski et al., 2016). Five-Eyes nations are developed, have well-resourced military healthcare systems, share a common cultural heritage and language, employ all-volunteer forces that are deployed around the world, and have a long history of working together on common military concerns, including mental health care gaps for military personnel, with the vast majority of studies published in English in this domain conducted in these countries (Hom et al., 2017; Theriault et al., 2020).

2. Methods

Aims, Type of Review, and Search Strategy: Building on the most recent systematic review on the topic (Hom et al., 2017) in a complementary manner, we set out to not only update but also widen the discussion on pathways to mental healthcare in active military populations by looking beyond a single indicator of access to care (i.e., initial engagement) and by trying to capture and compare improvements over time across multiple indicators. We also wanted to highlight key conceptual and methodological gaps in the literature and identify priorities for future research. Consistent with these aims, we chose a narrative, critical review approach which provides a broad understanding of the topic of interest (University of Alabama at Birmingham Libraries, 2020). We conducted a comprehensive search of PsycINFO, MEDLINE, SocINDEX, and PTSDpubs for studies published up to September 15, 2021, and similar terms as those used in the most recent systematic review: ("service use" OR "help-seeking" OR "treatment seeking" OR "treatment use" OR "service utilization" OR "stigma" AND "military" OR "active

duty" OR "service member*" OR "soldier"). We included articles and government reports if they were published in English, examined mental health service use, and were conducted in the Five-Eyes nations. We did not include conference proceedings, studies with veteran-only samples, or studies focusing on non-mental health (i.e., medical) service use. For updating findings on initial engagement, barriers to care, and interventions to improve care-seeking, which were the three foci of the Hom et al., 2017 review, we focused on and synthesized findings from studies published since September 18, 2015 (the end date of the search used in Hom et al., 2017). For summarizing findings on care adequacy and timeliness, which were not considered in the Hom et al., 2017 review, we synthesized findings from all published studies, although for the purposes of consistency, we placed a greater emphasis on more recent study findings (i.e., published since September 18, 2015), including older studies mostly as a point of reference for more recent findings, to highlight improvements over time. Earlier papers that have since been subsumed in more recent analyses were not included to avoid redundancy.

3. Results

3.1. Access to mental health services

Initial Engagement with Care: The 2017 systematic review (Hom et al., 2017) identified 111 peer-reviewed articles published in English, of which a subset of 11 studies, mostly from U.S., U.K. and Canada, reported a weighted prevalence of 29.3% for past-year mental health service use among members with a mental health condition. Building on this valuable review, we summarize findings from more recent landmark studies.

Of these, Australia's Transition and Wellbeing Study "is the most comprehensive study undertaken in Australia on the impact of military service on the mental, physical, and social health of transitioned and 2015 Regular ADF members and their families" (Forbes et al., 2018, p. iii). Using a broad definition of service use ("any assistance for mental health"), the Pathways to Care Report from this study found that among a random sample of ADF members serving in 2015 who had felt concerned about their mental health in their lifetime, approximately three-quarters reported ever receiving some form of assistance for mental health. The prevalence of current or past-year assistance within this group was also high at 46%. Of those ADF members with a probable 30-day disorder, the prevalence of assistance received was 81% for lifetime and 51% for current or past-year. These rates demonstrate that for ADF members, there is a readiness to seek out care and those who need it most appear to reach out for support, broadly defined. Further, these prevalence rates are higher than those reported in earlier studies in the ADF and the general Australian population (McFarlane, Hodson, Van Hoof, & Davies, 2011), although head-to-head comparisons are difficult due to methodological differences across the studies.

In Canada, data from the 2013 Canadian Forces Mental Health Survey (CFMHS), a large epidemiological replication survey of mental health and service use (with almost identical methodology to an earlier 2002 survey) became available in 2016. Using a more restrictive indicator of service use, past-year service use rates of 21% with mental health professionals and 30% with non-professionals such as peers were reported (Statistics Canada, 2013). These rates -combined- demonstrate that approximately half of Canadian Regular Force personnel who needed help reached out for formal or informal help. Both Australian and Canadian rates suggest an openness to recognize need and to seek help within the occupational culture.

In the U.K., compared to previous research (Iversen et al., 2010), a recent study (Stevelink et al., 2019) found an increase in help-seeking from formal medical and welfare support sources. More specifically, in a sub-sample of a U.K. military cohort that was selected on the basis of self-reporting a stress, emotional, or mental health problem in the past three years, 55% and 46% reported accessing mental healthcare from medical and non-medical sources, respectively. In a 2016 survey of U.S. Army Soldiers, 39% of those who met criteria for PTSD reported currently being in mental health treatment; for all mental health conditions identified, current treatment utilization was 21% (Naifeh et al., 2016).

In examining trends in access to mental health services between 2002 and 2012/13, Fikretoglu and colleagues (Fikretoglu, Liu, Zamorski, Rusu, & Jetly, 2018) found significantly greater absolute increases of 3.66% in access to care among Regular Forces compared to matched civilians. These findings echoed those from an earlier U.S. study (Quartana et al., 2014) which reported significant increases of 7.2% in service use between 2002 and 2011 based on data from the Health-Related Behavior and the Land Combat Study surveys.

While high levels of engagement and increases in access to care across nations are promising, there remain military personnel who need help but are not accessing care. For instance, in the Pathways to Care report, approximately 25% of ADF personnel with a probable 30-day disorder did not report current or past-year assistance (Forbes et al., 2018). While having a mental health condition does not mean an individual needs services, it is still likely that some portion of these military members needed but did not access services. In Canada, 22% of Regular Forces who had an Afghanistan deployment and an identified mental disorder reported they needed but did not receive mental health services in the past year (Boulos & Fikretoglu, 2018). Lower rates of help-seeking have also been reported among military members with alcohol misuse (Iversen et al., 2010; McFarlane et al., 2011; Stevelink et al., 2019) and among those from certain geographic locations (Hepner et al., 2017).

Adequacy of Care: In contrast to the considerable literature on initial access to and engagement with mental health services, fewer studies have examined adequacy of services received. Adequacy of care is a complex outcome (Alonso, Liu, Evans-Lacko, Sadikova, & Sampson, 2018), with heterogeneous approaches used across studies to define and measure it, ranging from number of sessions, type of care, to perceived sufficiency.

Number of Sessions. In Canada, a recent study (Fikretoglu et al., 2021) compared the number of sessions (summed across different types of providers) in the past year among Regular Forces between 2002 and 2013 and found an increase of about six sessions, from 17 to 23. This increase was independent of demographic and clinical need variables. At the same time, looking at visits with each provider separately, the majority of those who received services reported five sessions or less from any given provider type (Statistics Canada, 2013). Thus, among Regular Forces, there was an increase in service adequacy over the past decade, as measured by one indicator (i.e., number of sessions summed across all providers); when using another indicator (i.e., number of sessions for each provider), gaps in adequacy remained.

Type of care. Looking at type of care, the Pathways to Care Report (Forbes et al., 2018) found that among Regular ADF with a mental health concern and a probable 30-day disorder who had sought assistance, less than half received cognitive-behavior therapy from the provider they had seen in the past 12 months (33%, 28%, and 24% of those seeing a psychiatrist, a psychologist, and other mental health professional, respectively). A report on quality of care for PTSD and MDD in the U.S. military health care system (Hepner et al., 2017) also found that less than half of those who had received some form of psychotherapy had received psychotherapy that was evidence-based (45% and 30% for PTSD and MDD, respectively). However, this analysis defined evidence-based narrowly as it only assessed for three cognitive behavioral (rather than the full spectrum of evidence-based) treatments for these conditions; a subsequent report by the same investigators (Hepner et al., 2018) found approximately 60% of psychotherapy provided by U.S. Department of Defense mental health clinicians for PTSD and MDD was guideline-concordant. Altogether, recent findings thus suggest that despite gains over the past decade, gaps remain in objective indicators of adequacy of care in military populations.

Perceived sufficiency. Looking at subjective indicators of adequacy, a

Canadian study (Fikretoglu, Liu, Zamorski, and Jetly, 2016b) compared perceived sufficiency of care in Regular Forces between 2002 and 2013, and found a higher prevalence of mental health care needs being *fully met*, with increases of about 2–8% across different types of services, and a lower prevalence of needs being *unmet* in 2013, with decreases of 0.15–1.50% across services. Only 0.6–4.60% of the full 2013 sample reported unmet needs. In the Australian Pathways to Care report (Forbes et al., 2018), Regular ADF, irrespective of diagnostic status, reported high rates of satisfaction in accessibility, confidentiality, and effectiveness of care; However, satisfaction was lower for those with (compared to those without) a probable 30-day disorder. In summary, across nations, satisfaction with mental health care is high for all but a minority of military members.

Timeliness of Service Use. How quickly service members access care is increasingly of interest given that emerging findings point to worse occupational trajectories, as measured by medical release risk, for military personnel with longer delays to mental health care (Boulos & Zamorski, 2015). Research published between 2000 and 2010 had found substantial delays in obtaining care (Fikretoglu, Liu, Pedlar, & Brunet, 2010; Hoge et al., 2004). Still, a 2014 study of U.S. military personnel referred for mental health care through post-deployment screening after returning from Iraq or Afghanistan found improvements, with 75% of personnel following up with this mental health referral within 90 days (Hoge et al., 2014). A Canadian study (Boulos & Zamorski, 2016b) compared treatment delays across five eras (2002–4, 2005–6, 2007, 2008, and 2009–10) in a stratified, random sample from an Afghanistan-deployed cohort, looking at time elapsed between members' most recent Afghanistan deployment return date (a proxy for symptom onset) and their mental disorder diagnosis date. This study reported mean and median delays of 551 and 400 days, respectively, and importantly, found decreases in delay in subsequent eras compared to 2002/2004. The recent Pathways to Care report (Forbes et al., 2018) found more than half of ADF members had sought help within the first three months of becoming concerned about their mental health. However, about 21%, 10%, and 8%, had waited up to a year, two years, or more, respectively. In sum, recent evidence points to shorter delays to mental health care among military personnel. However, for some, there is still a gap between the onset of symptoms, recognition of need, and the first contact with the mental health care system.

3.2. Specific sub-groups of concern

While the recent scientific literature on initial engagement with, and adequacy and timeliness of mental healthcare among military personnel shows gains over time in all these indicators at the broad population-level, there remain concerns that certain subgroups may still be at risk for not accessing care, or not receiving timely or adequate care (Hom et al., 2017). In Canada and Australia, recent studies found lower rates of engagement, lower perceived sufficiency and longer delays among Reservists (Boulos & Fikretoglu, 2018, 2019; Forbes et al., 2018). A recent U.K. study, however, did not find any differences (Stevelink et al., 2019).

In addition to Reservists, concerns have been raised about different service branches. A recent Canadian study (Phinney, Zamorski, & Fikretoglu, 2019) found, in unadjusted analyses, differences in past-year service use and intensity between Army and Air Force personnel, with Army personnel reporting greater rates of initial access and greater intensity of services received; however, these differences disappeared after adjusting for demographic, military, and clinical variables. In addition, a recent U.K. study with serving and ex-personnel (Stevelink et al., 2019) reported opposite findings, with those in the Royal Air Force accessing services at a *higher* rate than those in the Army. Previously, studies pointed to differences based on military rank, with those of higher rank less likely to use services (see Hom et al., 2017 for a review) and more likely to have longer treatment delays (Boulos & Zamorski, 2016b). Other studies reported higher rates of service use and shorter delays among those who are younger (Boulos & Zamorski, 2016b) but these findings were again inconsistent, with some studies reporting the opposite (Stevelink et al., 2019). Concerns have also been raised about various occupational groups: For instance, a U.K. study showed that military doctors have a lower propensity to seek formal support than other occupational groups (Jones, Whybrow, and Coetzee, 2018b).

Recent literature continues to suggest that male military members are less likely than female military members to seek mental healthcare (Boyd, 2017; Hom et al., 2017; Jones et al., 2020; Jones, Greenberg, Phillips, Simms, & Wessely, 2019; Stevelink et al., 2019), with at least one Canadian study also pointing to men delaying treatment seeking more than women (Boulos & Zamorski, 2016b). Overall, these findings are consistent with the broader literature on gender differences in care-seeking, both for mental and physical conditions (Addis & Mahalik, 2003), with the caveat that for military personnel, these differences may relate more to mental health care while in garrison, and may not generalize to deployed settings (Jones et al., 2019).

Within the context of gender differences, special attention must be paid to mental health care specifically for military sexual trauma (MST). MST is much more prevalent among female than male personnel, and many with MST may delay or not access services at all (Holliday & Monteith, 2019). Further, there may be special barriers to accessing care for MST, such as a sense of institutional betrayal, distrust, and lack of safety (Holliday & Monteith, 2019). Once in care, these barriers may lead to higher drop-out, affecting care adequacy (Zinzow et al., 2015).

Another sub-group of concern is individuals at risk for suicide. All Five-Eyes nations have invested heavily in suicide prevention and surveillance efforts (Pruitt et al., 2019; Rolland-Harris, 2019), and connecting military members at risk for suicide to mental healthcare is a priority (Zamorski, 2011; Zuromski et al., 2019). A 2016 Canadian study reported increased help-seeking (from 51% to 73%, OR = 3.16) from 2002 to 2013 among members with past-year suicidal ideation (Sareen et al., 2016); nevertheless, of those with ideation and plans, 27% and 24%, respectively, had not sought care in the past year. A 2019 U.S. study (Zuromski et al., 2019) conducted next-of-kin and supervisor interviews and found higher rates of military mental health service utilization (roughly one-third compared to 28%) among suicide decedents in the month prior to their death compared to an earlier 2017 study (Ribeiro et al., 2017), but decedents were more likely to perceive barriers to care than propensity-matched controls; the effects were largest for attitudinal barriers. These findings underline the fact that despite some gains in connecting military personnel at risk for suicide to appropriate care, treatment gaps remain.

There is also a need to study care-seeking in other sub-groups (Hom et al., 2017). Military personnel from non-White, minority, and immigrant backgrounds may be less likely to seek care (Chu, Garcia, Koka, Wynn, & Kao, 2018). Similarly, military personnel who are lesbian, gay, bisexual, transgender, and queer may also engage less with care (Mark et al., 2019).

3.3. Barriers to and facilitators of accessing care

The above review suggests considerable gains in meeting the mental health care needs of military personnel over the past decade but it also clearly points to remaining unmet need. It is therefore important to identify barriers which may account for such unmet need, and facilitators that can be leveraged to close such gaps in care. A number of reviews on barriers to military mental health care exist, for instance one by Zinzow and colleagues (Zinzow, Britt, McFadden, Burnette, & Gillispie, 2012); we update those reviews with more recent findings.

3.4. Individual-level barriers

Ability to Recognize Emotional Problems and Willingness to Seek Care: An important early step in care-seeking is recognizing need for care. Canadian and U.K. research prior to 2015 suggested that inability to recognize need for care was the single most important barrier to

accessing services (Fikretoglu, Guay, Pedlar, & Brunet, 2008; Iversen et al., 2011). In a 2016 study of 744 U.S. soldiers who met criteria for a mental disorder but were not in treatment, nearly 70% reported not thinking that treatment was needed (Naifeh et al., 2016). A 2016 Canadian study (Fikretoglu, Liu, Zamorski, and Jetly, 2016b), found, however, that controlling for demographic and clinical need variables, there were significant increases over the past decade in perceived need for care among Regular Forces who were also more likely to recognize need for care than civilians. Likewise, in the U.K., a recent study found the top reason for accessing medical support, endorsed by 71%, was "I realised that I had a problem" (Stevelink et al., 2019).

In civilian literature, lack of perceived need has been linked to self-reliance (Gulliver, Griffiths, & Christensen, 2010). In military literature, it has been suggested that help-seeking is influenced by an occupational culture of self-sufficiency (Coleman, Stevelink, Hatch, Denny, & Greenberg, 2017). In Australia (Forbes et al., 2018), close to 60% of Regular ADF with a 30-day probable disorder reported "I can still function" and "prefer to manage myself" as reasons for not accessing care. Preference for self-management was also common in research from New Zealand and the U.K. (Boyd, 2017; Sharp, 2016). Self-reliance has been linked to minimisation of mental and non-mental health symptoms (Dabovich, Eliott, & McFarlane, 2021) and lower likelihood of mental health treatment-seeking (Adler, Britt, Riviere, Kim, & Thomas, 2015).

An important consideration regarding perceived need for care and self-management preference is the extent to which such perceptions truly represent barriers (i.e., they constitute accurate self-assessments versus misperceptions). The relationship between mental health status and perceived need for care is complex, with studies (Forbes et al., 2018; Sareen et al., 2007) finding that some military members who meet diagnostic criteria do not report need for care and others who do not meet diagnostic criteria report need and access care.

Stigma: Stigma may be one reason why military personnel may be unwilling to acknowledge need for care. Public stigma is common, for instance, half of a U.K. sample who were asked about their intended future behavior toward people with mental health problems were either neutral or did not agree with the statement that "in the future they would be willing to work with someone with a mental health problem" (Jones, Twardzicki, Fertout, Jackson, & Greenberg, 2013). In another study, U.K. military personnel held more negative views compared to the general population about the job rights of people with mental illness (Forbes et al., 2013).

Anticipated public stigma, including concerns about "being seen as weak" is also common (Boyd, 2017; Forbes et al., 2018; Sharp et al., 2015; Statistics Canada, 2013; Williamson, Greenberg, & Stevelink, 2019) but may depend on deployment status, country of origin, and current mental health status (Forbes et al., 2018). Further, the relationship between anticipated stigma and help-seeking is inconsistent across studies, with one systematic review (Sharp et al., 2015) concluding there is no relationship but another finding a consistent negative relationship (Coleman et al., 2017). The relationship between experienced public stigma and help-seeking is also complex. For instance, a recent Canadian study found higher prevalence of experienced stigma in military personnel compared to civilian controls, with a prevalence ratio [PR] of 1.70; nevertheless, military personnel in this study were *more*, not less, likely to seek care, with a PR of 1.86 (Weeks, Zamorski, Rusu, & Colman, 2017). Research on self-stigma in military populations is limited (Sharp et al., 2015). However, studies suggest there may be value in understanding the impact of self-stigma on help-seeking (Blais & Renshaw, 2013; Hom, de Terte, Bennett, & Joiner, 2020; Wade et al., 2015).

In addition, stigma may not be a challenge that is unique to mental health care seeking. A U.S. study found that the same barriers and facilitators associated with mental health care seeking were associated with physical health care seeking (Britt, Sipos, Klinefelter, and Adler, 2020a). Another U.S. study found that perceptions of mental health care and self-reliance were much more strongly linked to help-seeking than traditional measures of stigma (Adler et al., 2015). Altogether, recent scientific literature thus suggests that efforts to better understand stigma as a barrier to mental healthcare must continue despite decreases in stigma over time in military populations (Osório, Jones, Fertout, & Greenberg, 2013; Quartana et al., 2014). There must also be a concurrent search, however, for other attitudinal and institutional barriers to care.

Additional Attitudinal Barriers and Facilitators: Among other attitudinal barriers to mental health service use, several involve perceptions of the nature and effectiveness of mental health treatments and services. For instance, a U.S. study found that some military members think "mental health professionals cannot be trusted" (Adler et al., 2015). Similarly, a Canadian study found that many military members think mental health professionals may "give medicine that could harm" the individual (Statistics Canada, 2013). Beliefs about the effectiveness of mental health treatment and services may be particularly important. For instance, the belief that mental health services *would be* effective was the most important (and the single attitudinal) facilitator of accessing care among Canadian Regular Force personnel with depression (Theriault et al., 2019). Similar findings were reported in a longitudinal study (Adler et al., 2015) among U.S. soldiers, with positive beliefs such as "it takes courage to get treatment for a mental health problem" increasing the odds of accessing care by almost 2.5 times.

3.4.1. Organizational level barriers

Structural barriers and facilitators within military health care systems: In the past decade and a half, the five nations invested heavily in expanding capacity in their military mental health systems (Forbes et al., 2018; Hoge et al., 2016; Osório et al., 2013; Tanielian & Farmer, 2019; Zamorski et al., 2016) increasing the number of providers, programs, and services, instituting educational programs, coordinating care across primary and specialty mental health services, standardizing assessments, and enhancing post-deployment screening. The prevalence of availability barriers in military populations is therefore generally low. For instance, in Canada, less than 10% of service members who did not seek help but recognized a need for counselling, reported they "did not know how or where to get this kind of help" (Statistics Canada, 2013).

While availability barriers are uncommon, accessibility barriers may be more prevalent, both in primary and specialist care settings. In most military health systems, primary care serves not just as the first point of contact but also plays a critical role in facilitating access to specialist mental health care (Forbes et al., 2018). Recent studies indeed underscore the importance of primary care: In Australia, Regular ADF with a mental health concern had very high rates of consulting a General Practitioner (GP) or Medical Officer (MO), and rated their satisfaction with services provided by these professionals very high. Further, more than one-third of the Regular ADF who received assistance in accessing mental health services, in the form of a suggestion to seek help, reported receiving this assistance from a GP or MO.

Though primary care consistently serves as a critical pathway to care, the comfort level, knowledge base, and time constraints of the primary care providers are potential barriers to optimal utilization of primary care in the delivery of mental health services. It is important to ensure military members can access primary care providers, and that primary care providers have the required clinical and (military) cultural skills and competencies commensurate with their role. A 2016 study (Tanielian et al., 2016) across 18 U.S. Army primary care clinics interviewed patients and health care providers and found that both groups reported concerns around accessibility of primary care providers: these included concerns that there may be insufficient number of providers, that providers may not have sufficient time to address the needs of military members, and that it may be difficult to book appointments outside of duty hours.

To enhance the critical role of primary care, mental health providers can be integrated within this setting. U.S. Department of Defense policies directed full implementation of Behavioral Health in Patient-

Centered Medical Home and Primary Care-Mental Health Integration (Department of Defense, 2013). In addition, in the U.S., STepped Enhancement of PTSD Services Using Primary Care (STEPS-UP) and *Re*-Engineering Systems of Primary Care for PTSD and Depression in the Military (RESPECT-Mil) (Belsher et al., 2016; Engel et al., 2014) demonstrated that stepped collaborative care models increase mental health service use and optimize interventions for MDD and PTSD. The U.S. Army has therefore adapted its system of care and embedded Behavioral Health Providers within primary care clinics and satellite clinics in military units, enabling rapid access to treatment and strengthening relationships between behavioral health providers, primary care, and unit leadership (Hoge et al., 2016).

Structural barriers within military occupational systems: Military personnel often fear that due to limitations around confidentiality of medical records, the chain of command may find out that a member has sought care, especially in the context of pre- and post-deployment screening programs (Hom et al., 2017). Related concerns around being unable to deploy and negative career impact are also common (Jones, Twardzicki, Fertout, Jackson, & Greenberg, 2013). In recent Australian research, the most common barriers among Regular ADF, reported by 40% and 50%, continued to be concerns around impact on military career and deployability (Forbes et al., 2018), with little change compared to earlier findings (McFarlane et al., 2011). Similarly, in Canada, a third of the respondents in the 2013 CFMHS endorsed concerns around negative career impact (Statistics Canada, 2013); in New Zealand, concerns around negative career impact were the second most cited reason for not seeking help (Boyd, 2017). In the U.S., in one study, nearly one-third of Air Force members received career-affecting recommendations from the mental health professional they had seen; in another study, U.S. Marine Corps members with a mental health encounter had shorter military service than matched controls (Ghahramanlou-Holloway et al., 2018; Ghahramanlou-Holloway et al., 2019). In the U.K., three-quarters of service personnel referred to mental health teams while deployed in Afghanistan returned to their unit while on operation but that a third experienced adverse occupational outcomes (medical downgrades or discharges) in the four years after return home (Jones, Fear, Wessely, Thandi, and Greenberg, 2017b).

Careful review of these studies shows that the sequence of events (emergence of mental health symptoms, help-seeking, negative occupational outcomes) is often unclear and needs to be better understood (Heyman, Slep, Parsons, Ellerbeck, & McMillan, 2021). Nevertheless, there is sufficient indication that concerns around confidentiality, career impact, and deployability cannot be entirely dismissed but must be addressed in a transparent fashion that still encourages members to seek help when needed. Alternatives consistent with the occupational culture (e.g., self-management, support from unit members) should also be considered.

Social-Cultural Facilitators: Family members, friends, and military peers can play an important role in facilitating care-seeking and provide informal support. In Australia, for more than half of Regular ADF who were concerned about their mental health and sought assistance, someone else (usually a partner or friend) had suggested they seek mental health care (Forbes et al., 2018). In Canada, up to 20% of military members reported receiving informal support from family, friends, peers, and supervisors (Statistics Canada, 2013). Similar findings were reported in NZDF, with partners, friends, and family members being the most commonly reported sources of informal support (Boyd, 2017). In a recent U.K. study, 86% of personnel reported using informal support, most frequently from friends/colleagues; higher levels of perceived informal support was associated with greater help-seeking (Stevelink et al., 2019).

Military leaders can also provide support by creating a culture in which seeking mental health care is fully encouraged through unit climate and leadership. In the U.S., overall leadership behaviours were found to be associated with perceptions of stigma and barriers to care (Britt, Wright, & Moore, 2012), and specific leader behaviours promoting operational stress control were associated with feeling more comfortable talking to a mental health provider (Adler, Saboe, Anderson, Sipos, & J.L., 2014). Unit climate was associated with more positive attitudes related to mental health treatment seeking (Britt, Wilson, Sawhney, and Black, 2020b) and unit cohesion was associated with greater awareness of and willingness to discuss mental health problems (Jones, Campion, Keeling, Greenberg, and J.-., 2018a). In the most recent mental health survey in Canada, more than 90% of military members did *not* endorse the belief that "military leaders would discourage" seeking mental health services (Statistics Canada, 2013).

Fluctuation of barriers/facilitators along the helping-seeking pathway: A U.K. study found decreased public stigma concerns in those who engaged with treatment and had remitted symptoms, compared to those with and without probable mental health diagnoses (Jones, Keeling, Thandi, & Greenberg, 2015). Another U.K study of service personnel and veterans (Sharp, 2016) found that social and psychological barriers to seeking help, such as anticipated public stigma, were more prevalent at non-help-seeking and early help-seeking stages, and practical/or healthcare barriers were more prevalent at later help-seeking stages, after engaging with services. These findings suggest the importance of specific barriers/facilitators vary at each stage of care-seeking; further, periods of progress and regression are common along the pathway.

3.5. Interventions to address pathways to care

Motivated to address remaining gaps in mental healthcare, military organizations continue to design interventions to target barriers to and facilitators of accessing care. Previously, interventions were classified into one of four categories (Hom et al., 2017): psychoeducation, screening and referral, peer support, or a combination of all these three strategies. More recently, additional categories have emerged, such as: interventions to improve experiences in mental healthcare, for instance, those that reduce dropout by having clinicians routinely assess patients' intent to attend and complete treatment (Shulman, Buck, Gahm, Reger, & Norr, 2019), and interventions that provide alternative or intermediate care, thereby facilitating self-managed care for military members with barriers to traditional services. *E*-mental health approaches are an example of fast emerging forms of the latter type of intervention (Bush, Armstrong, & Hoyt, 2019), the need for which has been thrown into sharper relief during the current COVID-19 pandemic (McFarlane, Jetly, Castro, Greenberg, & Vermetten, 2020).

Earlier interventions to improve pathways to care among military personnel were generally *evidence-informed*, for instance, in addressing commonly reported concerns around anticipated stigma but were not fully *evidence-based* (Hom et al., 2017) in that they often did not first conduct a needs assessment to identify intervention targets, and to establish a link between those targets and key outcomes of interest. This is problematic in the context of scientific literature that has raised questions around whether changes in common intervention targets, such as mental health literacy and stigma, translate into increased help-seeking (Adler et al., 2015; Sharp et al., 2015; Thomas, Adrian, Penix, Wilk, & Adler, 2016).

Encouragingly, research published in the past six years contains several examples of evidence-based interventions, for instance, a U.K. study on the Trauma Risk Management (TRiM) program (Jones, Burdett, Green, and Greenberg, 2017a), a Canadian trial of the Road to Mental Readiness (R2MR) program (Fikretoglu, Liu, Nazarov, & Blackler, 2019), and a U.S. study of a group-level intervention to support treatment seeking (Britt, Black, Cheung, Pury, & Zinzow, 2018). The Canadian study, which found increased rates of help-seeking, was preceded by a multi-year research program informed by Theory of Planned Behavior (Ajzen, 1991) to identify intervention targets for care-seeking attitudes (Fikretoglu, Liu, & Blackler, 2016). The U.S. study, informed by the same theoretical model, was also preceded by earlier studies by the same investigative team (Britt et al., 2016; Zinzow et al., 2013).

Nevertheless, even evidence-based and theory-informed

interventions may fail if issues around implementation are not sufficiently considered. Efforts to quickly scale up interventions, can lead to implementation choices such as train-the-trainer models that have generally been associated with reduced efficacy (Vanhove, Herian, Perez, Harms, & Lester, 2015). Difficulties around selecting and training program staff and establishing quality assurance (Meredith et al., 2011) in train-the-trainer models may lead to poor fidelity/adherence to standard intervention content, which may dilute beneficial effects (Cox, Martinez, & Southam-Gerow, 2019).

Encouragingly, there is greater attention being devoted to the importance of implementation for intervention efficacy. For instance, the Canadian study on R2MR found improved efficacy when the program was delivered with high fidelity; the beneficial effects of R2MR in improving mental health service use attitudes, intentions, and behaviours diminished or disappeared altogether when the program was delivered with poor fidelity (Fikretoglu et al., 2019). Similarly, a U.S. study which examined implementation options for the Britt et al., 2018 intervention found that the intervention could be effectively delivered by non-expert trainers (Start et al., 2020).

In summary, since the most recent systematic review paper (Hom et al., 2017) which observed that "evidentiary base of .. interventions designed to connect at-risk soldiers to care do not yet appear to exceed—or indeed, in some cases, even reach—an adequate empirical threshold" (p.67), a number of evidence-based, theoretically informed interventions have been published with findings of improved help-seeking; furthermore, there is increasing attention placed on implementation issues that may affect efficacy. These efforts are well-aligned with updated guidance from the Medical Research Council (MRC) for developing and evaluating complex health interventions (Craig, Matthews, Moore, Simpson, & Skivington, 2020).

3.6. Summary of key themes

Our review of research reveals that at a broad population-level, there are significant gains in several indicators of mental health care access (i.e., initial engagement, adequacy, timeliness) among military personnel across the five nations. However, the gains have not been equally large across all indicators, with evidence pointing to relatively greater gains in initial engagement, time to first treatment contact, and subjective satisfaction with care and smaller gains in objective indicators of adequacy of care. Notwithstanding these gains, there still remain unmet mental health care needs overall and for certain subgroups. Stigma and barriers continue to be prevalent despite multiple efforts to address them. A sizable proportion of those in need do not receive adequate care. There are a number of barriers and facilitators of care-seeking, operating at both individual and organizational levels that may account for such unmet need. At the individual level, there have been gains in improving recognition of need for care and reducing stigma concerns. At the organizational level, there have also been significant gains in availability of services and overall cultural acceptance and support of care-seeking, partly as a result of investments in military mental health care systems and mental health education at all levels of rank. However, concerns around confidentiality, career impact, and deployability still reduce accessibility of services. A wide range of programs to improve pathways to mental healthcare now exist and are becoming more evidence-based, theoretically driven, and culturally-sensitive.

3.7. Methodological limitations

Our review reveals complementary methodological approaches, including large epidemiological surveys, cohort studies of specific deployments, studies based on large administrative and medical databases, or using face-to-face interviews. Cross-sectional, epidemiological surveys have been invaluable for capturing initial access, adequacy, and timeliness of mental health service use, as well as unmet need at a broad population-level. Where it has been possible to replicate cross-sectional epidemiological surveys with similar methodology, researchers have been able to capture improvements in service utilization within specific military populations and to tie these to the broad range of investments made in military mental health care systems (Fikretoglu et al., 2018; Fikretoglu, Liu, Zamorski, and Jetly, 2016b).

Nevertheless, some of the large cross-sectional surveys have suffered from low response rates, with few attempts at oversampling traditionally underrepresented groups. This limits the generalizability of findings and a full understanding of the service needs of groups with unmet need. Cross-sectional studies may lead to imprecise estimates of the proportion of personnel needing/accessing care (Rhodes & Fung, 2004), preclude establishing causal relationships, and are not conducive to capturing the dynamic nature of barriers and facilitators.

Cohort studies using large medical and administrative databases, with much deeper and richer mental health service use data, offer a good counterpoint to cross-sectional epidemiological surveys, especially for examining characteristics, adequacy, and timeliness of service use. Cohort studies of specific deployments are critical in capturing the service needs and experiences of returning personnel; however, an overemphasis on specific missions can lead to overlooking the role of non-military trauma and routine, in-garrison stressors in help-seeking.

There has also been scant research that focuses on care-seeking and mental health service use at key transition points. Military members experience multiple transitions throughout their careers (e.g., civilian-to-military, relocation, deployment, and reintegration, and military-to-civilian). Each of these key transitions brings important changes in identity, attitudes, stressors, and social networks; furthermore, some require military personnel to quickly learn and negotiate vastly different healthcare systems in military and civilian settings (Fulton, Wild, Hancock, Fernandez, & Linnane, 2019). Theoretical models that capture the complexity of these transitions (Adler & Castro, 2019) and analytic approaches that facilitate the study of health behaviours (including mental health service use) during transitions (Bliese, Flynn, & Adler, 2017) is a burgeoning area of research in military mental health, and should receive greater attention.

Finally, a major methodological impediment to being able to resolve discrepancies across studies is the lack of a clear consensus on what constitutes service access, timeliness, adequacy, or effectiveness. Indeed, a 2020 systematic review of service use among depressed military personnel (Theriault et al., 2020) found that differences in the definition and measurement of key concepts seem to underlie the wide range of help-seeking rates across studies.

3.8. Theoretical limitations

In theoretical models, there is continued greater emphasis on individual, rather than group processes, as important determinants of mental health service use (for an exception, see (Britt et al., 2012) and (Start et al., 2020)). Military organizations are hierarchical in nature and individual members within a unit/branch/setting develop shared values and attitudes over time, including attitudes toward mental health and service use. Recently, drawing from industrial-organizational psychology, researchers have developed quantitative methods to capture such powerful group processes (Lang, Bliese, & Adler, 2019). Further, there have been attempts to integrate group processes such as "leadership/co-worker support climate" into commonly used theoretical frameworks to better understand their role in shaping mental health service use behaviours (Cuyler & Guerrero, 2019). Indeed, a recent group randomized trial by Britt and colleagues (Britt et al., 2018) demonstrated that training unit members to support mental health care-seeking resulted in an increase in supportive behaviours toward soldiers with mental health problems three months later. The powerful influence of group structures on help-seeking beliefs, attitudes, intentions, and behaviours need greater attention from researchers.

There is also overemphasis on cognitive (versus affective) barriers

and negative (versus positive) attitudes toward seeking care. Reviewing the theoretical basis of intervention studies published in the past five years reveals a small number of influential theoretical models, such as Andersen's Behavioral Model (Andersen, 1995), the Health Belief Model (Rosenstock, 1974), and the Theory of Planned Behavior (Ajzen, 1991) continuing to receive disproportionately frequent use. This is despite increasing recognition within the broader field of behavior science that there are multiple determinants of health behaviours, operating at multiple levels (e.g., individual, organizational, social, cultural, economic, and health system levels).

Theoretical models that capture the complex social-ecological context within which health behaviours emerge do exist (Prochaska, Redding, & Evers, 2008), but they are infrequently applied. There is limited awareness and application of approaches integrating multiple theoretical models into a single, comprehensive framework (Michie, van Stralen, & West, 2011) through which the most likely and/or powerful drivers of health behaviours can be selected to develop predictive models and/or interventions. Similarly, despite the availability of theoretical models that acknowledge that health behaviours involve multiple, iterative processes that unfold over time (e.g., Health Action Process Approach; (Schwarzer, Lippke, & Luszczynska, 2011), few studies attempt to capture these nonlinear, iterative processes.

3.9. Strengths and limitations of the current review

Our narrative review builds on previous systematic reviews of pathways to mental healthcare in active military populations (Hom et al., 2017; Theriault et al., 2020) (Smith et al., 2020; Zinzow et al., 2012) in a number of ways: First, our review takes a broad perspective and looks at multiple indicators of access to mental healthcare, across a wide range of mental health conditions experienced by military personnel. Second, our review summarizes the most recent research from the past six years and where possible, compares it to earlier findings; by doing so, it reveals improvements in indicators of access to mental healthcare but also identifies lingering difficulties in terms of other indicators, thus facilitating the identification of future research priorities. Similarly, our review shows reductions in a number of barriers to mental healthcare but also identifies barriers that persist and facilitators that have been overlooked. Finally, our review identifies conceptual and methodological gaps, which if addressed, may help target remaining unmet need for mental healthcare in military populations.

Despite these contributions, however, some limitations must be noted. First, in summarizing research from the past six years, we did not conduct a risk of bias assessment, or follow a pre-specified protocol. Second, we did not address a key development in the last year, the appearance of the Covid-19 pandemic, which has changed the structure of health care, particularly in a shift toward telehealth services. Third, in trying to provide a broad perspective, we were not able to provide the depth of analysis some issues warrant, such as the role of pre-military risk factors (e.g., childhood trauma) in influencing mental health service use behaviours during and after military service, and the unique set of challenges that may exist in connecting service members at risk for suicide or with MST to mental healthcare. Pre-military risk factors such as adverse childhood events and psychiatric conditions may be greater for individuals who join the military (Afifi et al., 2016), and these risk factors may lead to different experiences with care-seeking during military service (Turner et al., 2017). Mechanisms underlying these relationships need to be better understood. In the case of suicide and mental health service use, a number of recent studies have been published in military and civilian populations underscoring the importance of patient perspectives (e.g., treatment preferences, expectations, and experiences) (Adler et al., 2020; Hom, Bauer, Stanley, Boffa, Stage, Capron, and Joiner, 2021a; Hom, Bowers, and Björgvinsson, 2021b) and outlining research priorities for better connecting those at risk for suicide with mental health care (Hom & Stanley, 2021). For further information, we refer readers to these excellent sources. We highlighted issues we could not explore in depth, such as MST, suicide, and help-seeking, in our recommendations for future research in Online Supplemental Table 1.

Finally, given the strong cultural links among our nations, as well as a history of working on common military concerns through programs such as the Technical Cooperation Program (TTCP), as well as the Five-Eyes Mental Health Research and Innovation Collaborative (5 Eyes MHRIC), it made sense for us to limit our review to the Five-Eyes nations. Nevertheless, we acknowledge that all five nations are developed countries, and have relatively large military organizations and well-resourced military healthcare systems. Our findings may not generalize to nations with less well-resourced healthcare systems or from different linguistic, social, cultural, economic, and political perspectives, a point implied in Online Supplemental Fig. 1, which depicts pathways to mental healthcare as embedded within these larger systems.

There is currently limited scientific literature from other nations that i) focuses on active military samples, and ii) is published in English, with no reviews published to date. In 2017, Hom and colleagues (Hom et al., 2017) found no studies outside of the Five-Eyes nations on barriers to care and reported only two studies on mental health service use (one from China and the other from Netherlands). The two identified studies reported very low rates of service use (~ 3–4%) compared to the rates in the Five-Eyes nations. In our updated literature search, we found only a handful of studies published in English from other nations such as China, Denmark, Germany, Netherlands, and Israel (citations available upon request from first author). These studies had different foci, including the effects of mental health training on various types of stigma (four studies from Israel), attitudinal barriers to care (three studies from China, Germany, Netherlands), and the effects of PTSD symptoms on help-seeking (one study from Denmark). At a broad level, comparing findings from other nations to those of our review reveals some key differences (i.e., larger treatment gaps in other nations) but also some common interests (e.g., reducing treatment gaps by addressing attitudinal barriers).

3.10. Lessons learned

Given such common interests, it is reasonable to ask whether there might be lessons learned for other nations from the experience of the Five-Eyes. To identify lessons learned, it is necessary to consider both commons themes that emerged from our review, as well as cross-nation differences. Perhaps the most overarching common theme across the five nations is that there have been advancements in narrowing the treatment gap and addressing some barriers to mental healthcare in our military populations. These improvements can be broadly tied to the net effects of substantial and multifaceted investments in mental health care in each nation. Thus, notwithstanding differences in civilian care systems, as well as the size of military organizations across the five nations, it appears that investments in military mental health care systems can and do yield improvements across multiple indicators of healthcare access over time.

Nevertheless, there are cross-national differences, such as the narrowing of treatment gaps for specific subgroups. Canada continues to report differences between Regular Forces and Reservists on multiple indicators of mental health service utilization whereas the U.K. does not. Although both nations have universal healthcare in their civilian systems, coverage of mental healthcare varies. In the U.K., a grant-based program, Increasing Access to Psychological Therapies (IAPT), was introduced in 2008 and offers evidence-based care for anxiety and depression in the civilian healthcare system. Further, access to military-service related mental health care was increased for U.K. Reservists in 2006 after research findings of greater risk of mental health problems in deployed Reservists. In contrast, in in Canada, mental healthcare in the civilian system remains fragmented and uneven (Moroz, Moroz, &

D'Angelo, 2020), and there are perceived and real barriers to accessing the military care system for Reservists (Boulos & Fikretoglu, 2018). The lesson learned here may be that to close the treatment gap for specific groups at risk for not receiving timely or adequate care, coordinated investments in both military and civilian mental healthcare systems may be necessary.

Other cross-national differences also exist, for instance, regarding the efficacy of specific programs. A recent U.K. study (Rona et al., 2017) failed to find beneficial effects for mental health care access as a result of post-deployment screening, with roughly 35% of both intervention and control conditions accessing care. This result contrasts with both earlier U.S. findings (Hoge et al., 2014) in which 75% of those who screened positive accessed care, as well as recent Canadian findings (Boulos & Garber, 2020) in which those who screened positive had shorter delays to care. Careful scrutiny reveals however, that although identical in name, these post-deployment screening programs differed substantially in content and implementation (e.g., self- versus clinician-administered screening). The lesson learned here may be that differences in program content and implementation can influence the utility and efficacy of interventions to improve mental health care access; therefore, interventions need to be developed and implemented with care and must be evaluated rigorously (Craig et al., 2020).

4. Conclusions

Our review reveals significant gains in many but not all indicators of access to mental healthcare among military personnel across the Five-Eyes nations. Closing the remaining gaps will require coordinated and sophisticated solutions across military and civilian healthcare systems, including integration of providers, services, and organizations, enhanced collaboration with community services, intensive case management for high risk and complex cases, and expansion of tele-mental health and technology-supported services. Further, such solutions will need to be guided by emerging best practices and advances in relevant scientific domains, some of which are highlighted in our paper. In this way, efforts can be focused on initiatives that will result in the most substantive shifts in the future.

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Appendix A. Supplementary data

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