OPTIMIZING INTERNET-DELIVERED COGNITIVE BEHAVIOURAL THERAPY
FOR PUBLIC SAFETY PERSONNEL:
QUALITATIVE INSIGHTS FROM CLIENTS AND STAKEHOLDERS TO GUIDE
PROGRAM IMPROVEMENTS

A Thesis
Submitted to the Faculty of Graduate Studies and Research
In Partial Fulfillment of the Requirements
For the Degree of

Doctor of Philosophy
in
Experimental and Applied Psychology
University of Regina

By
Janine Danielle Beahm
Regina, Saskatchewan
June, 2023

© 2023: J.D. Beahm
Janine Danielle Beahm, candidate for the degree of Doctor of Philosophy in Experimental and Applied Psychology, has presented a thesis titled, Optimizing Internet-Delivered Cognitive Behavioural Therapy for public safety personnel: Qualitative insights from clients and stakeholders to guide program improvements, in an oral examination held on June 2, 2023. The following committee members have found the thesis acceptable in form and content, and that the candidate demonstrated satisfactory knowledge of the subject material.

External Examiner: Dr Shalini Lal, University of Montreal
Supervisor: Dr Heather Hadjistavropoulos, Department of Psychology
Committee Member: Dr R. Nicholas Carleton, Department of Psychology*
Committee Member: Dr Natasha Gallant, Department of Psychology
Committee Member: Dr Nicholas Jones, Department of Justice Studies
Chair of Defense: Dr Aziz Douai, Faculty of Graduate Studies and Research

*Unable to attend
Abstract

Public Safety Personnel (PSP) (e.g., EMS/paramedics, police officers) experience high rates of clinically significant symptoms of mental health disorders. The high rates have been explained by the extraordinary occupational stressors that PSP experience. There is a need for accessible treatment options to overcome common barriers to care in PSP populations. Internet-delivered cognitive behavioural therapy (ICBT) has the potential to provide effective treatment while overcoming barriers to care. PSPNET is a clinical research unit that has adapted an ICBT program to meet the needs of PSP.

The current dissertation is designed to explore the extent to which PSPNET has been optimized and can be further enhanced to meet the needs of PSP. The dissertation consists of three studies assessing stakeholder perceptions of PSPNET from both the client-level and the organizational level (i.e., PSP leaders). The studies are guided by a micro-learning health system framework that emphasizes integrating research and clinical practice to make continuous improvements to interventions. Qualitative data are used because of the substantial potential to develop specific recommendations for iterative improvements to PSPNET. The studies were conducted sequentially.

In Study 1, Beahm et al. (2021) examined client communication data (i.e., client emails and feedback surveys) from 82 clients enrolled in the PSP Wellbeing Course, a core transdiagnostic ICBT course offered by PSPNET. The study shows that most clients reported benefits from the program. Results also evidenced that clients identified more aspects of the program as helpful, than they identified areas for improvement. The study results were used to make several of the proposed changes to the course (e.g., inclusion of audio and video content, inclusion of new additional resources).
In study 2, Beahm et al. (2022) examined client communication data (i.e., client emails, feedback surveys, and intake screening notes) from 126 Saskatchewan-based clients to explore if PSP were seeking and using ICBT to manage occupational stressors. Results evidenced that almost all (96.8%) clients reported seeking ICBT for one or more occupational stressors. Clients noted that skills from the course helped them manage stress related to a variety of occupational stressors. The data were used to make changes to PSP specific examples and case stories in the course, as well as for identifying new additional resources that were needed for the course (e.g., health anxiety, information for families, mental health supports in the workplace).

In Study 3, semi-structured interviews were conducted with 10 PSP leaders based in Saskatchewan. The study explored PSP leaders’ perceptions of PSPNET using the RE-AIM evaluation framework and assessed perceptions of the strengths and weaknesses of PSPNET along five dimensions (i.e., reach, effectiveness, adoption, implementation, maintenance). The results showed PSPNET was reaching PSP, that PSP leaders believed PSPNET was beneficial, and that they were willing to continue to support PSPNET. Leaders also offered feedback for improving reach and implementation of PSPNET (e.g., emphasizing the preventative aspects of PSPNET), some of which are under consideration by the PSPNET team. Other feedback had already been implemented by the team which signalled a need for improved communication with PSP leaders related to implementation of PSPNET (e.g., adding audio content).

The collective results from the studies evidenced the value of using qualitative feedback from multiple stakeholders for program improvement. The studies evidenced that PSP value ICBT and highlighted factors that strengthen ICBT for PSP.
Acknowledgements

The completion of this dissertation would not have been possible without the considerable support and guidance of several people. First and foremost, I would like to extend my gratitude to my advisor and mentor, Dr. Heather Hadjistavropoulos. Your thoughtful guidance, leadership, and feedback throughout this process was key to completing this project. I could not have asked for a more supportive mentor. I would like to extend my appreciation to my committee members, Drs. R. Nicholas Carleton, Nicholas Jones, and Natasha Gallant for your constructive and valuable feedback on this work, as well as Dr. Carleton and Jones’ contributions to the success of PSPNET. I would also like to thank all of the members of the PSPNET team who worked to ensure the success of this important service. Furthermore, I would like to express my gratitude for my lab partners (Hugh McCall and Caeleigh Landry) who provided considerable support in this research and a supportive teamwork environment. I would also like to thank Dr. Thomas Hadjistavropoulos for re-opening the doors for my academic journey. Finally, I would like to thank all public safety personnel for the work that they do.

This research was carried out with the support of funding from the Faculty of Graduate Studies at the University of Regina (Women in STEM Entrance Scholarship and the Faculty of Graduate Studies and Research Thesis Only Scholarship) and through funding provided from Public Safety Canada to PSPNET.
Dedication

This dissertation is dedicated to the many people in my life who have provided me support throughout this process. To my fiancée, Anton, thank you for providing me with the emotional support and motivation to complete this work and for always making sure I was well-fed. To my parents, thank you for being there for me throughout every step of my graduate school journey. To the rest of my family (Justin, Kristin, Brennan, Vanessa, Madelyn, Martin, Bellamy, Peter, Alex, and Irina), thank you for supporting me and providing me with respite when needed. To my countless friends (Monica Steer, Tessa Anderson, Pangri Mehta, Faezeh Bahreini, Ashley Betker, Halie Anderson, and many others), thank you for your friendship over the years. And to my dog, Nugget, thank you for always being a source of comfort and making sure I get outside to refresh my mind. Finally, this dissertation is also dedicated to my son to be.
# Table of Contents

Abstract ............................................................................................................................................. i

Acknowledgements .......................................................................................................................... iii

Dedication ......................................................................................................................................... iv

List of Tables ..................................................................................................................................... xiv

List of Figures .................................................................................................................................... xiv

List of Appendices ............................................................................................................................ xiv

List of Abbreviations ....................................................................................................................... xiv

Chapter 1: Introduction .................................................................................................................... 1

  Public Safety Personnel and Mental Health Challenges ................................................................. 1

  Contributing Factors to PSP Mental Health .................................................................................. 2

  Mental Health Programs Available to PSP ................................................................................... 8

    Peer Support .................................................................................................................................. 8

    Resiliency Training ..................................................................................................................... 10

    Psychological Interventions ....................................................................................................... 13

  PSP and Barriers to Mental Health Care ....................................................................................... 15

  ICBT as another solution to overcome barriers to care. ............................................................... 19

  PSPNET funded to deliver ICBT to PSP ....................................................................................... 25

  Learning Health System Framework ............................................................................................ 27

  Qualitative Methods .................................................................................................................... 29

  Purpose and Objectives ................................................................................................................. 30

    Study 1 ........................................................................................................................................ 31

    Study 2 ........................................................................................................................................ 31
Chapter 2: Insights into Internet-Delivered Cognitive Behavioural Therapy for Public Safety Personnel: Exploration of Client Experiences During and After Treatment (Study 1)
Principal Findings from the Treatment Satisfaction Questionnaire Non-Completer Group ............................................................................................................................61
Applying Suggestions for Improvement ..................................................................................62
Limitations and Future Research ..........................................................................................63

Conclusion ................................................................................................................................64

Chapter 3: Understanding and Addressing Occupational Stressors in Internet-Delivered Therapy for Public Safety Personnel: A Qualitative Analysis (Study 2) ..66
Overview ..................................................................................................................................67
Introduction .............................................................................................................................68
Materials and Methods .........................................................................................................71
  Context ...................................................................................................................................71
  Course Description and Eligibility Criteria ..........................................................................72
  Participants .............................................................................................................................73
  Measures and Data ...............................................................................................................75
Analysis ...................................................................................................................................76
Results ....................................................................................................................................77
  Client Course Usage and Completion Rates ........................................................................77
  Occupational versus personal stressors reported during eligibility screen .....................77
  Occupational and personal issues shared with therapists ..................................................80
  Use of skills and resources for managing occupational and personal stressors ..............82
Discussion .................................................................................................................................84
Primary Results ........................................................................................................84
Application of findings ..........................................................................................88
Limitations and Future Research ...........................................................................90

Conclusion...............................................................................................................90

Chapter 4: Utilizing Leaders’ Perceptions to Optimize the Implementation of
Internet-Delivered Cognitive Behavioural Therapy for Public Safety Personnel
(Study 3)......................................................................................................................94

Overview .................................................................................................................94
Introduction ..............................................................................................................96

RE-AIM Framework .................................................................................................98
The Consolidated Framework for Implementation Research ..............................101
Objectives and Research Questions .........................................................................103

Methods.....................................................................................................................104

Setting .......................................................................................................................104
Sample and Recruitment .........................................................................................105
Data Collection ........................................................................................................106
Analysis .....................................................................................................................107

Results.......................................................................................................................109

Reach and Adoption ...............................................................................................109
Reach and Adoption: Promotional Activities .........................................................112
Reach and Adoption: Facilitators .............................................................................112
Reach and Adoption: Barriers .................................................................................115

viii
Reach and Adoption: Ideas for Improvement ........................................... 117
Effectiveness: Individual and Organizational Level .............................. 118
Effectiveness: Increased Awareness of PTSIs and Mental Health Issues .... 123
Implementation ..................................................................................... 124
Implementation: Strengths ................................................................. 124
Implementation: Areas for Improvement ............................................. 126
Implementation: Disadvantages or Unintended Consequences .......... 127
Maintenance ...................................................................................... 128
Discussion .......................................................................................... 129
Promotion Requires Building Relationships ......................................... 130
Support in Outer Setting .................................................................... 131
PSP Leaders Perceive PSPNET as Offering a Solution for Mental Health
Challenges ......................................................................................... 132
Innovation Characteristics ................................................................. 133
Improving PSPNET ............................................................................ 135
Implications ....................................................................................... 137
Limitations and Future Research ....................................................... 138

Conclusion .......................................................................................... 140

Chapter 5: Final Discussion .................................................................. 142

Summary and Integration of Studies .................................................. 142
Implications for Literature on Evaluating and Improving ICBT ............ 145
Implications of ICBT for PSP .............................................................. 148
Implications for PSP Organizations ................................................... 151
Limitations and Future Research ................................................................. 151

Self-Selection Bias ......................................................................................... 151

Evaluate the Changes Made ........................................................................... 152

Feedback from other stakeholders ............................................................... 153

Different forms of Feedback ........................................................................... 153

Feedback from more Diverse Stakeholders ................................................. 155

Evaluation of Other PSPNET Courses ......................................................... 155

Cost Evaluation ............................................................................................ 155

Final Conclusions .......................................................................................... 156

References .................................................................................................... 158

Appendix A: Treatment Satisfaction Questionnaire ..................................... 195

Appendix B: Email Invitation ......................................................................... 196

Appendix C: Informed Consent ....................................................................... 199

Appendix D: Interview Guide .......................................................................... 207

Appendix E: University of Regina's Research Ethics Board Certificates of
Approval ........................................................................................................... 207
List of Tables

Table 1.1. Participant characteristics. ........................................................................................................ 47
Table 1.2. Reported Impacts and Hindering Events................................................................. 52
Table 1.3. Helpful and Challenging Skills......................................................................................... 53
Table 1.4. Likes and Suggestions for Improvement ........................................................................ 56
Table 1.5. Improvements Made........................................................................................................... 57
Table 2.1. Client characteristics. ....................................................................................................... 74
Table 2.2. Client course usage and lesson completion rates......................................................... 77
Table 2.3. Reasons for seeking ICBT including occupation and personal stressors reported during screening (N = 126). ................................................................. 78
Table 2.4. Occupational and personal issues shared with therapists ......................................... 81
Table 2.5. Skills that clients found helpful, found helpful or were working on without necessarily finding them helpful, or found challenging (N = 126). ...................... 83
Table 2.6. Additional resources and PSP case stories that clients found helpful, found helpful or were working on without necessarily finding them helpful, or found challenging (N = 126). ................................................................................. 83
Table 3.1. Reach/Adoption Domains Summary of Findings ..................................................... 110
Table 3.2. Effectiveness Domain Summary of Findings ......................................................... 119
Table 3.3. Implementation Domain Summary of Findings .............. 12Error! Bookmark not defined.
Table 3.4. Maintenance Domain Summary of Findings ............................................................... 128
Table 3.5. PSP leaders’ Perceptions of PSPNET Using the CFIR Innovation Domain .................. 13Error! Bookmark not defined.
List of Figures

Figure 1. Process for enrolling in and completing the *PSP Wellbeing Course*.................73

Figure 2. Description of *PSP Wellbeing Course*.......................................................73
List of Appendices

Appendix A: Treatment Satisfaction Questionnaire .......................................................... 195
Appendix B: Email Invitation .................................................................................................. 196
Appendix C: Informed Consent ............................................................................................. 199
Appendix D: Interview Guide .................................................................................................. 207
Appendix E: University of Regina's Research Ethics Board Certificates of Approval .. 208
List of Abbreviations

CFIR = Consolidated Framework for Implementation Research
CIPSRT = Canadian Institute for Public Safety Research and Treatment
DMHI = Digital Mental Health Interventions
ICBT = Internet-Delivered Cognitive Behaviour Therapy
LHS = Learning Health System
PPTE = Potentially Psychologically Traumatic Event
PSP = Public Safety Personnel
PTSD = Posttraumatic Stress Disorder
PTSI = Posttraumatic Stress Injury
Chapter 1: Introduction

Public Safety Personnel and Mental Health Challenges

Public safety personnel (PSP) are diverse professionals working to keep communities safe, including, but not limited to, border services officers, correctional services officers, firefighters (career and volunteer), Indigenous emergency managers, operational intelligence personnel, paramedics, police (municipal, provincial, and federal), public safety communicators, and search and rescue personnel (Canadian Institute for Public Safety Research and Treatment [CIPRST], 2019). Elevated rates of mental health challenges have been observed among PSP worldwide (Benedek et al., 2007) including in, but not limited to, countries such as: Canada (Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018), The United States of America (Duff et al., 2020), Brazil (Maia et al., 2007), Australia (Courtney et al., 2013), France (Motreff et al., 2020), and Taiwan (Hsiao et al., 2019). Studies have examined elevated rates of symptoms of mental health disorders within PSP in specific sectors such as police (Faust & Ven, 2014; Maia et al., 2007), paramedics (Courtney et al., 2013; Petrie et al., 2018), firefighters (Stanley et al., 2017), correctional workers (Johnston et al., 2021; Regehr et al., 2019), public safety communicators (Golding et al., 2017), and disaster and rescue workers (Berger et al., 2012; Fullerton et al., 2004), as well as across multiple PSP sectors (Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018). The cumulative evidence indicates PSP experience much higher rates of symptoms of mental health disorders, including generalized anxiety disorder, major depressive disorder, and posttraumatic stress disorder (PTSD)—which are often collectively referred to as posttraumatic stress injuries (PTSIs; CIPSRT, 2019)—than the general population (Carleton, Afifi, Turner,

Canadian PSP across all sectors are at increased risk for developing symptoms of generalized anxiety disorder, panic disorder, major depressive disorder, and PTSD (Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018). Among a large sample of diverse Canadian PSP (n = 5813), 44.5% screened positive for clinically significant symptoms of one or more mental health disorders (Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018). Direct comparisons are not possible between this sample of PSP and the general population due to methodological differences; however, the available results imply that the rate of clinically significant symptoms of mental disorders is higher among Canadian PSP than the general population (Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018). In another study, data from this online survey showed that Canadian PSP are also at increased of suicidal ideation, planning, and attempts compared to the general population (Carleton, Afifi, Turner, Taillieu, LeBouthillier, et al., 2018). Suicidal ideations in Canadian PSP have also been associated with positive screens for clinically significant symptoms of mental disorders (Di Nota et al., 2020; Ricciardelli et al., 2022).

**Contributing Factors to PSP Mental Health**

Increased rates of mental health disorder symptoms among PSP may be partially attributable to potentially psychologically traumatic events (PPTE) exposures (Carleton et al., 2019, 2020). PPTEs refer to direct or indirect exposures to actual or threatened death, serious injury, or sexual violence (CIPSRT, 2019). Canadian PSP are exposed to
more varied and frequent PPTEs than the general population, reporting numerous exposures to an average of 11.08 ($SD = 3.23$) out of 16 different types of PPTEs (Carleton et al., 2019). PPTE exposures are so frequent for PSP that the experiences are often considered inevitable (Ricciardelli, Czarnuch, Carleton, Gacek, et al., 2020). As a result of the frequent PPTE exposures, some provinces have implemented presumptive legislature to help expedite the claims process of workers’ compensation boards or workplace safety boards when PSP seek treatment for PTSIs. In general, this legislation requires compensation boards to presume that a PTSD diagnosis is the result of PSP performing occupational duties, and allows for timely treatment without having to prove the PTSl was incurred on the job (e.g., Cottrill, 2016; Fairweather, 2019; Government of Saskatchewan, 2016; Workers’ Compensation Board, Alberta, 2022). PPTEs may occur through direct or indirect exposure (Ricciardelli, Czarnuch, Carleton, Gacek, et al., 2020). Exposures to suicide are frequently reported by PSP and have been associated with increased symptoms of mood-, anxiety-, and trauma-related disorders (Aldrich & Cerel, 2020).

Most attention to PSP and mental health research has focused on PPTEs; however, there is evidence that PPTE exposures may not be the singular factor associated with increased mental health challenges among PSP (Carleton et al., 2020). Occupational stressors that may contribute to PSP mental health concerns have been categorized into two domains: (1) operational stressors (i.e., related to job duties); and (2) organizational stressors (i.e., related to job context) (Carleton et al., 2020). Operational stressors for PSP include PPTEs, sleep disturbances, chronic pain and injuries, fatigue from shift work, increased vigilance, work location, conflicts between work and personal life, and public
scrutiny (Angehrn et al., 2020; Carleton et al., 2017, 2020; Ricciardelli, Czarnuch, Carleton, Gacek, et al., 2020). Organizational stressors for PSP include interpersonal dynamics, lack of support from management, workplace bullying, stress related to job promotions, staff shortages, and a lack of resources resulting in unmanageable workloads (Carleton et al., 2020).

There is growing evidence that PSP mental health may be as impacted by organizational stressors as it is by operational stressors (Carleton et al., 2020). For example, Chan and Andersen (2020) found no statistically significant difference between the degree of reported operational and organizational stressors amongst a sample of frontline police and found that organizational stressors were positively associated with symptoms of major depressive disorder. A qualitative study found that some Canadian PSP reported organizational stresses as more stressful than exposure to traumatic events (Ricciardelli, Czarnuch, Carleton, Gacek, et al., 2020). Examining peer-support program use, Milliard (2020) found that police officers more often sought support for organizational issues, such as bullying and promotions, rather than for stress caused by PPTE. Research on organizational stressors underscores the potential impact on PSP mental health (Carleton et al., 2020).

There is also evidence that organizational stressors can amplify the impacts of operational stressors (e.g., PPTE exposures) (Ricciardelli, Carleton, et al., 2018). PSP have described their occupational stressors as exacerbated by the PSP organizational culture, which typically reflects a paramilitary and hierarchical reporting structure (Ricciardelli, Carleton, et al., 2018). This hierarchical structure creates a culture where PSP feel the need to “act tough” or “macho” and are discouraged from showing their
vulnerabilities, which can inhibit discussions of work-related stress (Edwards & Kotera, 2021; Ricciardelli, Carleton, et al., 2018). PSP have also described staff shortages and lack of resources as increasing the frequency and intensity of PPTE exposures (Ricciardelli, 2018). For example, a qualitative study on Canadian correction workers suggests that overcrowding in prisons due to deteriorating prison conditions can increase the risk of violence because of the inability to separate prisoners in conflict and the high number of prisoners in their custody (Ricciardelli, Power, et al., 2018).

Experiences with occupational stressors can vary by PSP sector (Ricciardelli, Carleton, et al., 2018), gender (Angehrn et al., 2021; Kurtz, 2011), and employment location (Ricciardelli, 2018). The degree and type of operational and organizational stressors that PSP experience can also vary by profession or position within professions. For example, police and paramedics appear to experience more occupational stressors than fire personnel (Carleton et al., 2020). Public safety communicators are more likely to experience indirect exposures to PPTEs and to experience a lack of closure due to not knowing the outcomes of traumatic calls (Golding et al., 2017). Research on policing and gender has evidenced women may experience increased internal discrimination, sexual harassment, and experience more difficulties with career advancements and stress due to parental leave and responsibilities (Angehrn et al., 2021; Kurtz, 2011). In terms of employment location, research has evidenced police officers working in rural or remote areas may experience increased stress due to a lack of resources, staff shortages, and the inability to call for backup (Ricciardelli, 2018). The available results on occupational stressors suggests that contextual factors can impact the occupational stressors.
experienced by PSP; however, operational and organizational stressors can be
experienced by men and women in all PSP sectors (Ricciardelli, Carleton, et al., 2018).

Occupational stressors experienced by PSP can also impact their home or family
life. PSP families report having to make sacrifices due to shift-work, irregular working
hours, and unscheduled or unpredictable shifts, and overtime, which can confound family
activities and schedules (Hill et al., 2020; Karaffa et al., 2015). PSP spouses also report
PSP schedules often leave them having to primarily manage household responsibilities
and feeling like a “single parent” (Hill et al., 2020; Karaffa et al., 2015; Regehr, 2005).
Negative public perceptions of PSP and the organizational politics of PSP cultures are
also identified as stressors by PSP families (Karaffa et al., 2015; Regehr, 2005). For
example, many police spouses have asserted that departmental politics were the worst
aspect of being married to a police officer (Karaffa et al., 2015). Stress from PSP work
can also impact marital communications and relationship satisfaction (Roberts &
Levenson, 2001).

Families of PSP can also be impacted by the frequent PPTE exposures. Families
may worry about the PSP safety, which can be exacerbated by shift irregularity inhibiting
checking in to reassure family members (Hill et al., 2020; Regehr, 2005). PSP spouses
also report stress related to heightened awareness of, and attempts to manage, mood and
personality changes in PSP, or related to supporting a PSP with a PTSI (Hill et al., 2020;
Karaffa et al., 2015; Regehr, 2005; Regehr et al., 2005). By being close to a PSP, families
can also experience vicarious trauma through hearing events about or witnessing the
PPTE in the media (e.g., Menendez et al., 2006). Overall, the research on PSP and
occupational stressors suggests that the work of PSP can impact the individual wellbeing
of PSP and can also spill over and impact their relationships, as well as the wellbeing of their families.

**Need For Mental Health Programs for PSP**

Since 2015, the Canadian government has increasingly focused attention on the high rates of mental health disorder symptoms associated with PTSIs among PSP, as well as the need for accessible and effective treatments (Carleton, 2021). In 2016, the Canadian House of Commons Standing Committee on Public Safety and National Security identified PSP’s increased risk of PTSIs as a result of their occupational duties as a matter of growing concern (Oliphant, 2016). In response to this concern, the Government of Canada released an action plan called, “Supporting Canada’s Public Safety Personnel: An Action Plan on Post-Traumatic Stress Injuries” in 2019 (Public Safety Canada [PSC], 2019). Treating the mental health of PSP has been noted as an occupational health and safety duty of PSP organizations (LaTourrette et al., 2008; World Health Organization and International Labour Office, 2018). Increased mental health symptoms and occupational stressors can impact the work performance of PSP (e.g., Chen, 2009; LeBlanc et al., 2012) including a loss of productivity (e.g., Fox et al., 2012), decreased organizational commitment (e.g., Huynh et al., 2014; Lambert et al., 2008; Turner, 2015), increased job dissatisfaction (e.g., Gumani, 2019), strained working relationships (e.g., Gumani, 2019), and increased turnover or intentions to resign (e.g., Charman & Bennett, 2022; Huynh et al., 2014; Turner, 2015). Therefore, providing effective programs and treatment for mental health symptoms and for managing occupational stressors can benefit PSP organizations and the larger community who benefit from the work of public safety organizations.
Mental Health Programs Available to PSP

There are a growing number of mental health programs and resources available to PSP that appear to be beneficial for improving mental wellbeing. The available programs can largely be grouped into peer support, resiliency training, and psychological interventions that include psychotherapies. The following sections reviews some of the available research on each of these types of interventions and identifies a need for continued research on evidence-based interventions to support the mental health needs of PSP.

Peer Support

Peer support generally refers to a variety of mental health resources that are typically provided by a peer, and in some cases with professional assistance which may be either formal or informal (Price, Ogunade, et al., 2022). Peer support programs are typically designed to provide an empathetic ear, low-levels of psychological intervention, education on how to recognize peers at risk to self and others, and a pathway towards professional help (Milliard, 2020). PSP can use peer support programs to share experiences with other PSP based on the notion that PSP will better be able to relate and understand one another (Milliard, 2020). The programs have traditionally been relatively reactive, providing assistance only after a PPTE that is considered particularly problematic (Milliard, 2020). Evidence on peer support programs is inadequate which may largely be due to a lack of fidelity to programs or variations in guidelines and standards of what constitutes a peer support program (Price, Ogunade, et al., 2022). For example, Price, Ogunade et al. (2022) conducted a document analysis of 11 peer support manuals from across Canada and found that the term peer support was idiosyncratically
defined and that there were multiple delivery methods. This lack of consistent conceptualization and implementation of peer support programs means that gathering more systematic evidence on the effectiveness of peer support is still needed.

There is evidence to suggest peer support can have a positive impact on the mental wellbeing of PSP. For example, a phenomenological qualitative study of nine police officers involved in providing a robust and successful peer-support program in Ontario suggested that the program helped to improve mental health literacy and reduce stigma around seeking help (Milliard, 2020). The results reflected that stigma reductions and help-seeking increases were particularly associated with credible peer support providers who themselves had past experiences with PPTE exposures. In another study of Critical Incident Stress Management, one of the most widely used formal peer support programs, participants described the program as beneficial for their mental health and the evidence indicated that high fidelity programs may offer some benefit for reducing symptoms of generalized anxiety disorder and alcohol use disorder in PSP (Price, Landry, et al., 2022).

Peer support programs are one of the most widely used mental health tools within PSP organizations and likely have some benefit (Price, Landry, et al., 2022). There is still more research needed to assess the effectiveness of peer support programs (Price, Ogunade, et al., 2022). There are also reported program limitations, such as peer supporters reporting not having the adequate skills or training to deal with providing the levels of support needed by some PSP, as well as concerns about confidentiality or trust of peer supporters (McCall, Beahm, et al., 2021; Milliard, 2020). Consequently, there is a
need for additional professional mental health supports for mental health challenges faced by PSP that go beyond the scope of support provided through peer support.

**Resiliency Training**

PSP programs targeting resiliency have been examined and appear to have some potential benefits for PSP; however, more empirical evidence on program effects is needed (Anderson et al., 2020; Di Nota et al., 2021). Resiliency programs refer to programs that are designed to be delivered as preventative or proactive measures to increase the capacity of PSP to withstand the impacts of PPTEs and recover quickly after such events. There is still limited evidence on the extent to which proactive strategies can mitigate the impact of PPTEs (Stelnicki et al., 2021). In a meta-analyses of 36 studies evaluating proactive PTSI mitigation programs, Di Nota et al. (2021) found small to moderate effects for reducing PTSIs including “symptoms of general psychological health, depression, burnout, stress, PTSD, and anxiety, as well as significant improvements in measures of well-being, coping, and resilience” (pp. 17). A sub-analyses was also conducted by categories of interventions which included: emotion regulation, resilience promotion, multimodal, stress management, and web-based psychoeducation. Results evidenced resilience programs as improving coping and resilience measures and reduced symptoms of depression and burnout; however, effects of the programs were considered time-limited. The results were also limited by several factors, such as heterogeneity across program themes, durations, study designs, and measured outcome variables, as well as a high risk of reporting bias. Di Nota and colleagues suggested the results provide modest evidence of the effectiveness of proactive programs for reducing PTSIs.
There are at least two programs currently being broadly offered to Canadian PSP that appear promising for increasing resilience; specifically, Road to Mental Readiness (R2MR) and the Before Operational Stress (BOS) program. R2MR is a resiliency program that was initially designed by the Canadian Military to improve mental health readiness by increasing awareness, facilitating communication related to mental health, and reducing stigma. R2MR was then adapted by the Mental Health Commission of Canada initially to meet the needs of police and then expanded to include other PSP sectors (Carleton, Korol, et al., 2018; Szeto et al., 2019). R2MR provides evidence-based psychoeducation on mental health and stress and a series of CBT techniques for managing stress (Carleton, Korol, et al., 2018).

R2MR effectiveness studies have evidenced small resiliency increases and stigma reductions. For example, Carleton, Korol, et al. (2018) conducted a longitudinal study of the program amongst Canadian municipal police and found that there were no statistically significant changes in mental health symptoms, resiliency, or work engagement immediately following the intervention or at six- or 12-month follow ups. A small but significant reduction in stigma was found immediately following the session, but not at six- or 12-month follow ups. Open-ended responses to the program suggested that officers perceived the program to improve their mental health knowledge and to help them recognize symptoms of mental disorders (Carleton, Korol, et al., 2018), suggesting possible program benefits, but indicating more than one training session may be necessary for substantial improvements.

Additional support for R2MR was provided by a meta-analysis of 16 studies of the R2MR program of Canadian PSP which suggested the program was effective for
reducing stigma of mental illness and increasing self-perceived resiliency, and that the effects may persist over the medium term (Szeto et al., 2019). The small effect sizes were consistent with other workplace resiliency programs, and suggest more than one session is needed to increase effectiveness.

BOS is a resiliency program designed for PSP early on in their career to enhance self-awareness and relationships (Stelnicki et al., 2021). BOS is an eight week program available in three different modalities. *BOS Intensive* is a group based program that is offered in person for two hours per week. *BOS Peer* is a group based program offered online over videoconferencing for one hour per week. *BOS Online* is an individual self-paced online program that includes eight hours of online learning (Wayfound, 2023). BOS sessions incorporate CBT and group therapeutic strategies and are facilitated by licensed or registered master’s or doctoral-level mental health professionals (Stelnicki et al., 2021). Initial results of the BOS program show there are small effects on symptoms of PTSD, quality of life, stigma, and perceived social support (Stelnicki et al., 2021). Improvements for depression, anxiety, stress, alcohol use, emotional regulation, and resilience were not statistically significant (Stelnicki et al., 2021). Participants provided qualitative reports that the program improved self-awareness, avoidant behaviours, and relationships with family and colleagues (Stelnicki et al., 2021). As a resiliency training program, BOS offers intriguing results and is one of very few such programs that has empirical evidence (Stelnicki et al., 2021).

Resiliency training for PSP is also becoming increasingly available through a myriad of services and apps, and may offer some benefit for improving mental health and resiliency (Voth et al., 2022). Resiliency training appears to have some benefits for PSP,
but is not intended to be a treatment tool and function as a substitute for individual professional mental health services (Carleton, Korol, et al., 2018; Voth et al., 2022). In any case, much more evidence is needed to establish the effects of proactive measures for reducing PTSIs (Anderson et al., 2020; Di Nota et al., 2021).

**Psychological Interventions**

There is limited preliminary evidence that psychological and psychosocial interventions can benefit PSP mental health (Alden et al., 2020; Bryant et al., 2019; Corthésy-Blondin et al., 2022; Haugen et al., 2012). Psychological interventions used to treat PSP include, but are not limited to: brief eclectic psychotherapy (BEP), interpersonal therapy, behaviour therapy, cognitive behavioural therapy (CBT), and Eye Movement Desensitization and Reprocessing (EDMR) (Alden et al., 2020). Systematic reviews provide preliminary evidence that psychotherapies, particularly CBT, are beneficial for treating symptoms of mental disorders such as PTSD in PSP populations (Alden et al., 2020; Bryant et al., 2019; Corthésy-Blondin et al., 2022; Haugen et al., 2012).

CBT refers to a class of interventions based on the cognitive model of mental health, initially developed by Beck (1964), which suggests that there is a cyclical link between feelings, behaviours, and thoughts (Fenn & Byrne, 2013), and that maladaptive cognitions lead to emotional distress and problematic behaviours (Hofmann et al., 2012). Maladaptive thoughts can include core beliefs, or schemas, dysfunctional assumptions, and negative automatic thoughts about the world, the self, and the future (Fenn & Byrne, 2013; Hofmann et al., 2012). The basic goal of therapeutic techniques is to change maladaptive thoughts in order to lead to changes in emotional distress and problematic
behaviours (Fenn & Byrne, 2013; Hofmann et al., 2012). In CBT interventions, the client takes an active role in challenging the validity of maladaptive cognitions and problem-solving processes to alter maladaptive behaviour patterns (Hofmann et al., 2012). CBT is one of the most extensively researched forms of psychotherapy and has a strong evidence base for being effective for treating symptoms of many mental health disorders, including anxiety-, mood-, and trauma-related disorders (Butler et al., 2006; Hofmann et al., 2012; Mendes et al., 2008).

In 2012, Haugen et al. (2012) performed a systematic review of psychological interventions for first responders and noted the scarcity of research in the area. The review included articles published between 1995 and 2009 and identified only 13 articles published on interventions for first responders with only two interventions being randomized controlled trials (RCT), which were limited by a small sample size. Most of the interventions (11 of 13) were intended specifically for police personnel. Based on their review, Haugen et al. advocated for further research on the effects of CBT and BEP to build on promising initial results from two RCTs that, despite small sample sizes, showed statistically significant large treatment effects.

In 2020, Alden et al. published a systematic, descriptive review of psychological interventions for police, fire, and paramedic personnel and found support for the effectiveness of trauma-focused psychotherapies (e.g., EMDR, BEP, trauma-focused CBT) for reducing symptoms of PTSIs within these groups. Compared to Haugen et al. (2012), the number of studies in this review grew to 21, including 8 RCTs. The 8 RCTs were evaluated as being of moderate (n = 6) to high (n = 1) quality, having evaluated variants of CBT therapy (n = 5), EMDR (n = 1), BEP (n = 1), and an unstructured stress-
focused discussion group \((n = 5)\). Alden et al. (2020) argued that their review provides support for the effectiveness of trauma-focused psychotherapies such as EMDR, BEP, and CBT for treating PTSD in PSP, but that their results were limited by the small number of participants included in RCT studies and the relative absence of active control conditions. The interventions identified by Alden et al. (2020) continue to focus primarily on police officers suggesting a need for research including more diverse PSP populations.

In a 2021, Corthesy-Blondin et al. (2021) published a systematic scoping review of psychosocial interventions for PSP, identifying additional studies on CBT published since the review by Haugen et al. (2012). The Corthesy-Blondin et al. (2021) review provided further evidence that CBT was effective for treating PSP, noting that the evidence was still focused primarily on police and firefighters, and recommending further research on tailored PSP interventions as helpful. Overall, research on psychotherapies for PSP has provided support for the idea that CBT is a promising treatment for PSP experiencing PTSD, but that more research is needed in this area. There is still a need for continued research on the effectiveness of CBT in PSP populations and how best to implement CBT programs for PSP.

**PSP and Barriers to Mental Health Care**

Substantial barriers to mental health care still exist within PSP populations, despite increased attention to the mental health needs of PSP and some promising preliminary results of psychotherapies for treating PSP. The barriers to mental health care in the general population include structural or logistical factors such as financial barriers, inconvenience of treatments, transportation barriers, and limited or no access to services (Andrade et al., 2014). Attitudinal barriers such as wanting to self-manage symptoms, not
perceiving symptoms as severe enough to warrant treatment, and stigma towards mental health have all been identified as barriers within general populations (Andrade et al., 2014). Research on PSP identifies similar logistical and attitudinal barriers to care while offering insights into how PSP work uniquely impacts these barriers (e.g., Jones et al., 2020; McCall, Beahm et al., 2021).

PSP schedules, employment status, and employment location all interact with available time, financial constraints, and service access to create logistical barriers for accessing care. For example, PSP schedules, such as shiftwork, working long hours, unexpected mandatory overtime, and working in fixed-term or casual employment (with unscheduled, irregular, or unpredictable shifts) can make booking appointments or accessing services within typical operation hours difficult (Jones et al., 2020; McCall, Beahm, et al., 2021). PSP working in rural or remote locations can experience geographical barriers, such as distance to services (McCall, Beahm, et al., 2021). Low wages, financial issues, and working in fixed-term employments or voluntary positions without access to benefits (e.g., volunteer fire fighters, corrections officers) also limit help-seeking behaviours (Ricciardelli, Carleton, Gacek, et al., 2020).

PSP also report several attitudinal barriers to accessing mental health care. PSP report apprehensions about seeking face-to-face services because of concerns about confidentiality (Jetelina et al., 2020; Jones et al., 2020; Martin et al., 2021; McCall, Beahm, et al., 2021). Confidentiality concerns can include concerns about being seen by former patients, clients, or co-workers if attending in-person mental health services, as well as concerns about issues with confidentiality within peer-support or employee family assistance programs offered by PSP organizations (Jones et al., 2020; McCall,
Beahm, et al., 2021). PSP also report perceptions or experiences of therapists being unable to understand and navigate their occupational stressors (Jones et al., 2020; McCall, Beahm, et al., 2021). The cumulative impact of PSP work over time may gradually increase symptoms such that symptoms become normalized and the PSP does not recognize the need for help (McCall, Beahm, et al., 2021).

Stigma is consistently reported as a major barrier to care within PSP populations (Bikos, 2020; Bullock & Garland, 2018; Edwards & Kotera, 2021; Jones et al., 2020; Krakauer et al., 2020; McCall, Beahm, et al., 2021). Stigma has been identified as a worldwide barrier to accessing mental health supports (Andrade et al., 2014), but appears to be particularly pervasive within the hierarchical, often paramilitary, reporting cultures and structures of PSP organizations. Stigma largely refers to a devalued or “spoiled identity” (Goffman, 1963). The devaluation of the identity can lead to people engaging in “face saving” strategies, or attempts to distance themselves from the identity, such as not identifying with the label and engaging in actions to ensure the label is not assigned to them (Goffman, 1963). Unmanaged stigma can create social consequences at the personal, interpersonal, organizational, and institutional levels (Corrigan et al., 2004). PSP often avoid help-seeking for fear of consequences related to pervasive organizational mental health stigma (Bikos, 2020; Bullock & Garland, 2018; Jones et al., 2020; Krakauer et al., 2020; McCall, Beahm, et al., 2021). For example, PSP report not seeking help to avoid appearing vulnerable or weak (Bullock & Garland, 2018; Jones et al., 2020). Stigma can also create structural barriers which prevent help-seeking (Bullock & Garland, 2018). For example, PSP may avoid seeking help because of staffing shortages which mean taking time off will force others to work short, or because of concerns about
how revealing their mental health status will impact their job duties (e.g., being removed from frontline duties; Bullock & Garland, 2018; Ricciardelli, Carleton, Mooney, et al., 2020).

Ricciardelli, Czarnuch, Afifi, et al. (2020) argued stigma surrounding mental health in PSP organizations is reinforced through a perceived hierarchy of trauma. Qualitative responses from over 800 Canadian PSP evidenced PSP perceive certain types of PPTEs as particularly injurious (Ricciardelli, Czarnuch, Afifi, et al., 2020). The more injurious PPTE involved PSP being physically or temporally closer to the event, or larger scale events involving more people. A perceived hierarchy of PPTE may erroneously prevent PSP from help-seeking regarding an event as insufficiently injurious to warrant help-seeking (Ricciardelli, Czarnuch, Afifi, et al., 2020). PSP may also avoid help-seeking for fear of being accused of “playing the system”, which can be further perpetuated by structural factors such as staff shortages (Ricciardelli, Carleton, Mooney, et al., 2020).

The available research results suggest PSP experience high rates of mental health concerns and that there is a need for effective, evidenced-based solutions. The research results also implicate occupational stressors other than PPTE as impacting PSP mental health alongside interaction effects from differences due to PSP sector, gender, or area of employment (i.e., whether the PSP is stationed in a rural or urban area). The current relative lack of evidence for effective proactive programs and treatments for PSP suggests more research is needed to ensure evidence-based mental health programs are broadly available; however, providers must consider several factors when designing services for PSP. First, services should be designed to overcome logistical barriers such
as financial, geographical, and time barriers. Second, confidentiality concerns need to be considered paramount. Third, therapists must have knowledge of the stressors related to PSP occupations. Fourth, services need to navigate challenges related to stigma.

**ICBT as another solution to overcome barriers to care.**

Over the past three decades, digital mental health interventions (DMHIs) have proliferated by providing mental health solutions that overcome barriers to care (Bautista & Schueller, 2022). The COVID-19 pandemic has accelerated the development and funding of DMHIs because proactive measures required the closure or limitation of face-to-face services leading to a shift to online delivery of services (Skorburg & Yam, 2022). Increased funding and development for interventions, particularly in the form of apps, have prompted some scholars to critically assess the evidence of returns on investment for DMHIs (Skorburg & Yam, 2022). Other scholars have argued that continued funding is justified, pending an increased focus on identifying and employing effective and accessible DHMI interventions tailored for the needs of specific populations (Bautista & Schueller, 2022). Several apps and online services have been developed for PSP populations, with some showing potential as mental health solutions (O’Toole & Brown, 2021), but more research is needed. DHMIs offer promise for delivering mental health solutions for PSP, assuming that programs are evidenced-based and lead to systematic improvements in wellbeing.

Internet-delivered cognitive behavioural therapy (ICBT) is one of the most widely studied DMHIs and offers a promising solution for overcoming barriers to mental health care for PSP based on a robust evidence base for treating mental health disorder symptoms. ICBT is a therapeutic intervention that retains the traditional concepts and
skills included in face-to-face CBT; however, ICBT is delivered online (Andersson, 2016). ICBT can overcome barriers to mental health care by being private, broadly accessible, and cost-effective (Andersson, 2016; Donker et al., 2015). ICBT is delivered using online services through secure encryption technology similar to a banking system ensuring that clients’ data is kept private and confidential (Andersson, 2016). Clients who otherwise may not use a mental health service may be more likely to access ICBT because of confidentiality and accessibility (Titov et al., 2019). Furthermore, by delivering the services online, clients who live in rural or remote locations are able to access services that otherwise would not be available (Titov et al., 2019). ICBT interventions may also be able to support more people by more efficiently using limited resources, such as therapist time (Andrews et al., 2018).

ICBT interventions are delivered through lessons, typically in the form of “modules”, and may include written text, videos, audios, case stories, comics and graphics, which form an overall course (Andersson, 2016). Clients are typically given a set of skills or strategies to practice between lessons, akin to homework in face-to-face cognitive behavioural therapy. Interventions can be self-guided (i.e., the client works through the program on their own) or provider-guided (i.e., support is provided by a therapist, coach, staff). Support in a guided format can be provided through coaching or therapist support through phone or email, one to two times per week, and can be synchronous or asynchronous (Andersson, 2016).

There are more than two decades of research evidence demonstrating ICBT as effective for treating various mental health disorder symptoms (Andersson, 2016; Andersson, Carlbring, et al., 2019; Andersson, Titov, et al., 2019; Karyotaki et al., 2021;
Ritola et al., 2022; Sijbrandij et al., 2016). Evidence supporting ICBT efficacy and effectiveness comes from over 300 control trials (Andersson, Titov, et al., 2019). Interventions can be designed to treat symptoms of a specific mental health disorder (i.e., disorder-specific) or designed to treat symptoms of several disorders (i.e., transdiagnostic) (Dear et al., 2015). Disorder-specific ICBT appears effective for treating anxiety disorder symptoms (e.g., Andrews et al., 2018; Spek et al., 2007), mood disorder symptoms (e.g., Mewton et al., 2014; Richards & Richardson, 2012; Wright et al., 2019) and trauma disorder symptoms (e.g., Sijbrandij et al., 2016). Transdiagnostic ICBT also appears effective (Andersson, Titov, et al., 2019). ICBT can also be effective in routine or clinical care settings (Andersson & Hedman, 2013; Etzelmueller et al., 2020). There appears to be no difference between transdiagnostic and disorder-specific ICBT interventions (Andersson, Titov, et al., 2019; Dear et al., 2015). Given that clients may present with comorbid disorders, transdiagnostic interventions have been considered more practical in ICBT clinics (Titov et al., 2019).

ICBT paired with therapist support appears more effective than control (i.e., participants receive no treatment) or wait-list conditions (i.e., participants who do not receive the treatment are put on a waitlist to receive treatment at a future date) and as effective as face-to-face CBT (Andersson et al., 2014; Carlbring et al., 2018; Zhang et al., 2022). Guided-ICBT appears more effective than unguided ICBT (Andersson, Titov, et al., 2019; Baumeister et al., 2014), but meta-analytic results from unguided ICBT evidence statistically significantly greater symptom reductions than wait-list controls, and relative differences between guided and unguided ICBT may not be as substantial as previously thought (Baumeister et al., 2014). Even some form of provider support or
technical support can increase the effectiveness of ICBT interventions. For example, using automated emails in self-guided ICBT appears to increase course completion and improve outcomes (Titov et al., 2013). The qualifications of the provider seem to be of lesser importance than in face-to-face therapy, such that outcomes appear un-impacted by clinician experience (Andersson, Titov, et al., 2019; Baumeister et al., 2014; Mewton et al., 2014).

ICBT clients experience negative effects or deterioration proportional to experiences with face-to-face therapy, and less than for wait-list controls (Andersson, Titov, et al., 2019). Understanding how negative effects are experienced within ICBT remains important for improving care (Rozental et al., 2014). There are several types of negative effects than can occur during ICBT treatment. Deterioration refers to a worsening of symptoms (Rozental et al., 2014). Adverse events refer to negative events likely emerging from the treatment which worsen symptoms (Rozental et al., 2014). Novel symptoms include the emergence of new symptoms not related to symptoms targeted in treatment (Rozental et al., 2014). Dropout refers to the decision to leave treatment early which could be related to the experiencing of other negative effects (Rozental et al., 2014). Nonresponse refers to not experiencing predicted improvement in symptoms possibly leading to demoralization (Rozental et al., 2014). Finally, unwanted events refer to negative events experienced during the treatment which may or may not be related to the intervention (Rozental et al., 2014).

Qualitative data from four ICBT clinical trials suggests negative effects can be described by two broad categories: 1) patient-related negative effects; and 2) treatment-related negative effects (Rozental et al. 2015). Patient-related negative effects refer to
reports where patients describe feeling worse during the course of treatment as a result of
the treatment  (Rozental et al., 2015). The same study identified subcategories of patient-
related negative effects including insight (i.e., patients reported gaining awareness of the
factors responsible for the condition increased negative feelings) and symptoms (i.e.,
patients experienced a deterioration of symptoms or novel symptoms) (Rozental et al.,
2015). Treatment-related negative effects refer to reported adverse or unwanted events
that occurred during the treatment that led to increased frustration or stress (e.g., technical
troubles, problems inherent in the interface or format, difficulties understanding treatment
rationale) (Rozental et al., 2015). Treatment-related negative events were subcategorized
as either implementation-related (i.e., patients reported difficulties performing some
treatment tasks) or format-related (i.e., patients reported feeling pressured by timelines or
lack of flexibility or with the response time of therapists) (Rozental et al., 2015). When
developing and evaluating ICBT programs, gaining insight into negative effects
experienced by participants can be used to make iterative programming improvements.

ICBT research has focused on increasing user engagement, which appears
associated with post-intervention mental health improvements (Gan et al., 2021). Key
factors that can facilitate engagement include tailoring, individualizing or personalizing
content, social support and connectedness, automated feedback and reminders, and
gamification (Borghouts et al., 2021; Morrison et al., 2012; Schubart et al., 2011). Factors
that decrease engagement with DMHIs include technical issues, a lack of personalization,
and individuals experiencing severe mental health issues (Borghouts et al., 2021; Schmidt
et al., 2019). McCall, Hadjistavropoulos, et al. (2021) propose that the factors identified
for increasing engagement can largely be captured by the persuasive system design (PSD)
framework developed by (Oinas-Kukkonen & Harjumaa, 2009). The PSD framework is a set of design principles intended to promote engagement with technology and is comprised of four overarching principles: primary task support, dialogue support, social support, and system credibility support. Each design principle includes seven recommendations for improving engagement (for a full review of these principles see Oinas-Kukkonen & Harjumaa 2009). There is preliminary evidence that the use of PSD features are associated with increased effectiveness of unguided ICBT interventions (McCall, Hadjistavropoulos, et al., 2021).

The current dissertation is focused on recommendations for tailoring (part of the primary task support principle) and social learning (part of the social support principle). Tailoring refers to designing the intervention to fit user needs. Tailoring may refer to adapting interventions to specific user groups, which can improve DMHI outcomes (Morrison et al., 2012; Schubart et al., 2011). Social learning refers to how user motivations for specific actions increase when observing others doing the same actions and benefiting from the behaviors (Oinas-Kukkonen & Harjumaa, 2009). In ICBT interventions, social learning can be accomplished with case or patient stories, which are typically well accepted and described by clients as helpful (Bennett et al., 2015; Richards et al., 2016). Qualitative and quantitative evidence suggests case stories can provide information, model behaviour, increase knowledge and confidence, improve personal health, and provide a sense of comfort (Drewniak et al., 2020). Benefits from case studies or patient stories appear mediated by user affinity, suggesting interventions need to incorporate information patients perceive as relevant and accurate (Entwistle et al., 2011). Understanding how to best tailor ICBT for PSP and how to create relatable case stories
for PSP may improve user engagement, and therefore, improve symptom change outcomes (Bakker & Rickard, 2019).

The available research suggests a growing interest in, and need for, evidence-based DMHI and ICBT solutions. ICBT is a well-researched solution for offering mental health services to PSP; however, evidence on ICBT effectiveness for PSP is nascent and evidence on tailoring ICBT to PSP to increase engagement is unavailable. Tailoring ICBT to PSP is likely to lead to greater effectiveness of the intervention. The remaining dissertation introduction describes 1) an ICBT program tailored to PSP; 2) initial PSP perceptions of the program and of ICBT prior to implementation; 3) input from PSP into developing the program; and 4) a framework for improving and tailoring the program.

**PSPNET funded to deliver ICBT to PSP**

The 2019 Government of Canada National Action Plan for Addressing Post Traumatic Stress Injuries described the potential value of ICBT for PSP, leading to funding for the development and delivery of ICBT tailored for PSP (Public Safety Canada [PSC], 2019). The ICBT tailored for PSP is called PSPNET and began being implemented in late 2019. PSPNET currently offers therapist-assisted ICBT to PSP residing in Saskatchewan, Quebec, Nova Scotia, New Brunswick, Prince Edward Island, and Ontario, with intentions to expand to other provinces. PSPNET currently offers two treatment courses for PSP: 1) the transdiagnostic *PSP Wellbeing Course* and the disorder-specific *PSP PTSD Course*. A self-guided version of the *PSP Wellbeing Course* is currently offered to PSP anywhere in Canada. PSPNET has also recently released a self-guided course tailored to meet the needs of spouses or significant others of PSP. PSPNET courses are the first ICBT courses tailored specifically for PSP. The current dissertation is
a series of studies designed to evaluate and improve the PSPNET *PSP Wellbeing Course* and all other PSPNET programming as part of ongoing service evaluations.

There were two studies conducted with PSP stakeholders to inform the initial tailoring and implementation of PSPNET. The first study examined the openness of PSP to using ICBT. The results indicated that diverse PSP rated ICBT as highly acceptable and their second most preferred mental health service option after face-to-face psychological services (McCall, Sison, et al., 2020). The second study indicated that PSP perceive ICBT to have advantages (e.g., privacy, access) and disadvantages (e.g., less accountability, demanding, security concerns), but overwhelmingly perceived ICBT as necessary (McCall, Beahm, et al., 2021). PSP participants in the second study also provided feedback on how to tailor ICBT to PSP by providing flexible timelines and frequencies of therapist support and by addressing PSP-specific issues (e.g., frequent PPTE exposures, public scrutiny, low workplace support, high standards for toughness and control, pessimism, and discomfort with vulnerability; McCall, Beahm, et al., 2021). The PSPNET team used the study results to help tailor a transdiagnostic ICBT course (the *PSP Wellbeing Course*) specifically for PSP, with implementation in Saskatchewan during December 2019. PSPNET has evaluated preliminary quantitative outcomes (e.g., symptom change scores) from the *PSP Wellbeing Course* (Hadjistavropoulos et al., 2021). Outcomes from the first 83 Saskatchewan PSP enrolled in the PSP Wellbeing Course evidenced large reductions in symptoms of anxiety- and mood-related symptoms, moderate reductions in symptoms of PTSD, and small reductions in symptoms of social anxiety (Hadjistavropoulos et al., 2021). The current dissertation includes three studies
using qualitative data to evaluate and improve the *PSP Wellbeing Course* and PSPNET as part of the PSPNET program evaluation research.

**Learning Health System Framework**

The PSPNET research agenda uses a micro Learning Health System approach to evaluate and improve services (Menear et al., 2019). The concept of a Learning Health System (LHS) was introduced in the field of medicine in 2007 by the United States Institute of Medicine to expedite translating research results into practices that improve treatment quality and efficiency (Smith & United States Institute of Medicine, 2013).

There is no singular definition of an LHS (Menear et al., 2019); however, LHS approaches generally mean using research results to drive rapid, evidenced-based, point-of-care innovations and improvements (Menear et al., 2019). Rather than segregating research and clinical practice, an LHS framework proposes integrating research teams with clinicians and other stakeholders. Research and practice form a cycle or iterative process whereby “evidence informs practice, and practice informs evidence” (Greene et al., 2012: 207). An LHS can be implemented at the micro, meso, or macro levels of care (Menear et al., 2019).

An LHS includes both a technological and human component (Greene et al., 2012). A technology system capable of collecting robust data that can be widely shared and used to guide decision making throughout the organization is critical to an LHS (Greene et al., 2012). Collaborative stakeholders with a desire to continuously improve the system through data-driven, innovative solutions to problems, are also key to an LHS (Greene et al., 2012). Ideally, an LHS uses input from all stakeholders that are impacted,
including leadership, service providers, and users, all to improve treatment outcomes and experiences (Government of Canada, 2016; Menear et al., 2019).

Research agendas following an LHS approach must be pragmatic and allow for rapid-cycle research that leads to evidence-based improvements to services (Greene et al., 2012). Stakeholder feedback must be timely and research designs must use “good enough” data and balance rigor with speed of innovation (Greene et al., 2012). Research follows several successive iterations of learning cycles (Friedman et al., 2017) as part of a learning cycle framework with three cyclical stages: 1) practice to data flow (P2D); 2) data to knowledge flow (D2K); and 3) knowledge (i.e., evidence) to practice flow (K2P). In the P2D stage, initial data is collected from the clinical practice (e.g., a pilot study or early evaluation of program implementation). In the D2K stage, the collected data is assembled, analyzed, and interpreted. In the K2P stage, data is shared with appropriate stakeholders, managed, and applied. Changes or improvements are then made to practices or programs. The K2P stage results help identify additional evaluation outcomes and inform further data collection to be used again in the D2K stage. As such, research agendas are impacted by the cyclical nature of the LHS as research results inform future research questions or evaluation outcomes.

LHSs have primarily been applied within the biomedical field (e.g., Forrest et al., 2014; Krumholz, 2014); however, the framework is also suitable for evaluating and improving DMHIs and other mental health interventions (Gremyr et al., 2019; Whelan et al., 2014). DMHIs are already equipped with technological systems capable of rapidly collecting client data. An LHS approach also aligns with recommendations that stakeholder collaborations and rapid evaluations identifying areas for improvement are
needed for rapidly improving digital mental health technologies (e.g., Graham et al., 2020; Mohr et al., 2015, 2017, 2018). Making changes to digital mental health technologies during clinical trials is an encouraged practice particularly given the rapid pace of changes to technology; nevertheless, the changes must not revise the core intervention components under investigation (Mohr et al., 2015). For example, in a clinical trial on ICBT, changes to the core materials (e.g., lessons on psychoeducation; CBT skills) cannot be made, but changes to the delivery method, adding new materials, or enhancing materials throughout are encouraged. PSPNET operates as a micro-LHS (Menear et al., 2019) based on the guidelines that changes and adjustments should be made to DHMIs throughout clinical trials (Graham et al., 2020; Mohr et al., 2018).

**Qualitative Methods**

The current dissertation primarily uses qualitative methods to evaluate and improve the *PSP Wellbeing Course* and PSPNET using a micro-LHS framework. The studies use a descriptive qualitative method where analysis stays close to the data and provides a description and summary of the phenomena without highly abstracted or interpreted data (Mayan 2016). The use of such qualitative methods 1) is an accepted practice within program evaluation research; 2) is in line with an LHS approach; and 3) can be used to evaluate clients’ experiences of DMHIs and ICBT programs. Qualitative methods can be used to understand client experiences with program use, outcomes, engagement, and implementation (Goodyear et al., 2014; Patton, 2014). In line with an LHS approach, qualitative methods can also guide intervention enhancements (Patton, 2014) and process improvements (Munoz-Plaza et al., 2016). Finally, qualitative methods can elucidate client experiences within DMHIs (Patel et al., 2020), clarify perceived
ICBT program impacts (Earley et al., 2017; Lillevoll et al., 2013; Richards et al., 2016), highlight aspects of ICBT programs clients find helpful or in need of improvement (e.g., Hadjistavropoulos et al., 2018; Richards et al., 2016), and help identify negative impacts (e.g., Rozental et al., 2015). Qualitative methods are particularly valuable for evaluating programs by providing contextual understandings of idiosyncratic cases which can provide insights into why certain aspects of a program worked or did not work (Patton, 2014). Qualitative methods can capture context and show what worked, for whom, and in what ways (Patton, 2014).

**Purpose and Objectives**

The current dissertation is a series of three studies that use qualitative data to evaluate PSPNET. The studies are part of a larger research agenda evaluating PSPNET. Treatment outcomes have been reported as effective elsewhere (Hadjistavropoulos et al., 2021). The current dissertation studies are designed to provide insights for improving programming during the implementation phase and to contribute to understandings of leaders’ perceptions of PSPNET implementation which could inform efforts to sustain PSPNET longer-term. Study objectives were developed within an LHS framework where each of the study outcomes were evaluated, and gaps were identified, to inform improvements and future research. Within each study, the role of the author was to formulate study questions, collect the data (either by pulling data from the web portal or through interviews), formulate and conduct data analyses, interpret results, and to write-up each study.
**Study 1**

Previous qualitative research has identified how clients within general or specific targeted populations (e.g., caregivers) have perceived the impacts, strengths, and weaknesses of ICBT (Biliunaite et al., 2021; Earley et al., 2017; Hadjistavropoulos et al., 2018). PSPNET is the first ICBT program designed specifically for PSP; accordingly, understanding PSP perceptions of the *PSP Wellbeing Course* can provide insights for further tailoring opportunities. Study 1 (Beahm et al., 2021) was designed to address four main objectives: 1) to identify client perspectives of the initial impacts of the program, including the experience of negative effects; 2) to identify the perceived strengths and challenges of the program, and suggestions for improvement; 3) to identify differences in experiences between those who completed the posttreatment satisfaction questionnaire and those who did not (i.e., those who offered less feedback and appeared to be less engaged in the program); and 4) to use the results to drive improvements to the program.

**Study 2**

Study 2 (Beahm et al., 2022) used an LHS framework based on evidence from Study 1 that clients described the course as beneficial for improving their skills for managing their mental health, normalizing and reducing stigma surrounding their experiences, and improving their communications and relationships. A minority of clients reported the course did not fully meet their needs. Clients also described various skills as helpful but challenging to implement at times. Thought challenging was the CBT skill most frequently described as helpful as well as the skill most frequently described as challenging to implement. Results from Study 1 were limited by not specifically
addressing interactions with occupational stressors. Study 2 was designed to address how PSP are seeking and using ICBT to manage occupational stressors.

Study 1 evidenced that most clients reported liking several aspects of the course (e.g., therapist support, course content, PSP case stories), but that some clients suggested improvements (e.g., changes to course design, fixing technical issues, adding audio and videos). Most clients also described the stories as helpful \((n=21/82, 26\%)\), but some \((n=13/82, 13\%)\) described the stories as needing improvements. In line with an LHS, PSPNET is focused on course optimization, rather than satisfaction, and is designed to use data for iterative program improvement. Therefore, Study 2 was also designed to identify the occupational stressors to which PSP are applying ICBT skills to inform further tailoring of the stories to increase relatability.

**Study 3**

Study 3 complements Studies 1 and 2 as part of the micro-LHS evaluation approach for PSPNET. The LHS approach uses data from multiple stakeholders to improve interventions (Greene et al., 2012; Menear et al., 2019). Therefore, Study 3 was designed to explore program perceptions of leaders within PSP organizations in Saskatchewan. Study 3 was designed using the RE-AIM evaluation framework (Glasgow et al., 1999, 2019). The results inform how PSP leaders perceive the PSPNET program, highlighting successes or areas for improvement along the five dimensions of the RE-AIM: reach, effectiveness, adoption, implementation, and maintenance.
Chapter 2: Insights into Internet-Delivered Cognitive Behavioural Therapy for Public Safety Personnel: Exploration of Client Experiences During and After Treatment (Study 1)

Published as:


https://doi.org/10.1016/j.invent.2021.100481

Note: Text included in the current dissertation is verbatim to the above cited publication.

Minor changes to the formatting and presentation of data were made to maintain continuity of style between manuscripts presented in this dissertation.
Overview

Canadian public safety personnel (PSP) experience high rates of mental health problems and face logistical and attitudinal barriers to receiving care. Internet-delivered cognitive behavioural therapy (ICBT) may help reduce barriers to care; however, there is no literature involving qualitative analyses of client feedback to describe PSP experiences with ICBT. Identifying these experiences is important because it can inform future use of ICBT with this group that has unique needs. The current study was designed to explore how clients (n = 82) experienced ICBT that had been tailored to meet their needs; specifically, the study assessed their perceptions of program impacts, what clients found helpful, and client suggestions for improvements. The ICBT course included five core lessons (each providing psychoeducation and activities), client stories, and nine initial additional resources, as well as flexible frequencies (optional, once weekly, or twice weekly) and durations (8 to 16 weeks) of therapist support. A qualitative reliability thematic analysis was used to analyze client communications and feedback. Responses to a Treatment Satisfaction Questionnaire administered at eight weeks post-enrollment were available for 57 clients. Client emails with therapists were also examined among all clients, including an additional 25 clients who did not complete the Treatment Satisfaction Questionnaire. Themes identified in the qualitative analyses were grouped under the following domains: reported impacts and hindering events, helpful and challenging course skills and content, helpful aspects of the course, and areas for improvement. Clients who completed the Treatment Satisfaction Questionnaire and those who did not reported beneficial impacts from the program, with the most commonly endorsed themes being skill development and normalizing mental health issues.
Hindering events were experienced by both groups and included timeline challenges, technology challenges, and negative effects. Comments from both groups suggested that clients had more success than challenges when practicing the skills. Thought challenging was the skill most frequently identified as helpful. Clients described many aspects of the program as helpful with the most frequently endorsed themes being the course format and content, the flexible nature of the course, access to additional materials and case stories, and therapist assistance. Clients also provided suggestions for improving the course (e.g., improving case stories, additional resources, and timelines and adding in audio and videos). Overall, client communications suggest that ICBT is accepted and perceived as beneficial among PSP. These results informed rapid improvements to the ICBT program tailored for PSP and may inform other service providers seeking to provide digital mental health services to PSP.
Introduction

PSP include border services officers, public safety communicators, correctional workers, firefighters (career and volunteer), Indigenous emergency managers, operational intelligence personnel, paramedics, police (municipal, provincial, federal), and search and rescue personnel (CIPSRT, 2019). PSP are frequently exposed to diverse potentially psychologically traumatic events (PPTEs; Carleton et al., 2019). PSP also have much higher rates of mental health disorders, including generalized anxiety disorder, major depressive disorder, and posttraumatic stress disorder (PTSD), than the general population (Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018), which are often collectively referred to as posttraumatic stress injuries (PTSIs; CIPSRT, 2019). PSP have also reported logistical (e.g., geographic, time) and attitudinal barriers (e.g., stigma, desire to manage mental health problems independently) to accessing mental healthcare (Jones et al., 2020; McCall, Beahm et al., 2021).

Internet-delivered cognitive behavioural therapy (ICBT) is a form of cognitive behavioural therapy that can help to overcome barriers to mental healthcare because it is private, accessible at any location, and cost-effective (Andersson, 2016; Donker et al., 2015). ICBT retains the traditional concepts and skills included in face-to-face cognitive behavioural therapy; however, ICBT is delivered online, typically through weekly lessons, and often with therapist support through phone or email (Andersson, 2016). ICBT is convenient for users and shows treatment outcomes similar to face-to-face cognitive behavioural therapy, especially when combined with provider support (Andersson, 2016; Andersson et al., 2019; Karyotaki et al., 2021; Sijbrandij et al., 2016).
In 2019, the Government of Canada responded to the high rates of PTSIs among PSP by initiating a National Action Plan (PSC, 2019) in which ICBT was identified as a potential solution to overcome barriers to care and provide mental healthcare to PSP. The Canadian Government resourced a research unit called PSPNET at the University of Regina to develop and pilot test ICBT tailored for PSP as part of the National Action Plan.

The current study is one of a series of studies designed to evaluate PSPNET’s tailored ICBT programs. We have conducted two previous studies to garner insight into how best to tailor ICBT for PSPNET. The first study examined PSP’s openness to using ICBT. The results indicated that diverse PSP rated ICBT as highly acceptable and their second most preferred mental health service option after face-to-face psychological services (McCall, Sison et al., 2020). The second study indicated that PSP perceive ICBT to have advantages (e.g., privacy, access) and disadvantages (e.g., less accountability, demanding, security concerns) but overwhelmingly perceived ICBT as necessary (McCall, Beahm et al., 2021). PSP from this second study also provided feedback on how to tailor ICBT to PSP, such as by providing flexible timelines and frequencies of therapist support and by addressing PSP-specific issues, such as frequent PPTE exposures, public scrutiny, low workplace support, high standards for toughness and control, pessimism, and discomfort with vulnerability (McCall, Beahm et al., 2021). The PSPNET team used the results of this study to help tailor a transdiagnostic ICBT course (the PSP Wellbeing Course) specifically to meet the needs of PSP. Preliminary quantitative outcomes (e.g., symptom change scores) from the PSP Wellbeing Course are promising and are described in a separate paper (Hadjistavropoulos et al., 2021). However, there is still no published
qualitative research on PSP’s experiences using ICBT. The current study contributes to the larger PSPNET research program by analyzing qualitative data from PSP concerning their experiences with the *PSP Wellbeing Course*.

Past research has used a qualitative approach to evaluate ICBT by gathering feedback through post-treatment interviews (e.g., Lillevoll et al., 2013; Richards et al., 2016) or post-treatment questionnaires (e.g., Hadjistavropoulos et al., 2018). Researchers have consistently found qualitative evidence that ICBT has positive impacts on the wellbeing of clients (e.g., Earley et al., 2017; Lillevoll et al., 2013; Richards et al., 2016). For example, ICBT users with subclinical symptoms of depression have reported improved wellbeing, an enhanced sense of empowerment, feelings of validation, positive behavioural changes, and increased awareness and insight (Earley et al., 2017). In another study, most ICBT users described participation as beneficial (Richards et al., 2016). Qualitative research evidence also indicates that most ICBT clients like the fact that ICBT is, flexible, is available online, includes therapist support, and provides CBT techniques (e.g., Earley et al., 2017; Richards et al., 2016); however, ICBT clients have also reported difficulties navigating websites and frustrations with therapist feedback (Earley et al., 2017; Richards et al., 2016). Complementing these results, a recent meta-analysis of qualitative studies on the acceptability and usability of digital mental health interventions concluded that users generally prefer interventions that offer support, are personalized to meet their preference and needs, and are accessible and interactive with simple interfaces and succinct content (Patel et al., 2020).

The *PSP Wellbeing Course* was based on an existing course for which clients have reported liking the flexibility, convenience, ability to print materials, engagement
with therapists, course content, case stories, and format, but suggested increasing timeline flexibility, matching therapist availability to client needs, and improving case stories (Hadjistavropoulos et al., 2018). Results from previous qualitative studies of ICBT have provided valuable information for evaluating and improving programming; however, the extant results have not provided recommendations or examples of how client feedback can be used to improve services. In the current study, we show how evaluating the perceived impacts and likes and dislikes of the *PSP Wellbeing Course* contributed to the ongoing tailoring of PSPNET’s ICBT services for PSP.

Use of client feedback to continuously improve a program is consistent with the LHS model (Smith & Institute of Medicine, 2013). The LHS approach emphasizes using a person-centered and collaborative research approach and highlights the importance of client input for improving treatment outcomes and experiences (Government of Canada, 2016; Menear et al., 2019). This approach also emphasizes using research results to drive rapid, evidenced-based, point-of-care innovations and improvements. The LHS approach uses an iterative process whereby “evidence informs practice, and practice informs evidence” (Greene et al., 2012: 207), which is particularly well-suited for rapidly improving digital mental health technologies (e.g., Graham et al., 2020; Mohr et al., 2015, 2017, 2018). Making changes during trials is encouraged and necessary, so long as the core components of the technology under investigation remain intact (Mohr et al., 2015). The current study uses an LHS approach to evaluate clients’ feedback or experiences of the program to make improvements to the program with the ultimate goal of improving client outcomes and experiences.
Purpose and Research Questions

The current study was designed as a qualitatively-driven evaluation of an ICBT program tailored for, and now being offered to, PSP in Saskatchewan and Quebec. The study explores clients’ experiences using the program to address four main objectives: 1) to identify client perspectives of the initial impacts of the program 2) to identify the perceived strengths and challenges of the program, and suggestions for improvement 3) to identify differences in experiences between those who completed the Treatment Satisfaction Questionnaire and those who did not (i.e., those who offered less feedback and appeared to be less engaged in the program), and 4) to use the results to drive improvements to the program.

To meet these objectives, the current study addresses seven exploratory questions: 1) What are the reported benefits of the PSP Wellbeing Course? 2) What are reported negative effects of the course? 3) What aspects of the course content did clients find helpful? 4) What aspects of the course content did clients find challenging? 5) What aspects of the course did clients like most? 6) What aspects of the course did clients dislike or want improved? and 7) What are the demographic and experiential differences between those who completed the Treatment Satisfaction Questionnaire and those who did not?

The analyses were congruent with an LHS framework that allowed the PSPNET team to identify areas for further tailoring to meet the needs of PSP. Consistent with an LHS approach, we examined available data (e.g., weekly open-ended reflection questions about ICBT, emails sent to therapists, and the Treatment Satisfaction Questionnaire) from all Saskatchewan clients enrolled in the PSP Wellbeing Course from December 5, 2019.
to June 5, 2020 in an effort to rapidly learn from patients and adapt the program to better meet their needs. As such, we report examples of how we used the results of our analyses to improve PSPNET’s ICBT services. Given the exploratory nature of the study, we did not formulate any hypotheses.

Methods

Context

The *PSP Wellbeing Course* is a transdiagnostic ICBT course tailored for PSP. The course is offered by PSPNET at the University of Regina. PSPNET’s ICBT is currently available to PSP in the Canadian provinces of Saskatchewan, Quebec, New Brunswick, and Nova Scotia. The *PSP Wellbeing Course* was tailored by the PSPNET team based on results from extensive interviews with PSP stakeholders (McCall, Beahm, et al., 2021). The original course was developed, validated, and implemented broadly in Australia (Dear et al., 2015; Fogliati, 2016; Titov, Dear, Staples, Bennett-Levy, et al., 2015; Titov, Dear, Staples, Terides, et al., 2015; Titov et al., 2020) before being implemented and validated in Saskatchewan over the past 7 years (Hadjistavropoulos et al., 2016, 2017, 2019, 2020). The current study draws on data collected as part of a registered observational trial of the *PSP Wellbeing Course* (Clinical Trials.gov NCT04127032) and was approved by the University of Regina’s Research Ethics Board (REB#: 2019-157).

Course Description and Eligibility Criteria

Clients access the course by creating a PSPNET account, completing an online screening questionnaire, and participating in a follow-up telephone call. Eligible clients are (a) 18 years of age or older; (b) comfortable using and able to access the Internet; (c) willing to provide a local medical contact in case of emergencies; and (d) residents of
either Saskatchewan (enrollment began December 2019), Quebec (enrollment began August 2020), New Brunswick and Nova Scotia (enrollment began November 2021). Clients who report severe problems with alcohol or drugs, mania, or psychosis, or clients at high risk of suicide, are referred to face-to-face services. Eligible clients are given the option to work through the course with once-weekly, twice-weekly, or optional, as-needed therapist support via secure emails or telephone calls. Therapist support is offered for eight weeks, with an option to extend support for up to 16 weeks.

Clients work through five psychoeducational lessons addressing (a) symptom identification and the cognitive behavioural model; (b) thought monitoring and challenging; (c) de-arousal strategies and pleasant activity scheduling; (d) graded exposure; and (e) relapse prevention. Each lesson consists of slides with text, images, and diagrams, additional downloadable and printable readings and activities (i.e., do-it-yourself guides), frequently asked questions, and case stories, which feature stories of PSP and their thoughts, behaviours, successes, and challenges working through the materials. Clients can also work through additional materials tailored with examples for PSP. The nine additional resources included when the course was initially launched covered various topics and strategies related to problem solving, panic, assertiveness, communication, beliefs, worry, sleep, PTSD, and mental skills (e.g., calculating risks). Clients are asked to complete weekly questionnaires about their symptoms and experiences with the course. After eight weeks of enrollment in the course, clients are asked to complete a satisfaction questionnaire.
Participants

The current study included 82 clients who enrolled in the *PSP Wellbeing Course* in Saskatchewan between December 5, 2019 and June 5, 2020, (clients from other provinces were not included as we had not begun offering ICBT in other provinces at the time this study was carried out). Most participating clients completed the eight-week satisfaction measure (*n* = 57). The clients who did not complete the eight-week satisfaction measure consisted of 15 clients who officially withdrew from the course and 10 who did not. The reasons provided for withdrawal included: the client decided to seek alternative services (*n* = 7) or the client had personal issues arise (e.g., a busy work schedule) that prevented full participation (*n* = 7). Several clients expressed interest in taking the course again at a later date (*n* = 8). One client did not access any materials, could not be reached, and was consequently withdrawn from the course. All open-ended data provided by clients within the first eight weeks of treatment was included in the current study and analyzed. The sample size is appropriate for exploratory qualitative research that does not seek to generalize results to larger populations (Boddy, 2016).

Measures and Data

Before accessing the *PSP Wellbeing Course*, clients completed the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006), and PTSD Checklist for DSM-5 (PCL-5; Blevins et al., 2015) as part of the online screening (in addition to other measures, the results of which are reported elsewhere; Hadjistavropoulos et al., 2021). The current qualitative data were collected from three sources and de-identified prior to analyses. First, we analyzed open-ended responses to the Treatment Satisfaction Questionnaire, in which clients were asked...
why the course was (or was not) worth their time, and what they liked and disliked about the course (see Appendix A). Second, we analyzed the content of emails clients sent to therapists. Third, we analyzed the two optional weekly homework reflection questions where clients were asked to share any difficulties they had during the previous week and any examples of areas on which they focused.

**Analyses**

**Quantitative Analyses.** We used a series of Chi-Square tests and independent samples t-tests to compare the clinical and demographic characteristics of clients who completed the Treatment Satisfaction Questionnaire at eight weeks post-enrollment and clients who did not. These two groups were compared on gender, community size, relationship status, race/ethnicity, years of experience as a PSP, level of education, age, PSP occupation, prior treatments, and symptoms of depression, anxiety, and PTSD. We conducted these analyses using SPSS Version 23 (IBM SPSS Statistics 23, 2015).

**Qualitative Analyses.** Qualitative data from all three sources were combined for each client and entered into the qualitative analysis software NVIVO 12.0 (QSR International, 2018). Analysis of client responses to the Treatment Satisfaction Questionnaire highlighted salient comments at post-enrollment. Examination of the emails and reflection questions allowed for assessing comments during the course, which was particularly important for clients who did not complete the Treatment Satisfaction Questionnaire. Data from participating clients who completed and those who did not complete the Treatment Satisfaction Questionnaire were divided into separate groups to capture any differences in the experiences of these two groups. There were too few clients who officially withdrew \((n = 15)\) to make comparisons with clients who remained
in the program but did not complete Treatment Satisfaction Questionnaire \( (n = 10) \). Therefore, those who officially withdrew and those who did not complete the Treatment Satisfaction Questionnaire were combined to create a Treatment Satisfaction Questionnaire non-completers group as both groups offered minimal data and appeared to be less engaged in the program. This allowed us to account for the experiences of those who appeared less engaged with the course (i.e., non-completers) without reducing the frequencies of responses among those who offered more feedback and appeared more engaged with the course (i.e., completers).

Throughout the qualitative analyses, we used a coding reliability thematic analysis approach (Boyatzis, 1998; Braun et al., 2018) suitable for answering questions about clients’ perceptions of treatments and their likes and dislikes. Coding reliability thematic analyses focuses on developing overarching themes that largely reflect client responses and use relatively little interpretation. Themes are often grouped under larger domains to create summary lists of grouped themes. Frequencies of responses were included in the analyses to represent general trends within the data in order to provide insights into the frequency with which specific themes were endorsed. The codebook was developed over time using deductive and inductive approaches. The initial framework of summary domains was derived from the questions asked of clients (e.g., benefits, likes, dislikes, challenges, negative effects). Themes were then created by examining patterns in the open-ended responses through the following process. The data were coded by meaning units defined as a program impact, strength, or challenge. The initial codebook was created by the primary coder, author J.D.B., and was revised based on reviews and discussions with author H.D.H. The discussions led to codes being grouped together into
larger themes and organized under larger domains. The new codebook was applied to a new set of clients and was further refined through discussion between author J.D.B. and author H.D.H.

Given the descriptive (rather than interpretative) nature of the qualitative analyses, efforts were made to ensure descriptive themes reflected clients’ own words. The primary coder, author J.D.B., was not involved in the therapeutic activities of ICBT and sought to create domains and themes based on client comments within the data by creating themes that were as close to the textual data as possible. The primary investigator, author H.D.H., oversees the therapeutic activities of PSPNET and performed the initial check of the coding and codebook to ensure the coding accurately reflected client perceptions.

Inter-coder reliability was calculated using a percent agreement approach established by Campbell et al. (2013) to support trustworthiness in the coding process. In the first phase of the reliability coding, a reliability coder coded 20% of the data after the development of the initial codebook. An initial percent agreement was calculated based on total agreements divided by the total number of coded pieces of data (agreements and disagreements; Campbell et al., 2013). The initial percent agreement was 72.6%. In the second phase of the reliability coding, a negotiated percent agreement was calculated after discussions between the primary coder and the reliability coder took place to settle disagreements from the first phase. A negotiated agreement percent was calculated at 98.9%. The reliability coder deferred to the primary coder 81.7% of the time and the primary coder deferred to the reliability coder 17.2% of the time. The problem of unitization can occur as part of conducting inter-coder reliability (Kurasaki, 2000).
Unitization occurs when units of analysis are not given naturally and coders may code different portions of the text. In the current study, unitization was handled with the program NVIVO by capturing agreements anytime there was overlap between the coders at some point in a passage of text. After resolving discrepant coding, final revisions were made to the codebook, which was then used to code the remaining data and to recode previously coded data.

Results

Client Characteristics and Completion Rates: Quantitative Analyses

Client characteristics and the results of comparisons between the Treatment Satisfaction Questionnaire completer and non-completer client groups are summarized in Table 1.1. Non-completers were significantly more likely to identify as married and as ethnic minorities. Non-completers also reported significantly more severe symptoms of major depressive disorder (PHQ-9) and generalized anxiety disorder (GAD-7).

Additional results, including the number of lessons accessed within eight weeks, are displayed in Table 1.1. Only one client in the completer and one client in the non-completer group accessed lessons after eight weeks.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Completers (n = 57)</th>
<th>Non-completers (n = 25)</th>
<th>Total sample (N = 82)</th>
<th>Test of group differences*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, n (%)</td>
<td></td>
<td></td>
<td></td>
<td>χ²(1, N = 81) = 1.55, p = .21</td>
</tr>
<tr>
<td>Male</td>
<td>23 (40)</td>
<td>14 (56)</td>
<td>37 (45)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>33 (58)</td>
<td>11 (44)</td>
<td>44 (54)</td>
<td>χ²(1, N = 82) = 0.15, p = .70</td>
</tr>
<tr>
<td>Nonbinary</td>
<td>1 (2)</td>
<td>0</td>
<td>1 (1)</td>
<td>χ²(1, N = 82) = 4.26, p = .04</td>
</tr>
<tr>
<td>Community size, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;100,000</td>
<td>27 (47)</td>
<td>13 (52)</td>
<td>40 (49)</td>
<td>χ²(1, N = 82) = 5.14, p = .02</td>
</tr>
<tr>
<td>&gt;100,000</td>
<td>30 (53)</td>
<td>12 (48)</td>
<td>42 (51)</td>
<td></td>
</tr>
<tr>
<td>Relationship status, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not married or common law</td>
<td>25 (44)</td>
<td>5 (20)</td>
<td>30 (37)</td>
<td></td>
</tr>
<tr>
<td>Married or common law</td>
<td>32 (56)</td>
<td>20 (80)</td>
<td>52 (63)</td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity, n (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>52 (91)</td>
<td>18 (72)</td>
<td>70 (85)</td>
<td></td>
</tr>
<tr>
<td>First Nations, Inuit, or Metis</td>
<td>3 (5)</td>
<td>5 (20)</td>
<td>8 (10)</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------</td>
<td>--------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>Other ethnic minority</td>
<td>2 (4)</td>
<td>2 (8)</td>
<td>4 (5)</td>
<td></td>
</tr>
</tbody>
</table>

Years of PSP experience

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>13.27 (9.29)</th>
<th>11.12 (7.84)</th>
<th>12.60 (8.88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0–9 years, n (%)</td>
<td>21 (37)</td>
<td>12 (48)</td>
<td>33 (40)</td>
</tr>
<tr>
<td>10+ years, n (%)</td>
<td>35 (61)</td>
<td>13 (52)</td>
<td>48 (59)</td>
</tr>
<tr>
<td>No response, n (%)</td>
<td>1 (2)</td>
<td>0 (0)</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

Highest level of education, n (%)

<table>
<thead>
<tr>
<th>No degree</th>
<th>27 (47)</th>
<th>10 (40)</th>
<th>37 (45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College diploma</td>
<td>13 (23)</td>
<td>10 (40)</td>
<td>23 (28)</td>
</tr>
<tr>
<td>University degree</td>
<td>16 (28)</td>
<td>5 (20)</td>
<td>21 (26)</td>
</tr>
<tr>
<td>No response</td>
<td>1 (2)</td>
<td>0 (0)</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

Age

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>39.99 (11.26)</th>
<th>38.14 (9.38)</th>
<th>39.43 (10.70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-29, n (%)</td>
<td>12 (21)</td>
<td>5 (20)</td>
<td>17 (21)</td>
</tr>
<tr>
<td>30-39, n (%)</td>
<td>16 (28)</td>
<td>10 (40)</td>
<td>26 (32)</td>
</tr>
<tr>
<td>40-49, n (%)</td>
<td>13 (23)</td>
<td>6 (24)</td>
<td>19 (23)</td>
</tr>
<tr>
<td>50-59, n (%)</td>
<td>14 (25)</td>
<td>4 (16)</td>
<td>18 (22)</td>
</tr>
<tr>
<td>60+, n (%)</td>
<td>2 (4)</td>
<td>0 (0)</td>
<td>2 (2)</td>
</tr>
</tbody>
</table>

PSP occupation, n (%)

<table>
<thead>
<tr>
<th>Border Services</th>
<th>0 (0)</th>
<th>1 (4)</th>
<th>1 (1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrections</td>
<td>5 (9)</td>
<td>4 (16)</td>
<td>9 (11)</td>
</tr>
<tr>
<td>Dispatch/Communications</td>
<td>4 (7)</td>
<td>2 (8)</td>
<td>6 (7)</td>
</tr>
<tr>
<td>Fire</td>
<td>4 (7)</td>
<td>2 (8)</td>
<td>6 (7)</td>
</tr>
<tr>
<td>Paramedicine</td>
<td>23 (40)</td>
<td>6 (24)</td>
<td>29 (35)</td>
</tr>
<tr>
<td>Police</td>
<td>16 (28)</td>
<td>6 (24)</td>
<td>22 (27)</td>
</tr>
<tr>
<td>Other</td>
<td>5 (9)</td>
<td>4 (16)</td>
<td>10 (12)</td>
</tr>
</tbody>
</table>

Treatments within past 3 months, n (%)

<table>
<thead>
<tr>
<th>Taken mental health medication</th>
<th>15 (26)</th>
<th>6 (24)</th>
<th>21 (26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seen mental healthcare provider</td>
<td>33 (58)</td>
<td>14 (56)</td>
<td>47 (57)</td>
</tr>
</tbody>
</table>

Pretreatment PHQ-9

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>10.39 (5.90)</th>
<th>14.52 (5.36)</th>
<th>11.65 (6.02)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not clinically significant (0-9), n (%)</td>
<td>28 (49)</td>
<td>5 (20)</td>
<td>33 (40)</td>
</tr>
<tr>
<td>Clinically significant (10-27), n (%)</td>
<td>29 (51)</td>
<td>20 (80)</td>
<td>49 (60)</td>
</tr>
</tbody>
</table>

Pretreatment GAD-7

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>9.60 (5.54)</th>
<th>12.29 (5.36)</th>
<th>10.40 (5.59)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not clinically significant (0-9), n (%)</td>
<td>28 (49)</td>
<td>7 (28)</td>
<td>35 (43)</td>
</tr>
<tr>
<td>Clinically significant (10-21), n (%)</td>
<td>29 (51)</td>
<td>17 (68)</td>
<td>46 (56)</td>
</tr>
<tr>
<td>No response, n (%)</td>
<td>0 (0)</td>
<td>1 (4)</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>

Pretreatment PCL-5

<table>
<thead>
<tr>
<th>Mean (SD)</th>
<th>28.26 (20.63)</th>
<th>37.04 (15.87)</th>
<th>30.94 (19.63)</th>
</tr>
</thead>
</table>
Summary of Qualitative Domains

The findings from the qualitative analyses were grouped under the following domains: reported impacts, hindering events, and negative effects; helpful and challenging course skills and content; and helpful aspects of the course and areas for improvement. The following results describe themes identified within each domain. Reported frequencies and percentages are presented to reflect general patterns and trends which PSPNET used to guide insights and quality enhancement (rather than to make generalizations about clients within the program).

Reported Impacts, Hindering Events, and Negative Effects

Throughout communications with therapists, clients conveyed that the course had a variety of impacts. Reported positive impacts of the program were grouped into the following themes: increased skills and/or improved wellbeing, normalization of mental health issues, improved communication or relationships, first steps towards improved wellbeing, a beneficial program for PSP, and a good reminder of previously learned skills. Clients’ comments about how the course had negative or limited impacts were amalgamated into two themes: the program did not meet the specific needs of the user, and the program made the client feel neglected by the government. Hindering events
described by clients fell into the following three themes: timeline challenges, technical difficulties, and negative effects. Table 1.2 provides an impact summary including frequency of comments for completers and non-completers, as well as client quotes.

The majority of clients \((n = 50/82; 61\%)\) made at least one comment describing benefits from the course. Almost all clients who completed the Treatment Satisfaction Questionnaire indicated (in response to a multiple choice, yes/no question) that the course was worth their time \((55/57; 97\%)\) and that they would feel confident recommending the course to others \((56/57; 98\%)\). Most comments on beneficial impacts came from the completers group \((n = 44/57; 77\%)\), yet 24% \((n = 6/25)\) of clients in the non-completers groups made at least one unsolicited comment about the benefits of the course. Notably, clients in the non-completers group most frequently commented that their experience in the course helped them to normalize their symptoms.

Less than 10% of clients \((n = 7/82; 9\%)\) reported that the course had little or no impact on their wellbeing. In the completer group, four clients \((7\%)\) reported thinking the course was worth their time but believed the course content was not specific to their needs and wanted more personalized content. Two clients \((4\%)\) in the completers group expressed mistrust or skepticism towards the program. The two clients described online programs as too general for the complex and varied mental health issues PSP face and reported being provided with an online program and being part of research made them feel neglected by the government or their work organization. Two clients \((8\%)\) in the non-completers group also stated that the course was not helping them manage their symptoms. Several \((n = 7, 28\%)\) clients in this group withdrew from the course to receive a different form of therapy and did not provide comments on the course impacts.
Hindering events affecting clients’ progress in the course were reported by 88% \((n = 50/57)\) of completers and by 44% \((n = 11/25)\) of non-completers. These clients reported having difficulties keeping up with an eight-week timeline to complete the course because of their schedules or because of concentration problems. A few clients in the completers group \((n = 3/57, 5\%)\), indicated that they found it helpful to know that timelines for accessing the course were flexible but disliked the automatic notification system and the release of materials according to the eight-week timeline. The notifications and automation were described as putting undue pressure on clients to complete the course within eight weeks. Clients in both groups reported having technical difficulties, including issues with logging into the PSPNET web application, at similar rates.

Some clients in the completers group \((n = 14/57, 25\%)\) and one client in the non-completers group reported experiencing negative effects from working on the course, such as increased or novel symptoms. The clients reported that working on the course and directly focusing on their symptoms and experiences increased their symptoms. Yet, all of the clients in the completers group who experienced negative effects suggested the course skills helped them to cope with their increased symptoms, or that the negative effects decreased as they progressed throughout the course. Two clients reported that their increased symptoms were expected or necessary for them to recover. No clients reported that negative effects impacted their overall experience in the course; however, one client from the non-completer group withdrew from the course, reporting a need for face-to-face therapy. Client comments about transient symptom increases that were not directly related to working on the course were excluded from analyses.
### Table 1.2. Reported Impacts and Hindering Events.

<table>
<thead>
<tr>
<th>Domain/Theme</th>
<th>Example Quote</th>
<th>Completers ((n = 57))</th>
<th>Non-Completers ((n = 25))</th>
<th>Total Sample ((N = 82))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Benefits, (n) (%)</td>
<td>“I’m so glad I signed up for this course. It really has made a big difference in the quality of my day to day life and I feel very optimistic for the future. While many of my symptoms developed in my teens I feel that the work I do contributes to the worsening of those symptoms and lately I had been considering whether it was feasible to do this job until I retired. Now, having done this course, I haven’t had those thoughts and feel like I can do this job until I retire without it taking such a toll on my mental health.” #48</td>
<td>44 (77)</td>
<td>6 (24)</td>
<td>50 (61)</td>
</tr>
<tr>
<td>Increased skills or improved wellbeing</td>
<td>“Once I began the course, I found myself feeling hopeful and even a little more understood in how I am struggling and the different ways people can struggle with mental health as a PSP.” #211</td>
<td>13 (23)</td>
<td>5 (20)</td>
<td>18 (22)</td>
</tr>
<tr>
<td>Normalizes mental health issues</td>
<td>“I have found that since beginning this course, the skills I have learned have helped me not only decrease my symptoms but also help with my relationships within my family and friends.” #75</td>
<td>10 (18)</td>
<td>0 (0)</td>
<td>10 (12)</td>
</tr>
<tr>
<td>Improved communication or relationships</td>
<td>“I have a better understanding of myself and my symptoms and what I can do to manage them. Even though I am not feeling 100%, I am confident with time and practice I can learn to manage my symptoms long term.” #121</td>
<td>7 (12)</td>
<td>0 (0)</td>
<td>7 (9)</td>
</tr>
<tr>
<td>First steps toward improved wellbeing</td>
<td>“I can see how practicing this course would be a benefit to anyone in the first responder world.” #38</td>
<td>7 (12)</td>
<td>0 (0)</td>
<td>7 (9)</td>
</tr>
<tr>
<td>Beneficial for PSP</td>
<td>“So nothing I’ve read is new but it’s all a good reminder and a good reminder of perspective.” #136</td>
<td>5 (9)</td>
<td>0 (0)</td>
<td>5 (6)</td>
</tr>
<tr>
<td>Limited or Negative Impacts, (n) (%)</td>
<td>“Felt like my problems were outside of this course. Not that the course is bad just need to work in different stuff.” #136</td>
<td>5 (9)</td>
<td>2 (8)</td>
<td>7 (9)</td>
</tr>
<tr>
<td>Didn’t meet specific</td>
<td>“I am sure that the government is very pleased that they are able to place a check mark next to the box that reads ‘sparing no expense to make sure our veterans’ mental health is being looked after.’” #139</td>
<td>2 (4)</td>
<td>0 (0)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Feel neglected by government</td>
<td>“My biggest problem is making the time, the content itself has been useful when I get to it.” #60</td>
<td>50 (88)</td>
<td>11 (44)</td>
<td>61 (74)</td>
</tr>
<tr>
<td>Hindering Events Timeline Challenges</td>
<td>“I haven’t been able to access the course as I am locked out of the lessons. I still have a lot of time on my hands and would like to complete the course.” #71</td>
<td>45 (79)</td>
<td>9 (36)</td>
<td>54 (66)</td>
</tr>
<tr>
<td>Technical Issues</td>
<td>“The course just made be deal with the issues head on. There was a bit of a tough section, but that is necessary to be able to heal.” #222</td>
<td>17 (30)</td>
<td>5 (20)</td>
<td>22 (27)</td>
</tr>
<tr>
<td>Negative Effects</td>
<td></td>
<td>14 (25)</td>
<td>1 (4)</td>
<td>25 (30)</td>
</tr>
</tbody>
</table>

Note. Non-questionnaire completers include 10 clients who chose not to complete the Treatment Satisfaction Questionnaire and 15 clients who withdrew.

**Helpful and Challenging Course Skills and Content**

Table 1.3 provides a summary of helpful and challenging content. Clients made comments about finding diverse skills helpful. Overall, thought challenging was the skill
most frequently cited as helpful. However, recognizing triggers and cycles of symptoms was commented on at a higher rate than thought challenging within the non-completers group. Few \( n = 4/25; 16\% \) clients in the non-completers group made comments about skills that were introduced beyond Lesson 2. Clients in the non-completers group also made few comments \( n = 4/25; 16\% \) on finding specific skills from the additional resources helpful, whereas about 30\% \( n = 17/57 \) of clients in the completers group commented on finding at least one specific additional resource helpful.

Client comments on challenging content reflected questions about or struggles with implementing the skills rather than not finding them helpful; however, two clients in the completers group reported the thought challenging skill was not helpful. Clients in the non-completers group made no comments about finding skills challenging beyond Lesson 2. Among both groups, there were more comments about finding skills and resources helpful than there were about finding them challenging. Two clients in the completers group but no clients in the non-completers group made comments about finding the skills within the additional resources challenging.

<table>
<thead>
<tr>
<th>Table 1.3. Helpful and Challenging Skills.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Domain/Theme</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Helpful Lesson Skills, ( n ) (%)</strong></td>
</tr>
<tr>
<td>Thought challenging</td>
</tr>
<tr>
<td>Recognize cycle of symptoms and triggers</td>
</tr>
<tr>
<td>Controlled breathing</td>
</tr>
<tr>
<td>Activity scheduling</td>
</tr>
<tr>
<td>Section</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>Graduated exposure</td>
</tr>
<tr>
<td>Relapse Plan</td>
</tr>
<tr>
<td>Helpful Resources, n (%)</td>
</tr>
<tr>
<td>Anger</td>
</tr>
<tr>
<td>Beliefs</td>
</tr>
<tr>
<td>Communication and Assertiveness</td>
</tr>
<tr>
<td>PTSD</td>
</tr>
<tr>
<td>Worry</td>
</tr>
<tr>
<td>Relationships</td>
</tr>
<tr>
<td>Sleep</td>
</tr>
<tr>
<td>Grief</td>
</tr>
<tr>
<td>Problem Solving</td>
</tr>
<tr>
<td>Thought challenging</td>
</tr>
<tr>
<td>Graduated exposure</td>
</tr>
<tr>
<td>Recognizing cycle of symptoms and triggers</td>
</tr>
<tr>
<td>Controlled breathing</td>
</tr>
<tr>
<td>Activity scheduling</td>
</tr>
<tr>
<td>Relapse plan</td>
</tr>
</tbody>
</table>
Challenging Resources,  

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beliefs</td>
<td>“My difficulty was not so much with the lesson but with the beliefs additional resource. It applied to me very much, and like the resource says, it is difficult to challenge beliefs.” #208</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Anger | “The Anger resource is one I have read, but again hard to focus on. I rarely let my anger out, I keep it bottled up. I am thinking if I can overcome the feelings of guilt that the resentment and anger will be corrected. Not sure if that is the way to approach this?” #106 |

Note. Non-questionnaire completers includes 10 clients who chose not to complete the Treatment Satisfaction Questionnaire and 15 clients who withdrew.

**Helpful aspects of course and areas for improvement**

Findings from the qualitative analyses indicated that clients found the following aspects of the course helpful: therapist check-ins and communications, the course design and format, DIY guides, stories, additional resources, and the convenience and flexibility. Some clients \( n = 22/82, 27\% \) even reported that the course did not need any improvements. Feedback offered for enhancing the course included suggestions that fell within the following themes: general comments on improving course design and materials, improving case stories, improving resources or including more topics in resources, adjustment of timelines, including audio or video, addressing technical issues, and increasing contact or accountability. Table 1.4 provides a summary of helpful aspects of the course and suggestions for improvement.

Feedback regarding what clients found helpful about the program came primarily from clients who completed the Treatment Satisfaction Questionnaire, who were directly asked for input on the course. Among this group, 96\% \( n = 55/57 \) made a comment about liking at least one aspect of the course. Yet, in the non-completers group, 20\% \( n = 5/25 \) described liking at least one aspect of the course without being asked directly. Therapist check-ins were one of the most frequently cited helpful aspects of the course among both groups.
All of the clients who offered suggestions for improvement came from the completer group, primarily through responses to questions in the Treatment Satisfaction Questionnaire. A few suggestions (e.g., on the need for audio or improving the sleep resource) from the completer group were made in the weekly reflections and emails. While 33% \((n = 19/57)\) of clients in the completer group shared that they liked the stories and additional resources, 19% \((n = 11/57)\) requested further tailoring of case stories, and 11% \((n = 6/57)\) described a need for improving additional resources and topics (e.g., adding information to the original sleep resource) and adding new ones. No clients reported disliking the therapists or feeling a lack of support from or connection with therapists.

### Table 1.4. Likes and Suggestions for Improvement.

<table>
<thead>
<tr>
<th>Domain/Theme</th>
<th>Example Quote</th>
<th>Completers ((n = 57))</th>
<th>Non-Completers ((n = 25))</th>
<th>Total Sample ((N = 82))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Likes, (n) (%)</td>
<td></td>
<td>55 (96)</td>
<td>5 (20)</td>
<td>60 (73)</td>
</tr>
<tr>
<td>Therapist check-ins and communications</td>
<td>“I enjoyed the one-on-one counselling. My assigned counsellor was very encouraging and always had a suggestion if I needed one.” #38</td>
<td>31 (54)</td>
<td>5 (20)</td>
<td>36 (44)</td>
</tr>
<tr>
<td>Course design and format</td>
<td>“I liked how the course was laid out with the lesson first and then I did the DIY Guide right after.” #75</td>
<td>33 (58)</td>
<td>0 (0)</td>
<td>33 (40)</td>
</tr>
<tr>
<td>DIY guides</td>
<td>“I really like the DIY guide as I can put some things into practice and it’s a good resource to look at throughout the week.” #30</td>
<td>28 (49)</td>
<td>1 (4)</td>
<td>29 (35)</td>
</tr>
<tr>
<td>Stories</td>
<td>“The stories were good as they made me feel more normal.” #209</td>
<td>19 (33)</td>
<td>2 (8)</td>
<td>21 (26)</td>
</tr>
<tr>
<td>Additional resources (general comments)</td>
<td>“All of the Resources were helpful and I will refer to them in the future.” #251</td>
<td>19 (33)</td>
<td>1 (4)</td>
<td>20 (24)</td>
</tr>
<tr>
<td>Convenience and flexibility of access</td>
<td>“It was good to be able to do it on my time and in my own home. Helps with the comfort of reaching out for help while still being in my own safe zone.” #83</td>
<td>12 (21)</td>
<td>1 (4)</td>
<td>13 (16)</td>
</tr>
<tr>
<td>Suggestions*, (n) (%)</td>
<td></td>
<td>25 (44)</td>
<td>0 (0)</td>
<td>25 (30)</td>
</tr>
<tr>
<td>No suggestions</td>
<td>“No suggestion here. I see it as a very good program as it is.” #155</td>
<td>22 (39)</td>
<td>0 (0)</td>
<td>22 (27)</td>
</tr>
<tr>
<td>Course design and materials (general)</td>
<td>“Sometimes I thought the lessons were over repetitive. Scrolling through many pages before there was much added content. Sometimes this helped reinforce a specific point, but could be condensed by a few pages.” #106</td>
<td>19 (33)</td>
<td>0 (0)</td>
<td>19 (23)</td>
</tr>
<tr>
<td>Improve case stories</td>
<td>“I did not find the stories to be that useful to me as I found it hard to read about other people’s symptoms and stories as I found that I was just comparing myself to them in an unhelpful way.” #75</td>
<td>11 (19)</td>
<td>0 (0)</td>
<td>11 (13)</td>
</tr>
</tbody>
</table>
Client suggestions for improving the course were diverse and often inconsistent; for example, some clients reported liking the stories, while other clients described the stories as unhelpful. Nonetheless, we followed the LHS approach and used the results from analyzing clients’ feedback to further tailor the PSP Wellbeing Course (see Table 1.5 for a summary of changes suggested and made).

### Table 1.5. Improvements Made.

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>n</th>
<th>Description of Change</th>
<th>Level of Change</th>
<th>Change Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course design and materials (general), n (%)</td>
<td>19</td>
<td>Change colour, size, and font style on some slides and additional resources.</td>
<td>Revise content</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add graphs showing symptom changes to further help clients track their symptoms.</td>
<td>New content</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add in activity on self-awareness to lesson one.</td>
<td>New content</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Requests to download lesson slides.</td>
<td>Revise Delivery</td>
<td>Under Discussion</td>
</tr>
<tr>
<td>Improve case stories</td>
<td>11</td>
<td>Requests to change repetitiveness/lengthness of materials.</td>
<td>Revise Content</td>
<td>Under Discussion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add client quotes about their experiences with the lesson to the landing page of each lesson and to automated emails.</td>
<td>New content</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Add new case stories and or examples.</td>
<td>Revise content</td>
<td>Partially complete</td>
</tr>
<tr>
<td>Improve resources or include more topics</td>
<td>6</td>
<td>Revise sleep resource.</td>
<td>Revise content</td>
<td>Complete</td>
</tr>
</tbody>
</table>
**Discussion**

There is increasing recognition worldwide that PSP’s mental health needs are going unmet (e.g., Duff et al., 2020; PSC, 2019). ICBT has been proposed as one solution to better support PSP mental health needs in Canada (PSC, 2019). There is ample research on ICBT for the general population but little research on how PSP respond to ICBT. PSP have unique work experiences (e.g., repeated exposures to PPTE) (Carleton et al., 2019, 2020), which PSPNET has attempted to address by tailoring ICBT with PSP specific examples. Qualitative research may help iteratively tailor ICBT for PSP. The current study was designed to examine in-program communication and responses to the
Treatment Satisfaction Questionnaire administered at eight weeks post-enrollment. The examination was used to evaluate client perceptions of how the *PSP Wellbeing Course* impacted their lives, what clients found helpful or wanted improved about the course, and what specific skills they found helpful or challenging.

**Implications of Client Feedback**

Clients’ comments suggested that most clients perceived the *PSP Wellbeing Course* as beneficial and that they had more successes than challenges when practicing various skills throughout the course. The findings suggest that ICBT is suitable for skill development for PSP and normalizing experiences with mental health. This is important because prior research indicates that PSP want to learn new coping skills (McCall, Beahm et al., 2021) and experience substantial workplace stigma related to mental health (Krakauer et al., 2020; Ricciardelli, Carleton, Mooney, et al., 2020).

Consistent with previous research (e.g., Richards et al., 2016)), some clients appreciated the course but felt they needed a different form of treatment, suggesting that ICBT is not suitable for all clients. Facilitating clearer expectations about the program among prospective clients could help redirect clients who are not suitable for ICBT to other services; however, clients may also need to explore a program before knowing if the program will meet their needs. A few clients expressed skepticism towards the course based on the government sponsorship and the research orientation, which highlights the importance of developing trust with PSP populations when developing digital mental health interventions. Like other programs (e.g., Rozental et al., 2015), some clients reported negative effects, highlighting the importance of therapists reminding clients that increased or novel symptoms are normal and part of an ultimately beneficial process.
Even though clients consistently reported having difficulties completing the course within the initial eight-week timeframe, most clients who accessed all five lessons did so within eight weeks, and only a few clients suggested the timeline needed adjusting (see Tables 1.1 and 1.4). Only one client completed the lessons after eight weeks, suggesting that an extended timeline may not solve timeline challenges. Therefore, the PSPNET team is continuing to monitor whether having the option of a 16-week timeframe as suggested by our stakeholders (McCall, Beahm et al., 2021) is necessary because previous research indicates that deadline flexibility is inversely associated with ICBT outcomes (Paxling et al., 2013). The PSPNET team is also continuing to monitor whether there is a better timeline for releasing materials to clients (e.g., waiting until clients complete previous lessons before releasing new lesson materials) to address comments about undue pressure from the notification system.

Clients had more positive feedback than suggestions for improvement for the **PSP Wellbeing Course** and their responses to the program were similar to responses from clients who took the original version of the *Wellbeing Course* (Hadjistavropoulos et al., 2018). The positive feedback clients provided regarding their engagement with PSPNET therapists was encouraging because prior research indicates that PSP distrust mental healthcare providers or are concerned that providers lack sufficient knowledge and understanding of PSP (McCall, Beahm et al., 2021). The overall positive feedback suggests that the **PSP Wellbeing Course** was appropriately tailored and well-received by PSP.
Principal Findings from the Treatment Satisfaction Questionnaire Non-Completer Group

Completers and non-completers were compared in the analyses to explore whether there were any differences in experiences between the two groups for the purpose of guiding insights for program enhancement. Most non-completers accessed only the first few lessons (see Table 1.1), so results from non-completers generally reflect only their initial impressions of the course. The relative absence of suggestions for improvement may have been due to the fact that we only solicited suggestions from clients during the Treatment Satisfaction Questionnaire. This suggests a possible need for soliciting feedback about user experiences earlier on in programs. Nonetheless, by including data from non-completers we were able to gather some insights into their experiences that would not have been captured had we only analyzed data from clients who completed the Treatment Satisfaction Questionnaire. Given the limited data provided by non-completers, separating completers from non-completers in the analyses allowed us to capture initial perceptions and impacts related to the course amongst both groups without diluting overall response rates of completers.

Given that most clients in the non-completers group stopped engaging after the first two lessons, clients may benefit from additional engagement early on in the course to encourage completion. Nonetheless, the results were consistent with prior evidence that many non-completers of ICBT benefit from their partial engagement (Hilvert-Bruce et al., 2012). Among the non-completers, the most frequently cited benefit was that the course improved their awareness about mental health issues and helped to normalize how common mental health concerns are amongst PSP. This suggests that even partial
completion of the course can help to reduce stigma surrounding mental health concerns, which is a frequently cited concern impeding PSP from acknowledging their mental health concerns (Krakauer et al., 2020). Additionally, a number of non-completers expressed satisfaction with the therapist support they received. Thus, not having adequate therapist support may not explain why clients did not complete the course or the Treatment Satisfaction Questionnaire.

**Applying Suggestions for Improvement**

Decisions concerning which suggested changes to implement were largely related to the PSPNET team’s capacity to make each change, rather than the frequency with which each change was suggested. Suggestions that came from even one client were sometimes implemented if the changes were not onerous (e.g., changes to font sizes and colour based on feedback from one client). Our approach illustrates how singular comments can be used to make program adjustments in the pursuit of excellence (Patton, 2014). Some suggested changes are currently under discussion (e.g., requests to download slides as the course was not originally designed to have downloadable slides). Adapting digital technologies drawing on user feedback throughout a clinical trial is an accepted and encouraged practice (e.g., Graham et al., 2020; Mohr et al., 2017). The current study provides an example of how to systematically use qualitative research to make iterative reflexive improvements to a program (see Table 1.5).

Many changes made to the *PSP Wellbeing Course* were consistent with or guided by Oinas-Kukkonen and Harjumaa’s (2009) persuasive systems design (PSD) framework, which consists of 28 design principles to facilitate greater user engagement for a program or intervention. For example, providing clients with graphs displaying their symptom
change over time is consistent with the PSD framework principle of *self-monitoring*. Likewise, providing clients with email notifications when they receive messages in the client portal is consistent with the PSD framework principle of *reminders*, and sharing clients’ quotes is consistent with several PSD framework principles, including *social learning*. The alignment of our changes with PSD framework principles is noteworthy given the growing research on persuasive design in eHealth interventions and emerging evidence that persuasive design predicts efficacy among ICBT interventions (McCall, Hadjistavropoulos, et al., 2021).

**Limitations and Future Research**

Conducting interviews may have been a better approach for collecting data to determine course perceptions from the non-completers. Future research could also systematically collect information from therapists in order to gather additional data on clients who do not complete the Treatment Satisfaction Questionnaire. The current study is also limited by the sample size and relative homogeneity of the sample. The current study clients were from similar occupations (primarily policing and paramedicine) and predominantly identified as white. More research is required to determine how clients from other occupational or demographic backgrounds perceive the impacts, strengths, and weaknesses of the *PSP Wellbeing Course*. Lastly, it is possible that client comments in the Treatment Satisfaction Questionnaire, administered at eight weeks post-enrollment, reflect a response bias (e.g., courtesy bias) and do not accurately reflect their experiences using the program. However, a strength of this study is that client communications throughout the program were examined, thus, capturing client’s experiences as they occurred rather than solely through reflection.
Additional further research is needed to inform practices for tailoring ICBT to specific populations. There have been previous recommendations to use feedback to iteratively and reflexively tailor programs; however, the literature provides little guidance on how to approach tailoring. The current study provides a preliminary example of how feedback can be used to systematically improve an intervention for a specific population. Future mixed-methods research is needed to examine the impact of program improvements on patient engagement and outcomes over time (e.g., exploring if there are fewer drop-outs, fewer dislikes, or better outcomes after improvements are made; Mohr et al., 2017).

Other approaches to analyzing client communications with therapists may also help improve programs. For example, examining client communications for the types of questions clients ask therapists could provide insight into client challenges with the course and reveal further areas for improvement (e.g., Soucy et al., 2019). Examining client communications to identify how clients use therapist support (e.g., rapport building or client venting; Soucy et al., 2018) can show ways to improve support. Future research may also examine how and if clients are using the program with other forms of mental health care. Finally, it may be beneficial to systematically study whether ICBT outcomes vary with programs of different lengths.

**Conclusion**

Canadian PSP experience higher rates of mental health problems than the general population and report multiple barriers to receiving mental healthcare. The current study examined feedback from clients of the *PSP Wellbeing Course*, a transdiagnostic ICBT course tailored to PSP. The study identified how the *PSP Wellbeing Course* impacted
clients, what clients found helpful, and what improvements clients recommended. The results suggest that most clients found ICBT to be beneficial, especially in terms of developing skills to improve wellbeing. The skills most commonly cited as helpful were thought challenging and increasing awareness of the relationships among thoughts, behaviours, and physical sensations; however, at times the same skills were described as challenging. Negative effects were rare and did not appear to impact clients’ overall experiences of the course. The greatest challenge encountered by clients with respect to the PSP Wellbeing Course appears to be meeting the course timeline, yet clients typically still completed the course within the timeframe. Clients valued therapist assistance, content, and activities, with their likes outweighing their dislikes. The course materials and stories of PSP were valued but were also areas that clients commonly identified as needing improvement. In general, clients who did not complete Treatment Satisfaction Questionnaire provided little information during the program regarding their perceptions of ICBT. The available information suggests some of the clients who did not complete the course still experienced benefits, and limited time spent using the course appeared to be a factor hindering their progress. Clients who did not complete the program also presented with greater symptom severity; as such, PSPNET therapists might consider following up with clients who seem less engaged early in the course to help encourage them to continue using the course. We used an LHS approach to iteratively and reflexively incorporate client feedback into the PSP Wellbeing Course with most attention given to making adjustments to the additional resources. The current study and results may help inform other groups who are developing and providing mental health services to PSP.
Chapter 3: Understanding and Addressing Occupational Stressors in Internet-Delivered Therapy for Public Safety Personnel: A Qualitative Analysis (Study 2)

Published as:


[https://doi.org/10.3390/ijerph19084744](https://doi.org/10.3390/ijerph19084744)

Note: Text included in the current dissertation is verbatim to the above cited publication. Minor changes to the formatting and presentation of data were made to maintain continuity of style between manuscripts presented in this dissertation.
Overview

Internet-delivered cognitive behavioural therapy (ICBT) is effective when tailored to meet the needs of public safety personnel (PSP). Nevertheless, there is limited research on the nature of occupational stressors faced by PSP who seek ICBT and how PSP use ICBT to address occupational stressors. We provided tailored ICBT to PSP (N = 126; 54% women) and conducted qualitative content analysis on clinicians’ eligibility screening notes, clients’ emails, and clients’ survey responses to understand occupational stressors faced by PSP and their use of ICBT to address such stressors. Clients described several occupational stressors, including operational stressors (e.g., potentially psychologically traumatic events, sleep/shiftwork issues) and organizational stressors (e.g., issues with leadership, resources, workload). More clients shared occupational concerns during the screening process (97%) than during treatment (58%). The most frequently cited occupational stressor was exposure to potentially psychologically traumatic events. Clients reported using course skills (e.g., controlled breathing, graduated exposure) to manage occupational stressors (e.g., responding to calls, workplace conflict, work-family conflict). Thought challenging was the most frequently reported strategy used to manage occupational stressors. The current results provide insights into the occupational stressors PSP experience and endeavor to manage using ICBT, which can inform further efforts to tailor ICBT for PSP (e.g., adapting course materials and examples to consider these operational and organizational stressors).
**Introduction**

Public Safety Personnel (PSP) refers to diverse professionals working to keep communities safe. PSP include, but are not limited to, border services officers, correctional workers, firefighters (career and volunteer), Indigenous emergency managers, operational intelligence personnel, paramedics, police (municipal, provincial, federal), public safety communicators, and search and rescue personnel (Canadian Institute for Public Safety Research and Treatment, 2019). Elevated rates of mental health challenges have been observed among PSP worldwide, including police (Maia et al., 2007), paramedics (Courtney et al., 2013), firefighters (Stanley et al., 2017), and disaster and rescue workers (Berger et al., 2012; Fullerton et al., 2004). Among a large sample of diverse Canadian PSP ($N = 5813$), 44.5% screened positive for clinically significant symptoms of one or more mental health disorders (Carleton, Afifi, Turner, Tailleau, Duranceau, et al., 2018). Symptoms were found to be particularly elevated among PSP who were female, were unmarried, or had not completed a university or college degree. Since 2015, the Canadian government has increasingly focused attention on the high rates of mental health disorder symptoms associated with posttraumatic stress injuries among PSP, as well as the need for accessible and effective treatments (Carleton, 2021). Despite increased attention and increased availability of mental health training programs, PSP continue to report logistical barriers to care (e.g., geographical, time), concerns about therapists not understanding them, and concerns about confidentiality (McCall, Beahm, et al., 2021). PSP also continue to report experiencing significant and pervasive workplace stigma related to mental health (Krakauer et al., 2020; Ricciardelli, Carleton, Mooney, et al., 2020).
Occupational stressors that may contribute to PSP mental health concerns have been categorized into two domains: 1) operational stressors (i.e., related to job duties); and 2) organizational stressors (i.e., related to job context) (Carleton et al., 2020). Operational stressors for PSP include exposure to potentially psychologically traumatic events, sleep disturbances, chronic pain and injuries, fatigue from shift work, increased vigilance, work location, conflicts between work and personal life, and public scrutiny (Carleton et al., 2020; Ricciardelli, Czarnuch, Carleton, Gacek, et al., 2020). Organizational stressors for PSP include interpersonal dynamics, lack of support from management, workplace bullying, stress related to job promotions, staff shortages, and a lack of resources resulting in unmanageable workloads (Carleton et al., 2020). PSP describe their occupational stressors as exacerbated by PSP organizational culture, which typically reflects a paramilitary and hierarchical reporting structure (Ricciardelli, Carleton, et al., 2018). Furthermore, there is growing evidence that PSP mental health may be just as impacted by organizational stressors as operational stressors (Carleton et al., 2020) and that organizational stressors can amplify the impacts of operational stressors (e.g., PPTE exposures) (Ricciardelli, Carleton, et al., 2018). Occupational stressor experiences can vary by PSP (Carleton et al., 2020), gender (Angehrn et al., 2021), and employment location (Ricciardelli, 2018).

Internet-delivered cognitive behavioural therapy (ICBT) is a digital mental health intervention which is based on the concepts of cognitive behavioural therapy and overcomes barriers to care by providing online services through secure encryption technology that supports confidentiality and accessibility (Andersson, 2016). There are more than two decades of research evidence demonstrating ICBT as effective for treating
various mental health disorder symptoms, with treatment outcomes comparable to face-to-face therapy when paired with therapist support (Andersson, 2016; Andersson, Carlbring, et al., 2019; Karyotaki et al., 2021; Sijbrandij et al., 2016). ICBT interventions can be designed to treat symptoms of a specific mental health disorder (i.e., disorder-specific) or designed to treat symptoms of several disorders (i.e., transdiagnostic). Results from survey and interview research suggests Canadian PSP view ICBT as a valued form of mental health treatment (McCall, Sison, et al., 2020; McCall, Beahm, et al., 2021).

The 2019 Government of Canada National Action Plan for Addressing Post Traumatic Stress Injuries described the potential value of ICBT for PSP, leading to funding for the development and delivery of ICBT tailored for PSP [15]. The ICBT tailored for PSP is called PSPNET, and currently offers therapist-assisted ICBT to PSP residing in Saskatchewan, Quebec, Nova Scotia, New Brunswick, and Prince Edward Island, with intentions to expand to other provinces. PSPNET currently offers two treatment courses: 1) the transdiagnostic *PSP Wellbeing Course* and the disorder-specific *PSP Posttraumatic Stress Disorder (PTSD) Course*. A self-guided version of the *PSP Wellbeing Course* is currently offered to PSP anywhere in Canada. PSPNET courses are the first ICBT courses tailored specifically for PSP. Initial outcomes from the first 83 PSP enrolled in the *PSP Wellbeing Course* in Saskatchewan showed large reductions in symptoms of anxiety and depression, moderate reductions in symptoms of PTSD, and small reductions in symptoms of social anxiety (Hadjistavropoulos et al., 2021).

Qualitative data collected from clients during the first six months of enrolment also showed that the majority of clients were satisfied with the course and found it beneficial.
Given that this is the first ICBT program to address PSP, it is not currently known how PSP are using ICBT to manage occupational stressors.

The goal of the current study is to examine the occupational stressors PSP describe when seeking and receiving ICBT and how they use skills learned in ICBT to manage those stressors. Specifically, the current study was designed to: 1) identify the nature and scope of occupational stressors that PSP report when initially seeking ICBT; 2) explore the nature and scope of occupational stressors that PSP share while enrolled in ICBT; 3) explore whether the occupational stressors impacting PSP mental health vary by occupation, gender, community size (i.e., located in a rural versus urban area), and symptoms of mental disorders (i.e., clinically significant versus non-clinically-significant); and 4) identify the extent to which PSP describe various ICBT skills as helpful for managing occupational stressors. The study uses qualitative data which is appropriate for exploring client experiences within digital mental health programs (Patel et al., 2020), describing occupational stressors (Schonfeld & Farrell, 2010), and guiding enhancements to the quality of interventions (Patton, 2014).

Materials and Methods

Context

The current study collected qualitative data from clients who enrolled in the PSP Wellbeing Course, a transdiagnostic ICBT course tailored by PSPNET to meet the unique needs of Canadian PSP. The original Wellbeing Course was developed by the eCentre Clinic at Macquarie University, Australia, and has been implemented and evaluated in Australia and Saskatchewan, Canada, with evidenced effectiveness for reducing symptoms of anxiety-, mood-, and trauma-related disorders (Dear et al., 2015; Fogliati,
The PSPNET team began tailoring the Wellbeing Course by conducting interviews with 126 PSP stakeholders in Saskatchewan and Quebec, which supported the initial adaptations (McCall, Beahm, et al., 2021). The PSPNET team continues to make iterative improvements to the course based on client feedback (Beahm et al., 2021). The current study is part of a registered observational trial of the PSP Wellbeing Course (Clinical Trials.gov NCT04127032), which was approved by the institutional research ethics board at the University of Regina (REB#: 2019-157).

Course Description and Eligibility Criteria

The eligibility screening and enrollment processes for the PSP Wellbeing Course (offered in English and French) are presented in Figure 1. The five main psychoeducational lessons and other content (including content in the original version of the course and content subsequently added) are presented in Figure 2. Making such changes to ICBT interventions during clinical trials is consistent with recommendations on implementing ICBT and other digital mental health interventions (Mohr et al., 2017). Course lessons are gradually released according to an 8-week timeline. Clients can access optional therapist support for up to 16 weeks and can access lesson slides, as well as downloadable and printable additional resources and DIY guides for up to one year after enrollment (course slides cannot be downloaded).
Participants

The current study includes data from 126 clients who enrolled in the English version of the *PSP Wellbeing Course* in Saskatchewan between December 5, 2019, and
March 15, 2021. Clients who officially withdrew from the program \((n = 17)\) were excluded from the analyses to address concerns regarding confidentiality or limited data. The sample size was adequate for the study design (Boddy, 2016). A list of client characteristics including demographics and mental disorder symptoms at enrollment can be found in Table 2.1.

Table 2.1. Client characteristics.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Total sample ((N = 126))</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender, (n) (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Man</td>
<td>57 (45)</td>
</tr>
<tr>
<td>Woman</td>
<td>68 (54)</td>
</tr>
<tr>
<td>Nonbinary</td>
<td>*</td>
</tr>
<tr>
<td><strong>Community size, (n) (%)</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;100,000 (non-urban)</td>
<td>62 (49)</td>
</tr>
<tr>
<td>&gt;100,000 (urban)</td>
<td>64 (51)</td>
</tr>
<tr>
<td><strong>Relationship status, (n) (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Not married or common law</td>
<td>45 (36)</td>
</tr>
<tr>
<td>Married or common law</td>
<td>81 (64)</td>
</tr>
<tr>
<td><strong>Race/ethnicity, (n) (%)</strong></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>111 (88)</td>
</tr>
<tr>
<td>First Nations, Inuit, or Métis</td>
<td>11 (9)</td>
</tr>
<tr>
<td>Other ethnic minority</td>
<td>*</td>
</tr>
<tr>
<td><strong>Years of experience in PSP occupation</strong></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>12 (8.2)</td>
</tr>
<tr>
<td>0–9 years, (n) (%)</td>
<td>48 (38)</td>
</tr>
<tr>
<td>10+ years, (n) (%)</td>
<td>77 (61)</td>
</tr>
<tr>
<td>No response, (n) (%)</td>
<td>*</td>
</tr>
<tr>
<td><strong>Highest level of education, (n) (%)</strong></td>
<td></td>
</tr>
<tr>
<td>No degree</td>
<td>55 (44)</td>
</tr>
<tr>
<td>College diploma</td>
<td>34 (27)</td>
</tr>
<tr>
<td>University degree</td>
<td>36 (29)</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>40.7 (10.4)</td>
</tr>
<tr>
<td>19-29, (n) (%)</td>
<td>22 (18)</td>
</tr>
<tr>
<td>30-39, (n) (%)</td>
<td>35 (28)</td>
</tr>
<tr>
<td>40-49, (n) (%)</td>
<td>41 (33)</td>
</tr>
<tr>
<td>50-59, (n) (%)</td>
<td>23 (18)</td>
</tr>
<tr>
<td>60+, (n) (%)</td>
<td>5 (4)</td>
</tr>
<tr>
<td><strong>PSP occupation, (n) (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Border Services</td>
<td>5 (4)</td>
</tr>
<tr>
<td>Corrections</td>
<td>20 (16)</td>
</tr>
<tr>
<td>Dispatch/Communications</td>
<td>8 (6)</td>
</tr>
<tr>
<td>Fire</td>
<td>9 (7)</td>
</tr>
<tr>
<td>Paramedicine</td>
<td>38 (30)</td>
</tr>
<tr>
<td>Police</td>
<td>36 (29)</td>
</tr>
<tr>
<td>Other (e.g., nurse, peace officer)</td>
<td>10 (8)</td>
</tr>
<tr>
<td><strong>Treatments within past three months, (n) (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Taken mental health medication</td>
<td>40 (32)</td>
</tr>
<tr>
<td>Seen mental healthcare provider</td>
<td>64 (51)</td>
</tr>
<tr>
<td><strong>Pre-treatment PHQ-9</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mean (SD)</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Pre-treatment GAD-7</td>
<td>11.5 (6.0)</td>
</tr>
<tr>
<td>Pre-treatment PCL-5</td>
<td>10.4 (5.7)</td>
</tr>
<tr>
<td></td>
<td>29.3 (18.6)</td>
</tr>
</tbody>
</table>

* Indicates there were at least one but fewer than 5 clients in the grouping. The exact number was masked to protect confidentiality.

**Measures and Data**

Clients completed the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001), Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006), and PTSD Checklist for DSM-5 (PCL-5; Blevins et al., 2015) during online screening. Client survey data were used to describe symptom levels at enrollment. After completing the surveys, clients scheduled and completed a telephone interview with a therapist to assess their course eligibility. Therapists compiled screening notes for each client based on the client’s responses to the online surveys, as well as additional information provided during the telephone interview. The notes were used to summarize clients’ self-reported symptoms and associated major contributing factors. Once enrolled in the course, clients were encouraged to complete weekly symptom and reflection surveys, as well as a Treatment Satisfaction Questionnaire (TSQ; see Appendix A) administered at 8-weeks post-enrollment (available to complete for up to four weeks). The weekly surveys include questions assessing challenges with the course materials, inviting examples of completed course work, helpful elements of coursework, and elements that need improving. Clients were regularly encouraged to exchange emails or schedule telephone calls with their therapist. The current study data included therapist screening notes, open-ended emails to therapists, responses to weekly surveys, and TSQ responses. All client emails sent within
16 weeks of enrollment in the course were included in the analyses. Additional questionnaires not germane to the purposes of the present study are described elsewhere (Hadjistavropoulos et al., 2021).

Analysis

All data sources for each client were de-identified and compiled into a single client file. Each client case file was input into the qualitative analysis software NVIVO 12.0 (QSR International, 2018). Client demographic data were entered for each client case (i.e., PSP occupation, gender, race/ethnicity, community size, symptoms of mental disorders). The data were coded using a qualitative inductive content analysis approach (Hsieh & Shannon, 2005). The screening data were coded to identify the nature and scope of occupational stressors PSP hope to manage with ICBT (objective one). Data were coded to explore occupational stressors (objective two) and the skills PSP describe as helpful for managing occupational stressors (objective four). Clients could endorse more than one category or subcategory. Categories were further grouped under larger domains. A cross-tabs query with all coded data was run using NVIVO 12.0 to assess for demographic covariates (objective three). The query produced main domains and categories of interest including occupation, gender, location of work (i.e., urban or non-urban), and symptoms of mental disorders (i.e., clinically significant versus non-clinically-significant). There was insufficient diversity within the sample to assess for race and ethnicity in the query.

The data were initially coded into domains, categories, and subcategories. The coding scheme was then discussed and refined through conversations with the PSPNET research team until all disagreements were resolved. Response frequencies are reported to
emphasize overall trends of commonly endorsed categories. Summarized examples of text coded within each category are included to describe the categories. Client quotations are not used because of data sensitivity and confidentiality considerations.

**Results**

**Client Course Usage and Completion Rates**

Client course usage and lessons accessed are summarized in Table 2.2.

<table>
<thead>
<tr>
<th>Course usage and lessons accessed</th>
<th>Total sample (N = 126)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lessons accessed at 8 weeks, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Lesson 1</td>
<td>124 (98)</td>
</tr>
<tr>
<td>Lesson 2</td>
<td>118 (94)</td>
</tr>
<tr>
<td>Lesson 3</td>
<td>108 (86)</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>95 (75)</td>
</tr>
<tr>
<td>Lesson 5</td>
<td>77 (61)</td>
</tr>
<tr>
<td><strong>Lessons accessed at 16 weeks, n (%)</strong></td>
<td></td>
</tr>
<tr>
<td>Lesson 1</td>
<td>125 (99)</td>
</tr>
<tr>
<td>Lesson 2</td>
<td>119 (94)</td>
</tr>
<tr>
<td>Lesson 3</td>
<td>111 (88)</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>103 (82)</td>
</tr>
<tr>
<td>Lesson 5</td>
<td>96 (76)</td>
</tr>
<tr>
<td><strong>Number of emails sent</strong></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>5.5 (5.1)</td>
</tr>
<tr>
<td>0-9, n (%)</td>
<td>25 (20)</td>
</tr>
<tr>
<td>10-19, n (%)</td>
<td>87 (69)</td>
</tr>
<tr>
<td>20+, n (%)</td>
<td>13 (10)</td>
</tr>
<tr>
<td><strong>Number of telephone calls</strong></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>2 (3.0)</td>
</tr>
<tr>
<td>0-4, n (%)</td>
<td>105 (83)</td>
</tr>
<tr>
<td>5-10, n (%)</td>
<td>17 (14)</td>
</tr>
<tr>
<td>10+, n (%)</td>
<td>4 (3)</td>
</tr>
<tr>
<td><strong>Completed Treatment Satisfaction Questionnaire</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>109 (87)</td>
</tr>
<tr>
<td>No</td>
<td>17 (14)</td>
</tr>
</tbody>
</table>

**Occupational versus personal stressors reported during eligibility screen**

Most clients reported experiencing one or more impactful occupational stressors (n = 122/126; 96.8%). Operational stressors (n = 113, 89.6%) were endorsed more frequently than organizational stressors (n = 57, 45.2%). The most frequently cited occupational stressor overall was exposure to PPTEs (n = 100, 79.3%). Some clients
reported PPTE exposures but described them as having a limited impact on their mental health or described other stressors as more impactful \((n = 21, 16.7\%)\). Many clients \((n = 57, 45.2\%)\) reported that organizational stressors were contributing to their symptoms, with some \((n = 10, 7.9\%)\) specifically commenting on interactions with operational stressors. Clients commented on how under-resourcing increases the risk and frequency of PPTEs and leaves PSP unable to meet public expectations, have debriefing time, and take even brief respites between PPTEs. Most clients \((n = 83, 65.9\%)\) also reported seeking ICBT because of personal stressors or concerns outside of occupational stressors. Some clients \((n = 10, 7.9\%)\) reported taking the *PSP Wellbeing Course* as a proactive or educational measure and reported few to no symptoms during screening. Table 2.3 provides details on the types of occupational and personal stressors that PSP reported during their screen. Supplementary Files 1 and 2 delineate occupational stressors reported during the screen by gender, PSP occupation, location of work, and clinically significant symptoms of mental disorders (i.e., anxiety, depression, and posttraumatic stress).

**Table 2.3.** Reasons for seeking ICBT including occupation and personal stressors reported during screening \((N = 126)\).

| Domain/Category/Subcategory | Definition | Examples | \(n\) (%)
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Stressors</td>
<td>Amalgamation of occupational stressors categories and subcategories.</td>
<td>122 (97)</td>
<td></td>
</tr>
<tr>
<td>(1) Operational Stressors</td>
<td>Amalgamation of operational stressors subcategories.</td>
<td>Total count includes: exposure to PPTE(s), sleep/shiftwork issues, hypervigilance, pain or injury, issues with public. 113 (90)</td>
<td></td>
</tr>
<tr>
<td>Exposure to PPTE(s)</td>
<td>Exposure to one or more PPTE(s).</td>
<td>Reports of experiencing PPTE(s) including either singular events or cumulative exposures. Includes accounts of cumulative stress, compassion fatigue and moral injury. 100 (79)</td>
<td></td>
</tr>
<tr>
<td>Sleep issues/shiftwork</td>
<td>Work/shiftwork causing issues with sleep.</td>
<td>Reduced sleep: nightmares or flashbacks while sleeping; adjusting to shift work; exhaustion; sleep difficulties. 89 (71)</td>
<td></td>
</tr>
<tr>
<td>Hypervigilance</td>
<td>Being in a state of constant alert, on edge, and feeling as if something bad is going to happen.</td>
<td>Being on edge from loud or sudden noises; hyper awareness about “bad people” in the world; nervousness and on edge in public places; isolating due to feeling on edge about personal safety in public; being “on alert” all the time.</td>
<td>62 (49)</td>
</tr>
<tr>
<td>Pain or injury</td>
<td>Pain or injury acquired through work.</td>
<td>Pain or injury leads to increase in symptoms, difficulties sleeping, challenges at work, and/or having to take short-term disability leave.</td>
<td>14 (11)</td>
</tr>
<tr>
<td>Issues with public</td>
<td>Stressors associated with dealing with the public.</td>
<td>Feeling disrespected or harassed by the public; current social movements advocating for defunding police; constant and increasing demands from public.</td>
<td>7 (6)</td>
</tr>
<tr>
<td>(2) Work impacting family life</td>
<td>Occupational stressors impact family life.</td>
<td>Communication issues; symptoms of withdrawal or increased lack of intimacy; lack of work/life balance; inadequate support for PSP work from spouse/partner; scheduling conflicts; vigilance regarding families’ safety.</td>
<td>64 (51)</td>
</tr>
<tr>
<td>(3) Organizational stressors</td>
<td>Amalgamation of organizational stressors subthemes.</td>
<td>Total count includes: issues with leadership, resources and workload, issues with co-workers, and complaints.</td>
<td>57 (45)</td>
</tr>
<tr>
<td>Issues with administrators, leadership, or management</td>
<td>Endorsement of an unsupportive or toxic work environment created by superiors.</td>
<td>Feeling poorly treated (e.g., unsupported, unappreciated, or bullied) by superiors; belief that superiors are not protective of client’s safety, health, or wellbeing.</td>
<td>31 (25)</td>
</tr>
<tr>
<td>Resources and workload</td>
<td>Lack of resources as well as expectations related to workload.</td>
<td>Staff shortages; overcrowding in prison; lack of resources to meet the needs of the patients/clients they serve; general comments on lack of resources; managing increased call volumes; expectations for hours worked and overtime; inadequate compensation for expected workload; limited time off and breaks.</td>
<td>21 (17)</td>
</tr>
<tr>
<td>Issues with co-workers</td>
<td>Interpersonal conflicts or issues with co-workers/colleagues.</td>
<td>Bullying, harassment, and interpersonal conflict; toxic work environment created by colleagues; frustrations due to colleagues not meeting expectations or demands of the job.</td>
<td>17 (14)</td>
</tr>
<tr>
<td>Complaint</td>
<td>Complaints or disciplinary actions.</td>
<td>Disciplinary (or write up) complaint against the client; stress associated with filing a complaint against a co-worker or management.</td>
<td>5 (4)</td>
</tr>
<tr>
<td>(4) COVID-19 related work stress</td>
<td>Occupational stressors (both occupational and organizational) related to the COVID-19 pandemic.</td>
<td>Occupational stressors (both occupational and organizational) related to the COVID-19 pandemic.</td>
<td>55 (44)</td>
</tr>
<tr>
<td>(5) Unspecified occupational stress</td>
<td>Reports of work-related stress or work affecting symptoms without specifying the nature of the stress.</td>
<td>Reports of work-related stress or work affecting symptoms without specifying the nature of the stress.</td>
<td>34 (27)</td>
</tr>
</tbody>
</table>
### Personal Stressors

<table>
<thead>
<tr>
<th><strong>Personal Stressors</strong></th>
<th><strong>Amalgamation of personal stressors.</strong></th>
<th><strong>Total count includes family concerns, PPTE(s), financial issues, previous mental health problems, other personal concerns, and personal health concerns.</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Family concerns</td>
<td><strong>Concerns about immediate or extended family not reported as directly related to PSP work.</strong></td>
<td><strong>Spouse/partner experiencing stress from their own work, has substance abuse issues, or is experiencing low mood; death or illness of family member; family conflict; miscarriage; trust issues; financial issues; previous childhood issues impact current relationship; parenting concerns.</strong></td>
</tr>
<tr>
<td>(2) PPTE(s)</td>
<td><strong>Exposure to PPTE(s) in personal life.</strong></td>
<td><strong>Childhood trauma; sexual abuse or trauma; motor vehicle accident; victim of crime; family violence; sudden or unexpected violent death in family.</strong></td>
</tr>
<tr>
<td>(3) Financial issues</td>
<td><strong>Financial concerns.</strong></td>
<td><strong>Money mismanagement; debt; overspending; unexpected expenses.</strong></td>
</tr>
<tr>
<td>(4) Previous mental health problems</td>
<td><strong>Mental health issues prior to entering PSP work.</strong></td>
<td><strong>Previous mental health disorder diagnoses; symptoms experienced in prior to being a PSP, including in youth and childhood.</strong></td>
</tr>
<tr>
<td>(5) Other personal concerns</td>
<td><strong>Various stressors impacting mental health.</strong></td>
<td><strong>Feelings of loneliness; issues with religion; seasonal mood concerns.</strong></td>
</tr>
<tr>
<td>(6) Personal health concerns</td>
<td><strong>Injury or medical concern not related to occupational duties.</strong></td>
<td><strong>Hospitalizations; chronic health concerns; acute health concerns; physical health concerns.</strong></td>
</tr>
<tr>
<td><strong>Proactive or education</strong></td>
<td><strong>Accessed course as a proactive measure or for educational reasons.</strong></td>
<td><strong>Proactive/educational; experienced symptoms in the past or currently experiencing due to occupational stressors and want to mitigate symptom escalations. Increase knowledge as a means to provide peer-support or refer others to course.</strong></td>
</tr>
</tbody>
</table>

**Note.** PPTE = potentially psychologically traumatic event.

The table includes data from therapist screening notes for 126 clients. There were 32 clients out of the 126 who completed the telephone screen prior to the declaration of the COVID-19 pandemic in Saskatchewan. There were 86 clients who were directly asked about the impacts of COVID-19 during the telephone screen. There were 8 clients who completed the screen after the declaration of COVID-19 but were not directly screened for impacts.

### Occupational and personal issues shared with therapists

PSP shared concerns and stressors with their therapists to ask for general advice, to ask for suggestions about how to deal with situations, or to use a safe space to share their concerns (see Table 2.4). PSP described occupational stressors \( n = 73, 57.9\% \) and personal stressors \( n = 49, 38.7\% \). The frequency of occupational stressors was slightly higher than that of personal stressors. Supplementary Files 3 and 4 provide a breakdown
of occupational stressors by gender, PSP occupation, location of work, and clinically significant symptoms of mental disorders.

<table>
<thead>
<tr>
<th>Domain/Category</th>
<th>Definition</th>
<th>Examples</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Occupational Stressors</strong></td>
<td>Amalgamation of occupational stressors categories.</td>
<td>Total count includes: operational issues, organizational issues, symptom increases related to work, Covid-19 related, and work impacts on family life.</td>
<td>73 (58)</td>
</tr>
<tr>
<td>(1) Operational Stressors</td>
<td>Operational stressors increase symptoms or seeking advice on how to manage operational stressors.</td>
<td>PPTE(s); issues with the public; challenges with shiftwork; increased stress during occupational duties; high call volume; attending court/trial; pain or inability to perform work due to injury; sleep challenges.</td>
<td>42 (33)</td>
</tr>
<tr>
<td>(2) Organizational issues</td>
<td>Organizational stressors increase symptoms or seeking advice on how to manage organizational stressors.</td>
<td>Working short staffed; mistrust of or feeling unappreciated by managers; fears of disclosing mental health symptoms or reaching out for help; poor communication with colleagues/management; stress related to changes in positions.</td>
<td>35 (28)</td>
</tr>
<tr>
<td>(3) COVID-19-related</td>
<td>Covid-19 pandemic increased work stress or challenges.</td>
<td>Fears of bringing virus home; self-isolation due to exposure; staff shortages from illness and isolation; increasing call volume and demands from public; changing routines; stress over enforcing pandemic restrictions; feel health and safety is neglected by management; surges in virus.</td>
<td>25 (20)</td>
</tr>
<tr>
<td>(4) Unspecified work stress</td>
<td>Work stress increasing symptoms without specifying nature of stressors.</td>
<td>Symptoms increase while at work or thinking about work; symptoms decrease while being away from work; thoughts about changing careers or regretting entering PSP work.</td>
<td>16 (13)</td>
</tr>
<tr>
<td>(5) Work impacts on family life</td>
<td>Discussions with therapist on how work is impacting family life.</td>
<td>Need to improve mental health to improve family life and relationships; need to improve work/life balance; realization that marriage issues are a result of cumulative trauma; managing shiftwork challenges; communication and anger issues with family; feeling a lack of support from family.</td>
<td>14 (11)</td>
</tr>
<tr>
<td><strong>Personal Stressors</strong></td>
<td>Amalgamation of themes under personal stressors or factors.</td>
<td>Total count includes: family concerns, personal health or medication issues, other personal issues, and Covid-19 related issues.</td>
<td>49 (39)</td>
</tr>
<tr>
<td>(1) Family concerns</td>
<td>Immediate or extended family concerns not primarily related to work.</td>
<td>Spouse/partner thinking about switching careers; trust issues; impacted by spouse/partner’s low mood; stress from child care and house work; pregnancy or miscarriage; spouse/partner or child’s physical or mental health condition; adjusting to moving in together with partner; stress over spouse/partner’s addictions; recent break up; family death or health issues; suicide threats by family; health of pet.</td>
<td>33 (26)</td>
</tr>
<tr>
<td>(2) Personal health concerns</td>
<td>Discussions of symptom changes or stressors associated with physical health problems or medications for mental health.</td>
<td>Side effects from mental health medication; accident/injury; medical problems; health issues from stress; weight loss issues.</td>
<td>22 (18)</td>
</tr>
<tr>
<td>(3) Other personal issues</td>
<td>Various personal stressors discussed with therapist.</td>
<td>Vehicle issues; feelings of having little purpose or direction.</td>
<td>7 (6)</td>
</tr>
<tr>
<td>(4) Financial</td>
<td>Financial concerns.</td>
<td>Consumer debt; costs of managing family’s health concerns and living arrangements; concerns about leaving job and finding a similar salary elsewhere.</td>
<td>*</td>
</tr>
<tr>
<td>(5) PPTE</td>
<td>PPTE experienced in personal life.</td>
<td>Reflections about childhood trauma.</td>
<td>*</td>
</tr>
</tbody>
</table>

*Note: PPTE = potentially psychologically traumatic event. The table includes data from 126 clients. 10 clients completed the course prior to the declaration of the COVID-19 pandemic in Saskatchewan.

* Indicates there were at least one but fewer than 5 clients in the grouping. The exact number was masked to protect confidentiality.
Use of skills and resources for managing occupational and personal stressors

PSP described several skills from the course as helpful, but only some provided specific context; for example, clients described the skills as helpful for managing stress related to PPTE exposures, dealing with demanding or combative clients or patients, attending trial, managing flashbacks or symptoms related to previous calls, managing feelings of inadequacy related to their job, becoming more social at work, or being more assertive about harassment situations at work. Clients also described the skills as helpful for improving personal relationships impacted by their work (e.g., such as managing anger and outbursts towards family). Clients made relatively few comments about using the skills in their personal lives without also providing a work-related context. Table 2.4 presents the number of clients who reported finding each skill helpful, and the number of clients who reported either finding the skill helpful or working on using each skill, delineated by context (i.e., in a work-related context, personal context, or unspecified context).

Thought challenging was the most frequently cited skill that clients were using and finding helpful; paradoxically, clients also reported having challenges with using thought challenging more frequently than with any other skill. Table 2.5 shows the number of clients who reported experiencing challenges with each skill. Challenges included the time required to practice and implement each skill, not understanding how to implement the skill, seeking advice on how to implement the skill, and difficulties overcoming previous patterns when implementing the skill (e.g., stopping previous negative thoughts). Table 2.6 presents a summary of additional resources clients used or found helpful, as well as challenges associated with the resources.
Table 2.5. Skills that clients found helpful, found helpful or were working on without necessarily finding them helpful, or found challenging (N = 126).

<table>
<thead>
<tr>
<th>Skills, n, (%)</th>
<th>Work-Related Context</th>
<th>Personal Context</th>
<th>No Specific Context</th>
<th>Any Context</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Found skill helpful</td>
<td>Found skill helpful or working on</td>
<td>Found skill helpful</td>
<td>Found skill helpful or working on</td>
<td>Found skill helpful</td>
</tr>
<tr>
<td>(1) Thought challenging</td>
<td>21 (17)</td>
<td>27 (21)</td>
<td>15 (12)</td>
<td>18 (14)</td>
<td>59 (47)</td>
</tr>
<tr>
<td>(2) Recognizing cycle of symptoms</td>
<td>9 (7)</td>
<td>18 (14)</td>
<td>1 (1)</td>
<td>5 (4)</td>
<td>16 (13)</td>
</tr>
<tr>
<td>(3) Controlled breathing</td>
<td>11 (9)</td>
<td>14 (11)</td>
<td>4 (3)</td>
<td>4 (3)</td>
<td>24 (19)</td>
</tr>
<tr>
<td>(4) Graduated exposure</td>
<td>4 (3)</td>
<td>12 (9)</td>
<td>7 (6)</td>
<td>9 (7)</td>
<td>11 (9)</td>
</tr>
<tr>
<td>(5) Activity scheduling</td>
<td>3 (2)</td>
<td>4 (3)</td>
<td>4 (3)</td>
<td>6 (5)</td>
<td>16 (13)</td>
</tr>
<tr>
<td>(6) Relapse planning and goal setting</td>
<td>0</td>
<td>2 (1)</td>
<td>0</td>
<td>0</td>
<td>7 (6)</td>
</tr>
</tbody>
</table>

Note. PSP = Public Safety Personnel. PTSD = posttraumatic stress disorder.

Table 2.6. Additional resources and PSP case stories that clients found helpful, found helpful or were working on without necessarily finding them helpful, or found challenging (N = 126).

<table>
<thead>
<tr>
<th>Domain/Category</th>
<th>Found resource helpful</th>
<th>Found resource helpful or working on</th>
<th>Challenges with resource/did not resonate with</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional resources, n, (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) PTSD</td>
<td>6 (4)</td>
<td>8 (4)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>(2) Communication</td>
<td>5 (4)</td>
<td>9 (4)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>(3) Worry</td>
<td>2 (2)</td>
<td>5 (3)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>(4) Sleep</td>
<td>2 (2)</td>
<td>6 (3)</td>
<td>3 (2)</td>
</tr>
<tr>
<td>(5) Anger</td>
<td>4 (3)</td>
<td>6 (2)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>(6) Structured problem solving</td>
<td>4 (3)</td>
<td>5 (2)</td>
<td>0</td>
</tr>
<tr>
<td>(7) Enhancing relationships</td>
<td>3 (2)</td>
<td>7 (5)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>(8) Grief</td>
<td>2 (2)</td>
<td>3 (2)</td>
<td>0</td>
</tr>
<tr>
<td>(9) Managing beliefs</td>
<td>2 (2)</td>
<td>4 (2)</td>
<td>3 (2)</td>
</tr>
</tbody>
</table>

Case stories and PSP examples, n, (%) | 47 (37) | NA | 15 (11) |

Note. PSP = Public Safety Personnel. PTSD = posttraumatic stress disorder.

Many clients (n = 47, 37.3%) reported the PSP-specific case stories and examples were helpful; however, some clients (n = 15, 11.9%) reported not liking or not resonating with the case stories. There were 15 clients who were not fully satisfied with the stories: two reported not liking reading stories in general; two reported not finding the stories helpful but believing other people might find the stories helpful; one reported liking the stories but wanting additional examples; one reported identifying with some aspects of the examples but not others; two reported that the stories were unrealistic and contrived; and seven did not provide further explanation.
Discussion

PSP experience high rates of mental health challenges, which have been associated with several operational and organizational stressors (Carleton et al., 2020). PSPNET provides the first ICBT program tailored to meet the needs of PSP. The current study explored how PSP occupational issues present within an ICBT clinic. Specifically, the study examined the scope and nature of occupational stressors experienced by a sample of PSP who accessed an ICBT course (the PSP Wellbeing Course) and how participating PSP sought and used the course to cope with their occupational stressors.

Primary Results

Clients reported using ICBT to manage occupational stressors at a higher frequency than they did to manage personal stressors. Almost all clients who sought ICBT reported an occupational stressor was impacting their mental health during the screening process. PSP also reported personal stressors as reasons for seeking ICBT, but at a lower frequency than occupational stressors. Operational stressors were the most frequently reported stressor and included: exposure to PPTEs, sleep and shiftwork issues, hypervigilance, pain or injury, and issues with the public. PPTEs were the most frequently cited operational stressor. Organizational stressors were also reported and included: issues with administration, leadership, or management, resources and workload, issues with co-workers, and complaints. About half of clients reported other factors impacting their mental health including the impact their work had on their family life, organizational stressors, and the impacts of COVID-19. About a quarter of clients also cited unspecified work-related stressors as affecting their mental health. The current results reflect previous research results that underscore the mental health impact of
operational and organizational stressors for PSP (Carleton et al., 2020), as well as emphasizing the impact PSP work can have on families, which can reciprocally impact the mental health of PSP (Leroux et al., 2021). The current results also highlight the impact of the COVID-19 pandemic on Saskatchewan PSP (McCall, Beahm, et al., 2020).

Reported frequencies were framed by the screening questions, which included a PPTE survey, a sleep survey, questions on vigilance, and a survey on the impacts of COVID-19, but we did not assess for other operational or organizational stressors or assess the impact of PSP work on family life. Most questions focused on operational stressors, rather than organizational stressors; accordingly, cuing may explain some of the operational stressors being highlighted more often than organizational stressors in the screening notes. When sharing concerns with their therapists, clients discussed operational and organizational concerns at similar frequencies. Prior research suggests that organizational stressors may substantially impact PSP mental health (Carleton et al., 2020) and clients in the current study reported using ICBT to manage both operational and organizational stressors.

During the eligibility screening process, approximately half of all clients reported their work impacted their family life, highlighting the significant impact PSP work can have on their families. Most clients cited learning to manage occupational stressors as a way to minimize the impact of their work on their families, and a reason for wanting to engage with the *PSP Wellbeing Course*. The mitigation rationale may explain why PSP focused on wanting to help their families in the screening but focused on managing occupational stressors when discussing concerns with therapists. In any case, the current results underscore the need to address the impact of PSP work on families.
Most client comments coded under the domain *skill use* did not include specific contexts. Where context was provided, clients reported using the course skills to manage occupational stressors more often than personal stressors. Clients who provided specific context for skill use to address occupational stressors suggested the skills helped to manage operational (e.g., PPTEs, emergency calls, attending trial) and organizational (e.g., socializing with co-workers, harassment) stressors, suggesting that ICBT can provide PSP with skills for managing several occupational stressors. Thought challenging was the most frequently used skill overall, which is consistent with previous research (Beahm et al., 2021), highlighting thought challenging as specifically helpful for occupational and personal stressors. However, the popularity of thought challenging could be partially explained by the fact that it was one of the first skills taught in the *PSP Wellbeing Course*, and nearly all clients learned about it, while some clients did not progress far enough in the course to learn some of the skills taught in later lessons. Nevertheless, these findings suggest that ICBT tailored for PSP should emphasize thought challenging and provide sufficient examples of how it can be used to manage occupational stressors. This implication may also extend to face-to-face cognitive behavioural therapy.

Previous research on the *PSP Wellbeing Course* evidenced promising outcomes for symptom improvement (Hadjistavropoulos et al., 2021), with almost all clients benefitting from the course (Beahm et al., 2021). The current data also supports the *PSP Wellbeing Course* as beneficial for managing mental health disorder symptoms related to current or previous occupational stressors, as well as other personal stressors. Clients shared concerns about occupational stressors with their therapists more frequently than
they reported specific skill use in the context of occupational stressors; clients appeared to be using therapist support to seek feedback or support for their thoughts and feelings more often than to discuss course skill applications. The results appear consistent with previous research indicating ICBT therapist interactions involve much more than simple program engagement (Lillevoll et al., 2013). The broad evidence supports the PSP Wellbeing Course with therapist interactions as beneficial for treating diverse PSP mental health challenges (Beahm et al., 2021; Hadjistavropoulos et al., 2021).

Comparisons of occupational stressors across PSP sectors, gender, and location of employment evidenced very few between-group differences; however, the absent differences may be due to client decisions about sharing information rather than an actual difference in experiences. The current results align with previous research results suggesting that occupational stressors are pervasive across gender and PSP sectors (Ricciardelli, Carleton, et al., 2018). Detailed analyses of stressors experienced within each theme remain outside the scope of the present study. Future research may identify important nuances in experiences of operational stressors, such as specific gender differences in issues with management, work and family life balance (Angehrn et al., 2021; Kurtz, 2011), or differences between urban, rural, and remote service locations (Ricciardelli, 2018).

Comparisons of occupational stressors by clients who were experiencing clinically significant versus non-clinically-significant symptoms of mental disorders (i.e., anxiety, depression, and posttraumatic stress) showed that clients who had clinically significant symptoms may be more likely to present occupational stressors as a reason for seeking ICBT and to discuss occupational stressors within ICBT. However, clients who
were not experiencing clinically significant symptoms also used ICBT to manage occupational issues. This suggests ICBT may be helpful for PSP without clinically significant symptoms as a proactive measure for managing occupational stressors.

**Application of findings**

The current study results are informing iterative changes to the *PSP Wellbeing Course* as part of a learning health system framework designed to rapidly integrate research results into practice (Greene et al., 2012; Menear et al., 2019; Smith & Institute of Medicine, 2013), which is considered best practice for ICBT and other digital mental health interventions during clinical trials (Graham et al., 2020; Mohr et al., 2015, 2017, 2018a). A learning health system approach supports following successive iterations of learning cycles that results in research data informing practice revisions, and practice revisions informing subsequent research (Friedman et al., 2017; Menear et al., 2019). The current data have informed optimization of the course. New resources have been added to the *PSP Wellbeing Course* to provide more comprehensive supports based on experiences clients have shared with their therapists; for example: 1) a health anxiety resource was added for PSP experiencing anxiety related to contracting COVID-19; 2) a resource for families was developed and added based on PSP comments that their work was impacting their family life and that PSP were using the *PSP Wellbeing Course* with the support of a significant other; and 3) a resource on seeking mental health supports in the workplace was developed and added based on client concerns about lack of support from management.

Most clients reported finding the stories helpful, but some clients provided feedback on how the stories could be improved. Persuasive design is a set of design
principles intended to promote engagement with technology (Oinas-Kukkonen & Harjumaa, 2009) that can produce greater symptom reduction from ICBT (McCall, Hadjistavropoulos, et al., 2021). A persuasive design principle suggests user motivations for specific actions increase when observing others doing the same actions and benefiting from the behaviours (Oinas-Kukkonen & Harjumaa, 2009). The use of case studies or patient stories in health interventions are typically well-accepted and are often described by clients as helpful (Bennett et al., 2015; Richards et al., 2016). Qualitative and quantitative evidence suggests case stories can provide information, model behaviour, increase knowledge and confidence, improve personal health, and provide a sense of comfort (Drewniak et al., 2020). Benefits from case studies or patient stories appear mediated by user affinity, suggesting interventions need to incorporate information patients perceive as relevant and accurate (Entwistle et al., 2011). Therefore, the results were also used to adapt case stories such as making technical changes to descriptions of occupational duties and changes to examples of the use of course skills (e.g., thought challenging).

The findings from the current study can also be used by other digital mental health providers seeking to treat PSP. Worldwide, PSP are faced with unique occupational stressors, which lead to increased rates of mental disorders within these populations (Berger et al., 2012). Given that PSPNET is the first ICBT program tailored to meet the needs of PSP, this study informs about the occupational stressors that are likely to present in ICBT. This information can be used to optimize course materials and examples to assist PSP in managing occupational stressors.
**Limitations and Future Research**

The data are limited to what PSP shared with their therapists through email conversations, weekly reflections, the TSQ, and during the eligibility screen. Not all PSP shared their experiences with their therapists through emails. There is data for all screens; however, some PSP may have also been experiencing other occupational stressors without reporting the stressors to the therapists. Reported frequencies within screening data were also likely affected by the content of the questions asked during the screening process. The data cannot be used to infer specific rates at which PSP use ICBT to manage types of occupational stressors, but can provide insight into general patterns and trends (Maxwell, 2010). The sample is relatively homogenous such that not all PSP sectors were comparably represented and some important occupational stressors may not have been reported. The current sample sizes did not allow for comparisons of occupational stressors by race or ethnicity. Future research may examine if there is a relationship between client characteristics, personal stressors, and occupational stressors.

**Conclusion**

The current study explored the occupational stressors PSP describe when seeking and receiving ICBT. It also showed how PSP apply skills learned in ICBT to manage both occupational and personal stressors. Occupational stressors included diverse operational and organizational stressors. The current study also evidenced that PSP use several cognitive behavioural therapy skills to manage occupational stressors. The cognitive behavioural therapy skill “thought challenging” was cited as the most helpful for managing occupational stressors. The results provide insight into PSP experiences of occupational stressors, the impact of occupational stressors on PSP mental health, and
how PSP use ICBT to manage occupational stressors. The current results can guide further tailoring of ICBT to PSP and can help prepare clinicians who are providing mental health services for PSP by informing about the types of examples to include and the skills that PSP find helpful for managing stressors.
### Supplementary Files

**Supplementary File 1.** Occupational stressors reported at intake screen by gender, PSP occupation, and location of work.

<table>
<thead>
<tr>
<th>Domain/category</th>
<th>Gender</th>
<th>PSP occupation</th>
<th>Community size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Woman (n = 68)</td>
<td>EMS (n = 38)</td>
<td>Police (n = 36)</td>
</tr>
<tr>
<td></td>
<td>Man (n = 57)</td>
<td>Other (n = 32)</td>
<td>Corrections (n = 20)</td>
</tr>
<tr>
<td>I. Occupational stressors or factors, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Operational stressors</td>
<td>65 (96)</td>
<td>36 (95)</td>
<td>33 (98)</td>
</tr>
<tr>
<td>ii. Work impacting Family life</td>
<td>59 (87)</td>
<td>34 (89)</td>
<td>32 (89)</td>
</tr>
<tr>
<td>iii. Organizational stressors</td>
<td>29 (43)</td>
<td>18 (47)</td>
<td>19 (53)</td>
</tr>
<tr>
<td>iv. COVID-related work stress</td>
<td>36 (53)</td>
<td>17 (45)</td>
<td>16 (44)</td>
</tr>
<tr>
<td>v. Unspecified occupational stress</td>
<td>21 (31)</td>
<td>13 (34)</td>
<td>15 (42)</td>
</tr>
</tbody>
</table>

Note: The gender analysis excludes one participant who identified as non-binary to protect the confidentiality of the client. The category “Other” refers to PSP who identified the following occupations: border services, fire, dispatch/communications, and other.

**Supplementary File 2.** Occupational stressors reported at intake screen by symptoms of mental disorders.

<table>
<thead>
<tr>
<th>Domain/Category</th>
<th>PHQ-9</th>
<th>GAD-7</th>
<th>PCL-5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cliniclly significant (n = 73)</td>
<td>Non-clinically significant (n = 53)</td>
<td>Clinically significant (n = 49)</td>
</tr>
<tr>
<td>I. Occupational stressors or factors, n (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i. Operational stressors</td>
<td>71 (97)</td>
<td>51 (96)</td>
<td>63 (98)</td>
</tr>
<tr>
<td>ii. Work impacting Family life</td>
<td>68 (93)</td>
<td>45 (85)</td>
<td>62 (97)</td>
</tr>
<tr>
<td>iii. Organizational stressors</td>
<td>42 (58)</td>
<td>22 (42)</td>
<td>35 (55)</td>
</tr>
<tr>
<td>iv. COVID-related work stress</td>
<td>35 (48)</td>
<td>22 (42)</td>
<td>31 (48)</td>
</tr>
<tr>
<td>v. Unspecified occupational stress</td>
<td>33 (45)</td>
<td>22 (42)</td>
<td>28 (44)</td>
</tr>
</tbody>
</table>

Note: Two clients have missing data for the GAD-7.

GAD-7 = Generalized Anxiety Disorder-7 (anxiety); PHQ-9 = Patient Health Questionnaire-9 (depression); PCL-5 PTSD Checklist for DSM-5 (posttraumatic stress).
Supplementary File 3. Occupational stressors discussed with therapist in client communication data by gender, PSP occupation, and location of work.

| Domain/Category | Gender | | | PSP occupation |
|-----------------|--------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                 | Woman (n = 68) | Man (n = 57) | EMS (n = 38) | Police (n = 36) | Other (n = 32) | Corrections (n = 20) |
| I. Occupational stressors, n (%) | 42 (62) | 30 (53) | 28 (74) | 16 (44) | 18 (56) | 11 (55) |
| i. Operational issues | 23 (34) | 19 (33) | 17 (45) | 8 (22) | 10 (31) | 7 (35) |
| ii. Organizational issues | 22 (32) | 13 (23) | 10 (26) | 10 (28) | 7 (22) | 8 (40) |
| iii. COVID-19 related | 13 (19) | 11 (19) | 10 (26) | 3 (8) | 6 (19) | 6 (30) |
| iv. Unspecified occupational stress | 9 (13) | 7 (12) | 6 (16) | 5 (14) | 2 (6) | 3 (15) |
| v. Work-family conflict | 10 (15) | 4 (7) | 1 (3) | 6 (17) | 5 (16) | 2 (10) |

Note: The gender analysis excludes one participant who identified as non-binary to protect the confidentiality of the client. The category “Other” refers to PSP who identified the following occupations: border services, fire, dispatch/communications, and other.

Supplementary File 4. Occupational stressors discussed with therapist in client communication data by symptoms of mental disorders.

<table>
<thead>
<tr>
<th>Domain/Category</th>
<th>Clinically significant (n = 73)</th>
<th>Non-clinically significant (n = 53)</th>
<th>Clinically significant (n = 64)</th>
<th>Non-clinically significant (n = 60)</th>
<th>Clinically significant (n = 49)</th>
<th>Non-clinically significant (n = 77)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Occupational stressors, n (%)</td>
<td>45 (62)</td>
<td>28 (53)</td>
<td>41 (64)</td>
<td>31 (52)</td>
<td>32 (65)</td>
<td>41 (53)</td>
</tr>
<tr>
<td>i. Operational issues</td>
<td>27 (37)</td>
<td>15 (28)</td>
<td>24 (38)</td>
<td>17 (28)</td>
<td>21 (43)</td>
<td>21 (27)</td>
</tr>
<tr>
<td>ii. Organizational issues</td>
<td>22 (30)</td>
<td>13 (25)</td>
<td>20 (31)</td>
<td>15 (25)</td>
<td>12 (24)</td>
<td>23 (30)</td>
</tr>
<tr>
<td>iii. COVID-19 related</td>
<td>15 (21)</td>
<td>10 (19)</td>
<td>15 (23)</td>
<td>10 (17)</td>
<td>12 (24)</td>
<td>13 (17)</td>
</tr>
<tr>
<td>iv. Unspecified occupational stress</td>
<td>12 (16)</td>
<td>4 (8)</td>
<td>12 (19)</td>
<td>4 (7)</td>
<td>5 (10)</td>
<td>11 (14)</td>
</tr>
<tr>
<td>v. Work-family conflict</td>
<td>9 (12)</td>
<td>5 (9)</td>
<td>7 (11)</td>
<td>7 (12)</td>
<td>5 (10)</td>
<td>9 (12)</td>
</tr>
</tbody>
</table>

Note: Two clients have missing data for the GAD-7.
GAD-7 = Generalized Anxiety Disorder-7 (anxiety); PHQ-9 = Patient Health Questionnaire-9 (depression); PCL-5 PTSD Checklist for DSM-5 (posttraumatic stress).
Chapter 4: Utilizing Leaders’ Perceptions to Optimize the Implementation of Internet-Delivered Cognitive Behavioural Therapy for Public Safety Personnel (Study 3)

Overview

PSPNET has tailored ICBT to meet the needs of PSP to help address increased rates of mental health challenges within this population. The PSPNET team uses a micro-LHS approach where data is collected from multiple stakeholders to make iterative improvements to the program. Previous PSPNET research has gathered feedback from clients enrolled in the *PSP Wellbeing Course* and used the data to make changes to the course. The current study uses data from organizational level stakeholders, or PSP leaders (*n* = 10), to identify strengths and weaknesses of the program to drive further improvements. Interview data is used to assess PSPNET along the RE-AIM framework, including reach, effectiveness, adoption, implementation, and maintenance.

The results evidenced leaders believed PSPNET is reaching PSP, and that factors that help reach PSP and PSP organizations to adopt and promote PSPNET are building relationships and trust with PSP, and support for mental health initiatives from PSP leadership. In terms of effectiveness, stakeholders viewed PSPNET as beneficial for both PSP individuals and their organization. Regarding implementation, the innovation characteristics of PSPNET are viewed as a major strength of PSPNET. In terms of maintenance, stakeholders are willing to continue supporting and promoting PSPNET. Stakeholders identified areas for improving reach (e.g., emphasizing the preventative aspects of ICBT, providing data on uptake to leaders, promotional videos) and implementation (e.g., increasing availability, promotion of success stories, additions to
therapist support, addressing concentration challenges) dimensions. Some areas for improving reach and implementation had already been made (e.g., including audio to address concentration challenges); therefore, the PSPNET team used the feedback to increase communication about such changes to PSP leaders. Other suggested changes are being worked on (e.g., expanding therapist-assisted PSPNET courses to other provinces) or are under consideration (e.g., increasing emphasis on the preventative aspects of ICBT). The current results can inform other service providers that ICBT is viewed as valuable by stakeholders and provide insight into best practices for promoting ICBT (e.g., building relationships). The results can also provide other service providers with insights into intervention characteristics that have made PSPNET implementation successful.
Introduction

PSPNET uses a micro-LHS approach to guide program improvements for ICBT tailored to PSP. A micro-LHS approach emphasizes the importance of gathering data from multiple types of stakeholders to improve services (Greene et al., 2012; Menear et al., 2019). The previous studies in the current dissertation explored client feedback and communications to make iterative improvements to the *PSP Wellbeing Course*. Study 1 explored clients’ perceptions of course impacts as well as client-level feedback on the perceived course strengths and areas for improvement (Beahm et al., 2021). Study 1 also identified what skills clients found helpful, unhelpful, or challenging for managing symptoms of mental health disorders (Beahm et al., 2021). Study 2 was informed by Study 1 and explored whether clients were using the course to manage occupational stressors and which skills were reported as helpful or challenging specifically for managing occupational stressors (Beahm et al., 2022). The *PSP Wellbeing Course* was adapted based on the results from these two studies. The current study compliments Studies 1 and 2 of the current dissertation, using data from another level of stakeholders to improve PSPNET as part of a micro-LHS evaluation.

The current study is designed to explore organizational stakeholders’ perceptions of all PSPNET programs; specifically, the study explores the perceptions of PSPNET by leaders within PSP organizations. Leaders are defined as: administrative leaders, organizational leaders, management, and frontline supervisors. There is a need to identify leaders’ perceptions of PSPNET as perceptions of program outcomes and implementation and ideas for improvement can vary between different types of stakeholders (Lyles et al., 2021; Neher et al., 2022). Therefore, assessing leaders’ perceptions of PSPNET and
viewpoints on the value of PSPNET may differ from the published client-level results in the previous studies presented in the current dissertation, which could impact decisions by policy or PSP organizations regarding program support. Leaders may also be able to provide novel ideas for improving PSPNET services. Support for PSPNET from leaders is particularly important because implementation evaluation frameworks, such as the Consolidated Framework for Implementation Research (Damschroder, Aron, et al., 2009; Damschroder et al., 2022), as well as program sustainability research (Scheirer, 2005; Shelton et al., 2018), emphasize the need for an organizational setting that includes supportive leadership for successful implementation and maintenance of programs.

Previous implementation research on mental health programs targeted to PSP have highlighted that major facilitators to program uptake and implementation include PSP leaders and organizational policies supportive of programs (Knaak et al., 2019; Milliard, 2020). For example, a qualitative study on R2MR implementation for police evidenced uptake was enabled by factors including strong leadership support and an organizational culture that was open to, and emphasized, mental health initiatives (Knaak et al., 2019). Another qualitative study assessing police peer support programs also evidenced supportive organizational policies as important for uptake (Milliard, 2020). Therefore, understanding how PSP leaders perceive PSPNET’s outcomes and implementation efforts, reasons PSP leaders have or have not promoted PSPNET, and how losing PSPNET would impact their organization is important for sustainability planning.

Prior to the implementation of PSPNET, interviews conducted with 126 PSP stakeholders (56%; n = 70 in leadership positions) evidenced that 93% perceived a need
for ICBT tailored to PSP and 62% reported believing that PSPNET would be used by PSP (McCall, Beahm, et al., 2021). A national survey conducted by PSPNET assessed perceptions of ICBT and insights into expanding access across Canada approximately 2 years after initial implementation. The results indicated most PSP leaders (80.9%; \( n = 207 \)) believed having PSPNET available to people in their organization should be a priority, and most (82.4%; \( n = 210 \)) believed PSPNET would be effective for improving the mental health of their members (Landry et al., 2023). The results suggest PSP leaders have positive perceptions of ICBT tailored to PSP and perceive a need for ICBT. The current study is designed to provide further insights into whether leadership perceptions of PSPNET have been upheld throughout the implementation of PSPNET and assess for further opportunities to improve PSPNET.

**RE-AIM Framework**

The current study uses the RE-AIM evaluation framework to assess PSP leaders’ (i.e., stakeholders’) perceptions of PSPNET and identify areas for improvement. The RE-AIM framework was developed in response to evaluation studies that only focused on efficacy or effectiveness and ignored information such as implementation contexts (Glasgow et al., 2019). The RE-AIM framework is designed to allow for rapidly evaluating interventions by measuring internal and external validity. The RE-AIM framework is suitable for exploring the contexts in which intervention components are effective and what implementation strategies help achieve effectiveness (Holtrop et al., 2021). The planning, implementation, and sustainment phases of a program evaluation can each use the RE-AIM framework to inform rapid adjustments or improvements to programs (Holtrop et al., 2021).
RE-AIM can be used to evaluate five dimensions of intervention implementation and outcomes: reach, effectiveness, adoptability, implementation, and maintenance (Glasgow et al., 1999, 2019; Holtrop et al., 2021). Reach refers to the number, proportion, and representativeness of individuals who engage or participate in the intervention based on the total population of who the intervention was targeted to benefit and their reasons for either participating or not. Reach addresses the questions: Who was the program intended to benefit, who actually participated, and was exposed to the intervention? Effectiveness refers to assessing success in achieving the program goals, whether there was individual user variability in benefits across subgroups, and whether the intervention produced any negative outcomes or effects. Adoption refers to assessing uptake and acceptance of the intervention at the settings, systems, or communities level, rather than the individual user level, and can be used to assess the extent to which organizations adopt or promote an intervention. Implementation refers to assessing how consistently an intervention is delivered, adaptations, costs, and the rationale for outcomes. Maintenance refers to long-term sustainability of program results at the individual level (i.e., individual outcomes are maintained over time), as well as sustainability of the program at the settings level (e.g., how implementation of the program can be sustained and whether the program becomes institutionalized as part of organizational practices and policies). The RE-AIM framework can be used pragmatically and put more or less focus on the specific dimensions that are of interest to evaluators or stakeholders (Holtrop et al., 2021).

Quantitative data has typically been used during evaluations using the RE-AIM framework; however, there has recently been increased emphasis on using qualitative
data to provide insights into the five dimensions (Holtrop et al., 2018). Qualitative data is helpful for understanding what has and has not worked within specific areas of an intervention, and how the intervention can be improved. For example, qualitative data can help evaluators understand why programs do not reach certain groups and help identify ways to better reach target populations (Holtrop et al., 2018). Qualitative data can also be used to understand various stakeholders’ perceptions on program effectiveness, such as whether they view the results as meaningful and beneficial enough to make the program worthwhile (Holtrop et al., 2018). Adoption of an intervention can be explored using qualitative data to help understand why certain organizations chose to participate in an intervention or not (Holtrop et al., 2018). Qualitative data can be particularly important for understanding stakeholders’ perceptions of implementation efforts and what was successful and unsuccessful, and for identifying areas for improvement (Holtrop et al., 2018). Qualitative data is also useful for identifying potential maintenance sustainability problems with an intervention and assessing if organizations have intentions to continue to adopt or promote an intervention or not (Holtrop et al., 2018).

Using the RE-AIM evaluation framework as part of a larger learning health system framework has been encouraged (Ellis et al., 2022). The RE-AIM framework and LHS approach emphasize rapid evaluation research and using results to improve current interventions and practices. Ellis and colleagues (2022) argue that LHS frameworks can benefit from using systematic evaluation frameworks, such as the RE-AIM framework, for guiding program adaptations.
The Consolidated Framework for Implementation Research

The RE-AIM framework provides a practical framework for evaluating interventions, but does not help to explain why implementation was successful or unsuccessful (King et al., 2020). The Consolidated Framework for Implementation Research (CFIR) is one of the most cited implementation frameworks for assessing the contextual factors for whether and why an intervention was successful (Damschroder et al., 2022). Therefore, applying aspects of CFIR alongside the RE-AIM framework may provide insights into program success (King et al., 2020). The current study uses aspects of the CFIR framework to assist in interpreting PSP leader stakeholders’ perceptions of PSPNET along the dimensions of the RE-AIM framework.

The CFIR was originally developed in 2009 and included five domains: intervention characteristics; the outer setting; the inner setting; individual characteristics; and the implementation process with corresponding constructs (Damschroder, Aron, et al., 2009). The CFIR framework was recently updated based on user feedback (Damschroder et al., 2022). Updates to the CFIR framework include the intervention characteristics domain now being called the innovation domain, expanded constructs for the outer setting, and breaking the individuals domain into sub domains (Damschroder et al., 2022). Assessing the innovation domain includes exploring how stakeholders view the “thing” being implemented and is assessed using nine constructs: innovation source; innovation evidence base; innovation relative advantage; innovation adaptability; innovation trialability; innovation complexity; and innovation cost (Damschroder et al., 2022). The inner setting refers to the setting in which the innovation is implemented and assesses whether the setting is capable of supporting implementation (e.g., has the
structural characteristics to support it) (Damschroder et al., 2022). The inner setting exists within the outer setting; the outer setting typically refers to the larger system or organization, whereas the inner setting refers to the specific location (Damschroder et al., 2022). The outer setting domain is used to assess support for the innovation using constructs (e.g., local attitudes, local conditions, policies and laws, external pressure). The individuals domain includes two subdomains: 1) roles; and 2) characteristics. The roles subdomain documents the key roles involved in the implementation (e.g., opinion leaders, high-level leaders, mid-level leaders, innovation recipients). The characteristics subdomain documents the degree to which these individuals have the need, capability, opportunity, and motivation to fulfill their role within the implementation (Damschroder et al., 2022). The implementation domain is used to assess activities and strategies used to implement the innovation (Damschroder et al., 2022). The CFIR terminology should be made program-specific where applicable (Damschroder et al., 2022).

The current study uses aspects of three of the five domains of the CFIR (i.e., innovation domain, outer setting, individual characteristics) to interpret responses along the five dimensions of the RE-AIM. First, the innovation domain of the CFIR is used to interpret PSP leader stakeholders’ perceptions of the characteristics of PSPNET’s ICBT, or the intervention being implemented (i.e., innovation characteristics). Second, the outer setting is defined as PSP organizations and the outer setting domain is used to provide insight into the facilitators and barriers for implementing PSPNET within PSP organizations (e.g., local attitudes). Third, the PSP leader stakeholders are defined as leaders in their organizations (either high-level, mid-level, or opinion leaders) and the
individual characteristics domain is used to assess whether the stakeholders have the
need, opportunity, capability, and motivation to support and promote PSPNET.

Previous research has evidenced that constructs from the innovation, inner setting,
and process domain (specifically opinion leaders) can help to explain facilitators and
barriers for program adoption, implementation, and maintenance by identifying the
presence or absence of variables necessary for implementation success (King et al.,
2020). The previous research was conducted prior to the updated CFIR, and the
constructs used from the process domain are now explained by the individual domain
(i.e., opinion leaders) (King et al., 2020). In the current dissertation study, the outer
setting domain was used rather than inner setting domain based on the sample being
interviewed (i.e., PSP leader stakeholders) and anticipated associated insights. The three
domains from the CFIR are used to assess the presence or absence of constructs which
can help explain facilitators or barriers along the dimensions of the RE-AIM. For
example, positive perceptions of innovation characteristics provide support for successful
reach, adoption, and implementation of the program. PSP stakeholder leaders with the
need, opportunity, capability, and willingness to support PSPNET will signal a greater
likelihood of successful adoption and maintenance. Similarly, local attitudes in the outer
setting that are supportive of mental health initiatives and ICBT will likely lead to greater
success in terms of reach, adoption, and maintenance.

**Objectives and Research Questions**

The current study is designed to explore PSP leader stakeholders’ perceptions of
PSPNET and identify areas for improvement. Using the RE-AIM framework, the study
explores PSP leader stakeholders’ feedback of PSPNET along the five RE-AIM dimensions and address five research questions:

1) Reach: To what extent do PSP leader stakeholders believe PSPNET reached potential PSP clients within their organization and what were the barriers and facilitators for reaching potential PSP clients within their organization?

2) Effectiveness: Do PSP leader stakeholders view PSPNET services as beneficial for their organization? Why or why not? Do PSP leader stakeholders have anecdotal evidence of effectiveness from PSP?

3) Adoption: Did the PSP leader stakeholder’s organization partner with or promote PSPNET? What were the facilitators or barriers that allowed for, did not allow for, or made challenging partnering with or promoting PSPNET?

4) Implementation: What do PSP leader stakeholders believe PSPNET did well when implementing the program and what do they believe could be improved?

5) Maintenance: Do PSP leader stakeholders believe PSPNET is beneficial to sustain? Do PSP leader stakeholders have interest in advocating for PSPNET?

Results from the RE-AIM dimensions will be assessed using constructs from the CFIR as discussed above.

Methods

Setting

Data collection for the current study took place between November 2022 and January 2023. PSPNET had made available two therapist-assisted ICBT courses in both English and French to residents of Saskatchewan (beginning in December 2019), Quebec
(beginning in June 2020), Nova Scotia, New Brunswick, and Prince Edward Island (beginning in November 2021). One course is transdiagnostic (i.e., *The PSP Wellbeing Course*), and one course is PTSD specific (i.e., *The PSP PTSD Course*). A self-guided version of the *PSP Wellbeing Course* was also available to all PSP from across Canada. An English version of a self-guided course tailored to meet the needs of the spouses and significant others of PSP had also been recently made available across Canada. The entirety of these courses form what will be referred to as the PSPNET program. PSPNET had delivered services to over 900 PSP at the time of data collection. Within Saskatchewan specifically, PSPNET conducted 336 telephone screens, 318 PSP enrolled in a therapist-assisted PSPNET ICBT course, and 12 PSP enrolled in the self-guided *PSP Wellbeing Course*. Over 4,000 PSP in Saskatchewan had attended a presentation delivered by a PSPNET team member on PSPNET.

**Sample and Recruitment**

The current study included a sample of 10 PSP leaders based in, or recently based in, Saskatchewan, two of which oversaw larger jurisdictions or provinces, as well. Leaders from Saskatchewan were selected because Saskatchewan was the first province to implement PSPNET and there was enough passage of time (i.e., three years) since implementation, allowing for assessment of the program. The sample was recruited by contacting leaders of organizations that have partnered with and/or promoted PSPNET. Previous PSPNET outreach activities with these stakeholders included: individual meetings, presentations, webinars, and submitting newsletter articles for PSP organizations. PSP leaders were contacted by being sent an email invitation with a one-page summary of PSPNET and the results of PSPNET, including outcome data and client
perceptions of the course (See Appendix B). Potential participants were asked to schedule an interview using an online scheduling tool called Coconut Calendar at their discretion. The invitation email included an online consent form (See Appendix C).

A total of 23 email invitations were sent out to PSP leaders (i.e., stakeholders) from the following sectors: fire (5), municipal police (5), EMS/paramedics (3), corrections (3), RCMP (2), border services (1), and leaders representing multiple sectors (4). The final sample included 10 leaders from the following sectors: EMS/paramedics (2), fire (2), municipal police (2), RCMP (1), and border services (1). There were two leaders who worked for organizations that included multiple public safety sectors. The sample was comprised of six men and four women. The sample size is adequate for qualitative research (Boddy, 2016) and accords with other qualitative interview studies designed to assess stakeholders’ perceptions and inform program improvement (e.g., Marcu et al., 2022; Melia et al., 2021)

**Data Collection**

Stakeholders took part in a semi-structured interview (Olson, 2011). The interviews all took place over the telephone. Telephone interviews offer some advantages over face-to-face interviews, such as providing ease of access for participants, even with geographic dispersion (Saarijärvi & Bratt, 2021). Telephone interviews allow for convenience and the ability to allow for participation of hard to reach populations, such as those within PSP organizations who have busy schedules and concerns about confidentiality (Sturges & Hanrahan, 2004). A study comparing telephone interviews with face-to-face interviews found that the interview medium did not impact the quantity or quality of the interview responses (Sturges & Hanrahan, 2004). In a similar study, a
comparison of telephone interviews, face-to-face, email, and video interviews evidenced that the substance and content did not differ across modalities (Saarijärvi & Bratt, 2021). Prior to beginning the interview, stakeholders were asked if they had reviewed the consent form and verbally consented to participate. The interview guide included questions to assess stakeholders’ perceptions of PSPNET and to identify areas for improvement along the five dimensions of the RE-AIM framework. The interview guide consists of 17 questions overall, which are organized into the five dimensions of the RE-AIM framework. The semi-structured interview guide can be found in Appendix D. Interviews lasted approximately 20 to 30 minutes. All interviews were recorded and sent to a professional transcription service.

**Analysis**

The interview transcripts were transcribed verbatim and all identifying information was removed from the transcripts. The transcripts were uploaded into NVIVO (released March 2020). Data were coded using a directed qualitative content analysis (Hsieh & Shannon, 2005) guided by the five dimensions of the RE-AIM framework. A directed content analysis refers to a content analysis that is guided by a pre-existing theory or framework (Hsieh & Shannon, 2005). The RE-AIM framework dimensions were used as domains and the interview data were coded into categories and subcategories. Data were coded by meaning unit rather than by word, sentence, or line. A meaning unit refers to words, statements, or paragraphs that relate to the same central meaning, or are related to each other through content and context (Graneheim & Lundman, 2004). The data is being used for program improvement such that individual comments may be used to improve the program (Patton, 2014); as such, theme saturation is not an intended outcome. The
concept of data saturation has been contested within qualitative research given that new data or concepts can always emerge (Braun & Clarke, 2021; Mayan, 2016). Given the goal of program improvements, new or idiosyncratic comments will continuously be sought, and therefore, the goal is not to create a final analyses of inclusive themes. Instead, all data that relates to the goals of the research and that can be used to evaluate and improve the program will be coded with the expectation that continued interviews would lead to potentially new ideas not captured by the current categories. The coded data were reviewed and checked by a PSPNET clinical research associate who provided feedback on the coding structure and identified coding categories. Changes were applied to the final coding structure and codebook based on the derived feedback. Making changes to the coding framework through collaboration and discussions, rather than through calculating inter-coder reliability, is often considered a preferred practice in qualitative research using an inductive approach (Braun & Clarke, 2022; O’Connor & Joffe, 2020). Categories are presented in the analyses using stakeholder quotes.

Part of qualitative research requires researcher reflexivity (Lazard & McAvoy, 2020). The primary researcher has no history of working as a PSP, which may have made stakeholders feel less comfortable sharing their PSPNET perspectives. PSPNET familiarity among PSP organizations may have helped to offset such discomfort. The primary researcher is affiliated with PSPNET, and has generally positive assumptions about ICBT and the associated effectiveness, which may bias interpretations of stakeholder responses. The current study is collecting stakeholder perspectives, rather than looking for underlying systems of meaning; as such, the data will be coded by looking for overt themes in responses, which should help to offset positivity biases.
Efforts were made to frame the questions as open-ended to further offset potentiating a positivity bias. For example, stakeholders were asked if they have heard any feedback about PSPNET rather than positive feedback. As another example, stakeholders were asked how losing PSPNET would impact their organization, instead of whether losing PSPNET would negatively impact their organization. The questions were also designed to limit PSP leader response biases towards offering only positive feedback. The PSPNET team operates using a micro-LHS that supports continuous improvement efforts. Therefore, questions also highlight barriers or weaknesses of the program. Prompts and dialogue in the interview were used to encourage stakeholders to offer suggestions for improvement, emphasizing the continuous improvement efforts. The stakeholders who were contacted to take part in the project had previous connections with PSPNET, and therefore, were more likely to hold positive perceptions of PSPNET. Despite asking stakeholders to describe weaknesses of PSPNET, the results of the study need to be considered within this context.

**Results**

*Reach and Adoption*

The reach and adoption domain results overlapped substantively, and are therefore presented together. Stakeholders who discussed facilitators or barriers to reaching PSP within their organization also discussed facilitators or barriers for promoting PSPNET, all of which aligned with adoption questions. The overlap was a consequence of PSP organizations being key facilitators in promoting PSPNET, underscoring the necessity of PSP organizations adopting and promoting PSPNET to reach PSP. For a summary of findings for the reach/adoptions domain, see Table 3.1.
Table 3.1. Reach/Adoption Domains Summary of Findings

<table>
<thead>
<tr>
<th>Facilitators</th>
<th>Barriers</th>
<th>Areas for Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Presentations and Materials by PSPNET Team</td>
<td>• General Barriers to Mental Health Care</td>
<td>• Promotional Videos</td>
</tr>
<tr>
<td>• Growing Recognition of the Need for Mental Health Supports and Supportive Leadership</td>
<td>• Information Overload</td>
<td>• Providing Data on Uptake to Leaders</td>
</tr>
<tr>
<td>• Innovation Characteristics of PSPNET’s ICBT</td>
<td>• Organization Specific Barriers</td>
<td>• Emphasize the Preventative Aspect of ICBT</td>
</tr>
<tr>
<td>• Word of Mouth through Organization</td>
<td>• Availability Issues</td>
<td></td>
</tr>
<tr>
<td>• Creating Trust and Relatability</td>
<td>• COVID-19</td>
<td></td>
</tr>
</tbody>
</table>

**Information has Been Sent to everyone within the Organization.** Almost all stakeholders indicated information on PSPNET has been sent out to everyone within their organization. Stakeholder #4 suggested, “I think from our organizational perspective, everybody is aware of it”. Stakeholder responses referred to PSPNET awareness, rather than whether PSP have actually enrolled in the program. The responses emphasized stakeholders believed PSP should be aware of the program because the information has been sent out. For example, one stakeholder stated, “I think they should all be well aware of the program” (Stakeholder #9).

**Difficult to Tell if Information was Received.** A couple stakeholders mentioned that they have sent the information to the entire organization but cannot tell if the information was actually received by PSP, or if PSP engaged with the information. One stakeholder stated, “I know the emails have been sent to everybody but how many people have agreed to read those, who’ve clicked the links, who’ve reached out, that I don’t know. But, the broad information dissemination has happened…” (Stakeholder #7). The information was still disseminated by the organization, but the stakeholders reported barriers to actually reaching PSP.
**Reach People who Reach Out.** One stakeholder reported that their organization provides information and resources to PSP with PTSIs. The implication was that organizational promotion of PSPNET focused on PSP engaged in help-seeking. The stakeholder reported, “When someone contacts us then we recommend or refer them to PSPNET as a wonderful resource” (Stakeholder #6).

**Need to increase reach.** One stakeholder indicated that their organization has been less successful than hoped in disseminating awareness of PSPNET. Stakeholder #8 reported:

Not as well as I would like. And in order to measure that, what I do is I travel across what we call our divisions. So the provinces. And I talk to our police officers on the front line through different means. And I would say not most but a lot of them have never heard of PSPNET.

Stakeholder #8 was a national leader, suggesting some issues with reaching PSP related to PSPNET not being available across all of Canada.

**Specific groups not reached.** Some stakeholders identified specific PSP groups that have not been reached as well as others. Stakeholder #6 mentioned that there is a need to find ways to reach former PSP who are no longer directly connected with an organization. “Another group that I don’t know if you’ve reached or, is aware of who you are, are former PSP” (Stakeholder #6). One stakeholder mentioned that there are specific groups within their organization that are not reached as well as others, such as those not traditionally associated with frontline work (e.g., inspectors; training division personnel). There were mixed ideas about whether older or younger PSP were harder to reach. For example, Stakeholder #4 reported that younger PSP are less likely to perceive a need for
the program having experienced relatively fewer PPTEs. Stakeholder #9 reported that older PSP are harder to reach because they are more likely to have an “old school mindset” towards mental health.

**Reach and Adoption: Promotional Activities**

All PSP leader stakeholders suggested that their organization has promoted PSPNET. One of the most commonly cited types of promotion was having a PSPNET team member give a talk or webinar on PSPNET. Organizations often reported having promoted PSPNET during meetings (e.g., critical incident stress management meetings; peer support meetings; internal team meetings). Another way that organizations promoted PSPNET was through incorporating stories on PSPNET in their newsletters. Hanging up posters about PSPNET was also used to promote the program. Additionally, PSP leader stakeholders cited several other ways that they internally promoted PSPNET, such as including PSPNET as a link on their website, in their mental health minutes, and on their resource page. Some PSP leader stakeholders also reported promoting PSPNET through social media.

**Reach and Adoption: Facilitators**

**Presentations and Materials by PSPNET Team.** PSP leader stakeholders suggested the best way to promote PSPNET and to reach PSP was through promotions done by the PSPNET team. As Stakeholder #4 stated, “I know the presentations that [PSPNET team member] has done have always been well received within the organization. They have found that very beneficial.” PSP leader stakeholders emphasized that the personal aspect of the promotions were key to making them successful. Stakeholder #5 reported, “It’s nice to have the face-to-face or a Zoom type
thing. I think those were way more beneficial than just a poster or an email”. Overall, PSP leader stakeholders indicated that continuous promotions by the PSPNET team and the personable factor of the presentations were one of the key factors in being able to reach PSP.

Growing Recognition of the Need for Mental Health Supports and Supportive Leadership. Some PSP leader stakeholders indicated that a major facilitator for reaching PSP was the growing recognition that PSP organizations need mental health initiatives. Stakeholder #2 reported, “[PSPNET has] come at a really good time when that’s such a salient issue. And police leaders are looking for ways to allow the members to access the services they need.” Moreover, increased leadership and management support of mental health initiatives was viewed as a facilitator for promoting PSPNET. Stakeholder #5 stated, “I mean, management was – has been great about allowing us to take time out of the training slots to promote mental health and then to promote PSPNET”. Recognition and support of mental health issues by the organization and management was one of the most frequently cited facilitators for promoting PSPNET.

Innovation Characteristics of PSPNET’s ICBT. A couple of PSP leader stakeholders stated that several innovation characteristics of PSPNET ICBT made program promotion easy by being appealing for potential clients and the organization. These features included: no cost; therapist support; accessibility and convenience; psychoeducational information and skills; and tailoring to PSP. One stakeholder reported, “So, there’s more than one aspect to PSPNET that is beneficial and we try to promote it in that way” (Stakeholder #6). Another stakeholder commented, “And here’s a key. With budgets always being tight, the fact that it’s no cost is massive, for police leaders who are
trying to budget every year with limited resources. So no cost was critical” (Stakeholder #2).

**Word of Mouth through Organization.** A few PSP leader stakeholders mentioned that word of mouth is a key facilitator for promoting the program, such as clients who have taken the program talking about their successes. Stakeholder #10 emphasized:

I find probably the best thing is word of mouth. I know a lot of people that have taken the programs. It has been through word of mouth from champions that have taken it and said, hey listen, you know, we’re brave enough to come forward and say, you know, this really was a changer. You should look at this.

As exemplified by the previous passage, the use of champions or past client experiences was viewed as a key factor for promoting PSPNET and reaching potential clients.

**Creating Trust and Relatability.** Another facilitator for promoting the program and reaching PSP was the need to develop trust and rapport with PSP and to make the materials relatable to their experience. PSP leader stakeholders talked about two ways of doing this. First, Stakeholder #7 mentioned that she tries to personalize PSPNET messages.

I’ve shared the vast majority of the messages and I try to put a context on them how it links to us, so it links to our work, who’s available. Like, so I don’t just hit forward on the messages. I try to, like, make it relatable to everybody and consumable for them.

Second, Stakeholder #6 mentioned that creating an official partnership with PSPNET would show that the organization endorses the program, which may help PSP trust the
program when reaching out. Stakeholder # 6 stated, “Because by [creating an official partnership] we could place you on our website as a partner showing that we endorse, just from a cursory look at the website.” These examples show the need for building trust, relatability, and rapport between PSP and the program to successfully reach PSP.

Reach and Adoption: Barriers

General Barriers to Mental Healthcare (e.g., stigma, time, confidentiality).
PSP leader stakeholders reported not necessarily facing barriers when promoting PSPNET, but facing barriers reaching PSP in general, which reflect general barriers to mental health services. The identified barriers include issues such as continuing stigma about mental health, concerns about confidentiality, and not having the time to engage with services. These barriers are illustrated in the following quote:

The barriers are always in our members’ perceptions of do they need to reach out? Is it confidential? That’s always a concern for them. But other than that, the only barriers would be the self-imposed barriers that people would put on themselves.

(Stakeholder #2)

Information Overload. Some PSP leader stakeholders reported that their organization is sending out information, but that the information may not be received due to information overload. PSP receive a lot of information, so not all emails get opened, “Information overload. They get emails; they get messages. You know? Some of them we read, some we don’t read, some we just move on to others” (Stakeholder #2).

Organization Specific Barriers. PSP leader stakeholders also cited organization specific barriers that made it difficult to promote PSPNET. One barrier that some organizations mentioned was that the decentralization or vastness of their organization,
with varied reporting structures, made promotion difficult. For example, Stakeholder #8 indicated, “Because we’re such a decentralized organization with such a vast mandate, it’s very difficult for you guys to promote and have people actually see it.” Stakeholder #1 also illustrated this concept, “There’s a barrier that we can’t necessarily follow up on everyone. [There are a vast number of] services in the province. We don’t know whether or not everyone has the information posted or if they’re talking about it.”

Another organization specific barrier that was mentioned was technological issues. For example, one stakeholder reported that, in their organization, hyperlinks to PSPNET resources are often blocked. Stakeholder #7 reported, “One of the challenges – I guess that’s a kind of another thing – that sometimes the hyperlinks are blocked for us.”

**Availability Issues.** A couple of PSP leader stakeholders mentioned having difficulties promoting PSPNET because therapist-assisted ICBT is not available in all provinces and because some programs are not available in both English and French. These stakeholders were responsible for jurisdictions larger than Saskatchewan, making accessibility a barrier to promotion. For example, Stakeholder #7 reported:

> When I send out the messages, like I said, they go region wide. I was like OK, if you’re in Saskatchewan this is what you’re entitled to… And in Manitoba you’d probably go and do the online courses. So I don’t know if that gets confusing for people… So, broader availability would be helpful.

Stakeholder #8 discussed how their organization is not able to promote programs that are not available in both official Canadian languages:

> One of the things I do want to mention that has caused us a little bit of issues in promoting is that we can’t promote all of the good work that PSPNET is doing,
necessarily, because it’s not available in both official languages… Because we have to adhere to the Official Languages Act.

The selected quotes represent how PSP leader stakeholders suggest broader availability would help overcome barriers for promoting PSPNET.

**COVID-19.** Stakeholder #5 suggested that COVID-19 acted as a barrier to being able to promote PSPNET due to the inability to have in-person presentations, “COVID was a hindrance but I think it was a hindrance for everything, right?”

**Reach and Adoption: Ideas for Improvement**

**Promotional Videos.** A suggestion that PSP leader stakeholders had for improving promotional materials was to create videos. One suggestion was to create a video on the process of accessing and going through a PSPNET course. Another suggestion was to create a video where a PSP talks about their experiences working through the course. For example, Stakeholder #6 suggested, “Something like a video of someone explaining, what their experience was in terms of going through the intake process as well as the different supports and services that it offers.”

**Providing Data on Uptake to Leaders.** Another suggestion for improving promotions was to send data on uptake to PSP leaders about uptake in their organization. One stakeholder suggested this could help guide leaders to see if they needed to increase their communications or change their promotions of PSPNET. This is represented by the following quote:

One of the things that would be, I think, interesting for the police leaders is if we could get data on uptake in our organizations. Which then may help us sort out, do we need to communicate it more? Do we need to be better communicating?
Are there other issues galore? Are there issues as leaders in the organization that we can address through change in processes, policies, those sorts of things?

(Stakeholder #2)

**Emphasize the Preventative Aspect of ICBT.** A few stakeholders suggested that PSPNET could highlight how the services can be used as preventative for mental health challenges. Stakeholder #1 suggested that most services they refer PSP are for after a mental health injury, whereas they believed PSPNET included preventative aspects.

I think there’s a preventative end to this that folks aren’t necessarily seeing or understanding... A lot of the resources that we offer are after the injury. And [PSPNET] isn’t necessarily different from that because it’s helpful from that aspect. But there’s also, a benefit to knowing the information, going through the program, when you’re still healthy. And I think that might be more an angle that I know that I’ve tried to promote within our groups or areas or our peers. But I don’t know if that’s something that you guys can necessarily do.

**Effectiveness: Individual and Organizational Level**

All PSP leader stakeholders reported that they believed PSPNET was making a difference in the individual lives of PSP. They also reported that having PSPNET available was beneficial for their organization. PSP leader stakeholders provided several accounts about specific feedback they have heard from users. To ensure confidentiality, feedback was provided at an abstract level. Almost all feedback was positive. A couple stakeholders suggested only a small amount of feedback indicated the services did not meet the specific PSP’s needs. For a summary of findings for the effectiveness domain, see Table 3.2.
Table 3.2. Effectiveness Domain Summary of Findings

<table>
<thead>
<tr>
<th>Effectiveness</th>
<th>Individual and Organizational Level Effectiveness</th>
<th>Not Meeting Specific Needs</th>
<th>Increasing Awareness of PTSIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Negative Reports</td>
<td>• Helpfulness Program</td>
<td>• Need for More Therapist Support</td>
<td>• One Part of Increasing Awareness</td>
</tr>
<tr>
<td>Helpful Program</td>
<td></td>
<td></td>
<td>Provides a Specific Action to Take</td>
</tr>
<tr>
<td>Positive Evaluation of Innovation Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bridged to Other Care</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases Availability and Options</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Filled a Gap in Treatment Needs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

No Negative Reports. Most PSP leader stakeholders reported they had not heard anything negative about the program, which they viewed as positive. One stakeholder stated, “I think the main thing is that I’ve never heard anything negative” (Stakeholder #10). This was viewed as a positive sign because PSP leader stakeholders believed they would have heard negative reports if PSP did not find the program helpful or viewed the program negatively. Stakeholder #2 iterates this point:

We have not heard anything bad. So what we’re taking that as is that those that are connecting are getting what they need from PSPNET. We are hearing, in – on the reverse, though, we are hearing that our [name of] program is not hitting par. So, I mean, if this one wasn’t hitting par I think we’d be hearing about it.

According to PSP leader stakeholders, no negative feedback was a positive indication about PSPNET.

Helpful Program. The most frequent comment that PSP leader stakeholders reported about PSPNET was the belief it is a helpful program. For example, Stakeholder #8 reported, “Provinces that don’t have it up and running at the moment, are really excited to receive the service, because it really, I think on a personal level, it really does
help.” Another stakeholder echoed this sentiment, “Generally speaking, I’ve heard people say that it’s a very helpful program” (Stakeholder #1). Overall, PSP leader stakeholders reported that they believed the program is beneficial because it is helping PSP with mental health challenges.

**Positive Evaluation of PSPNET’s ICBT Innovation Characteristics.** Most PSP leader stakeholders reported hearing that PSP found PSPNET beneficial because of the innovation characteristics of PSPNET’s ICBT. They stated PSP found PSPNET beneficial because of factors such as accessibility and convenience, how PSPNET is tailored to all PSP, the confidentiality of the program, how therapists are knowledgeable about PSP, how PSPNET is free to use (for both the individual and PSP organizations), and the different options for support that are provided. For example, Stakeholder #3 highlighted the importance of knowledgeable therapists, “One of the biggest things, I’ll be honest with you, is that our people feel comfortable knowing that they’re getting a bona fide clinician and somebody that’s privy to the emergency services world.” In terms of access, Stakeholder #6 reported, “many like the – the convenient access to PSPNET.” Regarding confidentiality, Stakeholder #2 stated, “They really thought it was good and that they absolutely trusted that their information wouldn’t go any further.” In terms of costs, stakeholder #1 reported, “I think that financial piece is probably one of the best benefits. Just because of the fact that we have so many different types of workplaces within our sector. And so that is extremely helpful.” Overall, PSP leader stakeholders reported hearing positive feedback about several aspects of the innovation characteristics associated with PSPNET.
**Bridged to Other Care.** One stakeholder suggested that they heard from a PSPNET client that the program was helpful, and also helped them seek out other forms of mental health care. Stakeholder #5 reported, “There was one person that we referred and they came back and said, yeah, you know what, it helped. And it was a good bridge to continuing their care.”

**Increases Availability and Options for Mental Health Treatment.** Some PSP leader stakeholders justified that they believe PSPNET is beneficial because it increases availability and options for mental health programs for PSP. For example, Stakeholder #1 reported:

They know that someone cared enough to develop a program to support them. And knowing that there’s resources out there when just a few short years ago there was nothing. So I think that alone, just knowing there’s something, is beneficial to people.

PSP leader stakeholders also emphasized that the increased options that PSPNET provides is particularly beneficial because PSPNET provides a convenient or accessible option for those who may face barriers for face-to-face services. In the words of Stakeholder #10:

One of the reasons to me, a lot of the feedback is, with mental health, there’s so many different avenues and some might work for some, some might work for others. I know there’s a lot of feedback and a lot of the members don’t like walking in to see a psychologist. Plus on top of that, it’s tough to get in, you know, if they work during days, where PSPNET is confidential. It’s 24-hours a day, you can do it anytime.
Stakeholder #6 similarly stated, “I think for it just makes sense. It’s another resource that we can refer people to”. Most stakeholders reported PSPNET was beneficial because it allowed them to provide another treatment option in addition to other options they have available.

**Filled a Gap in Treatment Needs.** A couple of PSP leader stakeholders reported that PSPNET was filling gaps in treatment that their current programs were not meeting. One stakeholder reported that the program filled a need for more treatment options because current programs were not available for some employees (e.g., contract workers and volunteers) because of a lack of benefits.

[Our organization] has benefits that the paramedics can access, which allow them all kinds of different services for their mental health. However, a lot of our contracted services have either no benefits, or limited, and then of course the volunteers (Stakeholder #1).

Another stakeholder suggested that PSPNET was beneficial for their organization because the program is external to their organization, whereas other programs are internal.

We’re a very low trust organization. I know some people will not reach out for help internally. Because they do not have confidence that that will be kept confidential… So, the fact that you’re completely external and have nothing to do with any of us directly, I think, is – is a really critical element for people.

(Stakeholder #7)

These comments indicate that some PSP leader stakeholders view PSPNET as filling treatment gaps.
**Need for More Therapist Support.** The only negative feedback that PSP leader stakeholders reported hearing was that some individuals felt as though they needed more therapist interaction, or that they would prefer a face-to-face service over PSPNET. Stakeholder #4 stated, “The individual expected more of a – a touch point with an individual.” Stakeholder #9 identified that they heard primarily positive comments from several individuals except for one who felt like they would prefer face-to-face support:

I think there's only one person that I recall that said that it didn't really work for them, or they didn't really like it. Everyone else was very positive about their experience with it. And the person that said that they didn't enjoy it, or it didn't, just wasn't for them, they just said they prefer kind of face-to-face because they have a therapist who they see also. So like, I think the content was OK, but I think it just wasn't for me, was kind of that comment from them.

These comments indicate that some PSP clients reported wanting face-to-face therapy.

**Effectiveness: Increased Awareness of PTSIs and Mental Health Issues**

**One Part of Increasing Awareness.** All of the PSP leader stakeholders stated that PSPNET is one piece of a larger initiative working to increase awareness within their organizations about PTSIs, including anxiety, depression, and posttraumatic stress disorder, and other mental health issues. One stakeholder stated, “It has absolutely improved awareness. No question about it. You know? In combination with all of the other things that have been happening. This has absolutely increased awareness” (Stakeholder #2). PSP leader stakeholders reported that PSPNET, in combination with other mental health initiatives has played a vital role in increasing awareness of PTSIs and mental health.
Provides a Specific Action to Take. A few PSP leader stakeholders suggested that PSPNET is helpful for increasing awareness because it provides a specific action that PSP can take. In the words of Stakeholder #1:

People, I think, are more willing to listen. Because they know that there’s a solution. They know that there’s help. And before that there was an awful lot of awareness about all of these things. Folks would talk about it but that was where it ended. So this is awareness and action attached.

Implementation

PSP leader stakeholders reported two categories of strengths that they believed were factors in making the implementation of PSPNET successful. They also reported ways that implementation could be improved. Only one stakeholder reported a potential unintended consequence of PSPNET. For a summary of findings for the implementation domain, see Table 3.3.

Table 3.3. Implementation Domain Summary of Findings

<table>
<thead>
<tr>
<th>Implementation</th>
<th>Areas for Improvement</th>
<th>Disadvantages/Unintended Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strengths</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation characteristics</td>
<td>No Improvements needed</td>
<td>Negative Effects (e.g., increased emotion)</td>
</tr>
<tr>
<td>Promotional Activities</td>
<td>Increase Availability.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Promotion of Success Stories</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Additions to Therapist Support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Address Timelines and Concentration Issues</td>
<td></td>
</tr>
</tbody>
</table>

Implementation: Strengths

Innovation Characteristics. Almost all stakeholders reported at least one innovation characteristic of PSPNET’s ICBT that they believed made the program successful. Innovation characteristics reported included: accessibility and convenience,
quality psychoeducation information provided, knowledgeable clinician support, and no cost for enrolling in the program. Stakeholder #5 stated, “I think the accessibility is probably one of the biggest ones. Just being able to do it on your own”. Stakeholder #1 indicated, “I think the financial aspect. Is extremely, like, your number one strength”. In terms of therapist support, Stakeholder #3 emphasized how PSPNET therapists are knowledgeable about PSP:

Well, I think, like I said, there’s a multitude of things. I think it’s your resources that are available. I think it’s the ability to access and how it’s accessed. And then I think, like I said, the biggest thing for our people and the biggest takeaway I got was these people get us, you know, they are bona fide clinicians, if I can use that term. And they understand the emergency service world.

PSP leader stakeholders reported one of the major strengths of PSPNET are the innovation characteristics which are meeting the specific needs of PSP.

Promotional Activities. Secondly, several PSP leader stakeholders mentioned that they believed the program was successful because of the promotional activities carried out by PSPNET team members.

Close second is the fact that [PSPNET team member] is, you know, very, very engaging and has taken the time to speak to whomever and do the presentations and give that information freely and openly and have those discussions. Because when you actually have more than just an email, people get more out of it.

(Stakeholder #1).

These stakeholders emphasized how the promotions were engaging and provided a personal contact with the program.
Implementation: Areas for Improvement

No Improvements. A few PSP leader stakeholders suggested that no improvements to the program were needed but that there was still a need to overcome stigma about mental health issues that continues to act as a barrier for potential PSP clients.

Increased Availability. Some PSP leader stakeholders suggested that they hoped to see therapist-assistance available to all PSP across Canada and for all services offered to be available in both English and French. Stakeholder #8 stated, “I think the program is successful on its own. I don’t see any changes needed. Where the problem is the delivery. The fact that it’s not available to all employees across Canada. The language is also an issue.” These PSP leader stakeholders suggested that they do not see any improvements needed to PSPNET programs, but that they would like to see therapist-assistance implemented more broadly across Canada, and for all courses to be translated to French.

Promotion of Success Stories. Some PSP leader stakeholders suggested that there is a need for continued promotion of PSPNET. Testimonial videos and evidence of success stories were suggested to help with promotion. As stated by Stakeholder #6, “I don’t know if you have success stories but I think that would help too. I thought maybe some testimonials. Some videos or something. So they could see real people. And connect with them.”

Additions to Therapist Support. A couple PSP leader stakeholders suggested alternatives or additions to the therapist support offered including offering more sessions with therapists, and the option of video-conferencing. For example, Stakeholder #6 indicated, “They would like to see the number of counselling sessions increased.”
Regarding the option of including videoconferencing, Stakeholder #5 suggested, “There might be some people that want to have a face-to-face… Like a Zoom or something. Yeah. I think a Zoom would be better than an actual, going to meet someone at a physical building.” These comments reflect that there is a potential need to adjust the type and quantity of therapist-assistance offered.

**Addressing Timelines and Concentration Issues.** A couple PSP leader stakeholders suggested a need to address challenges with timelines or concentration difficulties, such as offering more audio components to the course. For example, Stakeholder #1 stated,

> The one thing that I have been told is there’s a lot of information to go through. In, you know, a relatively short timeframe… Maybe if there was more information on the time it takes or the focus that you need… Perhaps it’s delivering it in a podcast style. I know a lot of folks that actually, instead of reading it on the screen, they would much rather put in their earbuds while they’re doing something and listen to it.

These comments reflected a need to address challenges associated with the length of PSPNET courses and the concentration required to participate in a course.

**Implementation: Disadvantages or Unintended Consequences**

Most PSP leader stakeholders reported that there are no disadvantages or unintended consequences of PSPNET. Only Stakeholder #5 stated that there was a potential unintended consequence, which was the possibility of clients experiencing a negative effect from the course. Stakeholder #5 suggested that a PSPNET course could
bring up emotion and the PSP may not have anyone to reach out to for support at the time.

And maybe, you know, if it brings up something really emotional for someone and they’re really struggling. You know? That’s a tough time. And then not having the ability to talk to someone right then.

This response suggests that a potential consequence of the program is that clients could experience negative effects and not have a way to manage them.

**Maintenance**

Overall, PSP stakeholder leaders were supportive of PSPNET and wanted to see PSPNET maintained. For a summary of findings for the maintenance domain, see Table 3.4.

**Table 3.4. Maintenance Domain Summary of Findings**

<table>
<thead>
<tr>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Loss of PSPNET would Affect Organization</td>
</tr>
<tr>
<td>• PSP Leader Stakeholders Willing to Support PSPNET</td>
</tr>
</tbody>
</table>

**Loss of PSPNET would Affect Organization.** All PSP leader stakeholders reported that the discontinuation of PSPNET would affect their organization and leave a gap in the services available for PSP. Many PSP leader stakeholders claimed that PSPNET has filled a gap in services that would be hard to be replaced by other programs. For example, one Stakeholder #7 reported:

I feel like that would be a gaping hole. Because you do provide a service that’s anonymous, that’s third-party, that’s accessible. And I don’t think there’s anything else that would meet that for anybody. So I feel like that would be a big gap.

Stakeholder #1 suggested:
It’s needed. People can’t necessarily afford to have their own private counsellor or psychologist. Nor is [a psychologist] even available in most of the places that we have our small services. So, this fills a gap.

A couple PSP leader stakeholders also mentioned that the loss of PSPNET would create further barriers to promoting mental health services. They discussed how it takes time to develop trust with a service and having to start the promotion process over with a new program would set back efforts for promoting mental health services. Overall, PSP leader stakeholders reported the availability of PSPNET is important and is filling a need for mental health services.

**PSP Leader Stakeholders Willing to Support PSPNET.** All PSP leader stakeholders indicated they would be willing and eager to continue to promote and advocate for PSPNET. In the words of Stakeholder #3, “100%. 100%. Like I said, you’re right now, you’re number one in what I’m promoting”. Similarly, Stakeholder #2 replied, “Absolutely. Both locally here and provincially. Actually, not willing to. Eager to. How’s that?” All PSP leader stakeholders indicated that PSPNET was an important program and they would be willing to continue supporting the program.

**Discussion**

PSPNET offers tailored ICBT to PSP and uses a micro-LHS approach which uses data to iteratively make improvements to the program. The current study was designed to gain PSP leaders’ feedback on the strengths and weaknesses of PSPNET along the five dimensions of the RE-AIM evaluation framework, including: reach, effectiveness, adoption, implementation, and maintenance. PSP leaders can influence the uptake, implementation, and sustainment of services for PSP (Damschroder et al., 2022; Knaak et
al., 2019; Milliard, 2020), and therefore, the study sought to understand their perceptions of PSPNET to gauge their support for PSPNET, to identify facilitators or barriers for reaching PSP or implementing services, and to guide improvements. The RE-AIM framework results can be interpreted in terms of the CFIR framework and collectively provide important implications for how best to reach PSP, what characteristics of ICBT are valued, and best practices for implementing ICBT for PSP. The results were used to further improve PSPNET and can provide insight to other providers seeking to serve PSP with digital mental health services.

**Promotion Requires Building Relationships**

Facilitators for promoting PSPNET and reaching PSP included building relationships and establishing trust with PSP populations highlighting the importance of building rapport with PSP when promoting digital mental health programs. Most PSP leader stakeholders suggested presentations by PSPNET staff were one of the best ways to reach PSP, providing much-needed personal connections to the program, rather than just written text (e.g., emails). PSP leader stakeholders also offered other ways that may increase trust and relatability with the program, such as word of mouth and the use of testimonials. The result aligns with a study on peers supporting reintegration after an occupational stress injury in a police organization, which suggested word of mouth and testimonials would be a facilitator for implementing and reaching police with the program (Jones et al., 2022). PSPNET is unable to implement the recommendation for including testimonials due to a prohibition by the Canadian Psychological Association professional practical guidelines on the use of client testimonials to promote or advertise services (Canadian Psychological Association, 2001). The guidelines state: “Claims made
by psychologists shall be based upon sound research findings, and may not employ testimonials, selective survey results, or misleading or false information” (Section 111.2.b). Despite the testimonial limitations, the current results reflect previous research indicating PSP are often skeptical about mental health services (Jones et al., 2020; McCall, Beahm, et al., 2021), underscoring the need to build trust in services through direct relationship development.

Support in Outer Setting

PSP leaders’ support was a key facilitator for promoting the program which aligns with previous research suggesting leadership support is integral for promoting uptake of programs in PSP populations (Knaak et al., 2019; Milliard, 2020). PSP organizations were able to promote PSPNET because there is increasing support for mental health initiatives within PSP organizations. The CFIR suggests that local attitudes in the outer setting that are supportive of the innovation are key factors for successful implementation (Damschroder et al., 2022). Sustainability results suggest organizational support for PSPNET is a key maintaining factor (Scheirer, 2005; Shelton et al., 2018). PSP leaders suggested that promoting PSPNET was possible because of shifting attitudes within PSP organizations that are highlighting mental health challenges as a salient issue, but noted ongoing problems with individual level stigma. ICBT may help to overcome stigma, but is not a panacea for stigma, and more work is needed to reduce self-stigma and reach PSP. PSP leaders reported believing PSPNET helps to raise awareness about PTSIs. Continued promotion of PSPNET may help with overcoming self-stigma, or individuals’ lack of perceived need for mental health solutions or fears of seeking treatment.
Some barriers for promoting PSPNET existed because of the local conditions of PSP organizations, which according to the CFIR, can impede implementation (Damschroder et al., 2022). For example, some organizations reported organization size and decentralization as barriers to promotion, and one organization reported security blocking hyperlinks as another promotional barrier. Working directly with organizational leaders to create multiple decentralized connections supported by various reporting structures, and working to address specific security concerns, can all help with promotional success. There was also evidence of external pressure in the outer setting to have all PSPNET services available across Canada, including therapist-assisted ICBT. According to the CFIR, such external pressures are indicative of successful implementation (Damschroder et al., 2022).

One stakeholder mentioned COVID-19 as a barrier for promoting PSPNET, highlighting the negative impact of the pandemic on implementation in the outer setting (Damschroder et al., 2022). The PSPNET team used videoconferencing and webinars to overcome not being able to deliver in-person presentations. This example shows how unanticipated events in the implementation process may require a need to pivot initial implementation plans.

**PSP Leaders Perceive PSPNET as Offering a Solution for Mental Health Challenges**

PSP leader stakeholders viewed ICBT tailored to PSP as a valuable solution for treating mental health challenges within PSP populations, as evidenced by the results from the effectiveness and maintenance domains of the RE-AIM framework. The results are promising because leader support of programs is integral for implementing and sustaining programs (Damschroder, Aron, et al., 2009; Damschroder, Banaszak-Holl, et
al., 2009; Damschroder et al., 2022; Scheirer, 2005; Shelton et al., 2018), particularly programs within PSP populations (Knaak et al., 2019; Milliard, 2020). The individual domain of the CFIR suggests that leaders who believe there is a need for a program, are capable of promoting a program, have the opportunity to promote a program, and are motivated to promote a program is a key aspect of success (Damschroder et al., 2022). Therefore, PSP leaders’ feedback that they view PSPNET as meeting a need, that they can promote the program and have support for promoting the program, as well as the fact that they are motivated to continue to promote the program, is promising.

Previous PSPNET research has evidenced leaders as supporting ICBT for PSP prior to implementation (McCall, Beahm, et al., 2021), and the leaders continued to believe there was a need for ICBT after two years of PSPNET implementation (Landry et al., 2023). The current study contributes to this research on PSP leaders’ support of ICBT by demonstrating that leaders not only believe there is a need for PSPNET, but also believe it is effective and beneficial for PSP and PSP organizations after seeing results from the services. The current study results align with Study 1 results (Beahm et al., 2021), underscoring that most clients also viewed PSPNET as beneficial, and suggesting stakeholders at the client-level and leadership level agree ICBT is effective.

**Innovation Characteristics**

The most frequently cited strength of PSPNET was the innovation characteristics associated with the tailored PSPNET ICBT. PSP leader stakeholders mentioned positive perceptions of innovation characteristics associated with PSPNET when responding to questions related to every domain of the RE-AIM (i.e., reach, effectiveness, adoption, implementation, maintenance). The innovation characteristics that were mentioned
aligned with the characteristics of successful implementation listed in the innovation domain of the CFIR. Table 3.1 shows the constructs listed in the innovation domain of the CFIR and how PSP leaders’ perceptions of PSPNET are associated with these constructs. For consideration, the characteristics of PSPNET may not extend to all ICBT programs (e.g., no cost to individual PSP or PSP organizations, therapists knowledgeable about PSP occupations).

Table 3.5. PSP Leaders’ Perceptions of PSPNET Using the CFIR Innovation Domain.

<table>
<thead>
<tr>
<th>Construct</th>
<th>Definition</th>
<th>PSP Leaders’ Perceptions of PSPNET</th>
<th>Example Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation Source</td>
<td>The group that developed and/or visibly sponsored use of the innovation is reputable, credible, and/or trustable.</td>
<td>PSPNET is developed externally, which is positive because there is a lack of trust with the PSP organization. PSPNET team is knowledgeable about Public Safety Personnel (PSP).</td>
<td>The fact that you’re completely external and have nothing to do with any of us directly, I think, is a really critical element for people. (Stakeholder #7) Our people are enjoying it. And I shouldn’t say enjoying it. They’re excited that they have the opportunity to, like I said, speak to somebody that understands them. (Stakeholder #3)</td>
</tr>
</tbody>
</table>
| Innovation Evidence-Base   | The innovation has robust evidence supporting its effectiveness.            | Information provided by PSPNET is credible. There is evidence supporting that PSP are finding PSPNET beneficial. | And there’s millions of different websites out there offering help. But to have something like PSPNET that is credible, gives people a great place to go. (Stakeholder #6)  
I was privy to the stats that showed the surveys that were done by people, like we’re talking, it was in the high 90s. I think a couple of the questions were like, would you recommend this to someone, you know, did you think it helped and if you told me that we hit 50 percent of people saying that at work, I’d probably think we’d be doing a great job and it was in the 90s. (Stakeholder #10) |
| Innovation Relative Advantage | The innovation is better than other available innovations or current practice. | PSPNET is filling a current gap in services and offers advantages over other services available. | I feel like [PSPNET discontinuing] would be a gaping hole. Because you do provide a service that’s anonymous, that’s third-party, that’s accessible. And I don’t think there’s anything else that would meet that for anybody. (Stakeholder #7) 
And then if we didn’t have [PSPNET] we would be back to our [other] program, which we know is not meeting standards. We have significant delays in getting seen, getting call backs. (Stakeholder #4) |
| Innovation Adaptability    | The innovation can be modified, tailored, or refined to fit local context or needs. | PSPNET tailored to meet the needs of all PSP is beneficial. | She could really see the potential for helping employees across the organization – not just police officers but public safety personnel. Because we tend to have a lot of programs and |

134
support services that are available to all our categories of employees, if you will. But they’re – when you do register or you go through the courses or the support, you realize that it’s more geared towards police officers whereas PSPNET, it is really open to all public safety personnel. (Stakeholder #8)

<table>
<thead>
<tr>
<th>Innovation Trialability</th>
<th>The innovation can be tested or piloted on a small scale and undone.</th>
<th>No comments.</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovation Complexity*</td>
<td>The innovation is complicated, which may be reflected by its scope and/or the nature and number of connections and steps.</td>
<td>PSPNET is easy to access and use.</td>
<td>[PSP] think it’s a streamlined process, they think it’s a good process. (Stakeholder #3)</td>
</tr>
<tr>
<td>Innovation Design</td>
<td>The innovation is well designed and packaged, including how it is assembled, bundled, and presented.</td>
<td>Believe that PSPNET is designed to be accessible and the fact that PSPNET is delivered online is beneficial.</td>
<td>I think the content is quite robust, and the kind of the checkpoints that it sounds like are done and the contact that you have with a, with a social worker therapist throughout the course. I think there's just, not that there's something for everyone in there, but it feels like it kind of checks most, most of the boxes like, you can talk to someone or you can email someone or you can just read or you can do it at your own pace or so I think it covers a lot of those avenues of the ways people want to access support. (Stakeholder #9)</td>
</tr>
<tr>
<td>Innovation Cost</td>
<td>The innovation purchase and operating costs are affordable.</td>
<td>A strength of PSPNET is that it is externally funded so the services do not cost the PSP individual or the organization.</td>
<td>So, again, I think the financial aspect is extremely, like, your number one strength. (Stakeholder #1)</td>
</tr>
</tbody>
</table>

With budgets always being tight, um, the fact that it’s no cost is massive, um, for police leaders who are trying to budget every year with, uh, um, you know, limited resources. (Stakeholder #2)

Note: Constructs and definitions of constructs in this table are taken directly from the updated Consolidated Framework for Implementation Research (CFIR; Damschroder et al., 2022).

*Innovations perceived as lower in complexity are more likely to be successful according the CFIR.

**Improving PSPNET**

PSP leader stakeholders provided feedback on how to improve the promotion, reach, and implementation of PSPNET. The feedback was considered in the PSPNET micro-LHS context. Some of the changes were already made to the program prior to the interviews being conducted, indicating a need for increased communications to PSP
leaders about PSPNET updates. Other suggestions for changes are currently under consideration. Table 3.2 presents suggestions for improvement and responses by PSPNET.

### Table 3.6. Suggestions for Improving PSPNET.

<table>
<thead>
<tr>
<th>Suggestion</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotional videos (on how to access course an experience of course)</td>
<td>PSPNET has created a handout on how to access the course. This information will be communicated with PSP leaders through our newsletter. The PSPNET team will look into creating an overview video showing how to access and go through the course to be included on the main website.</td>
</tr>
<tr>
<td>Providing data on uptake to leaders about uptake within organization</td>
<td>PSPNET currently provides uptake by sector but not organization on our website. This suggestion will be addressed by including a communication in a PSPNET newsletter that points leaders to where they can find aggregated data on uptake by sectors, which can provide leaders with a snapshot of uptake within their sector. Uptake by organization could potentially cause concerns by PSPNET clients regarding limits of confidentiality, and therefore, uptake reports will continue by sector.</td>
</tr>
<tr>
<td>Emphasize preventative aspect of PSPNET</td>
<td>PSPNET team members currently talk about the preventative aspects of ICBT during promotions. However, considerations are being made to further emphasize using ICBT proactively.</td>
</tr>
<tr>
<td>Create official partnership with PSP organization</td>
<td>PSPNET is working on creating an official partnership with the stakeholder from this organization. The team will continue to create partnerships with willing organizations.</td>
</tr>
<tr>
<td>Increase availability (therapist assistance available across Canada, content in both official languages)</td>
<td>PSPNET is currently working on making therapist-assisted programs available across Canada. To do so, PSPNET requires long-term funding. The program has currently received two years of bridge funding that will help with the expansion of services. All courses targeted to PSP are now available in both languages. The PSPNET families team is currently working on translating the PSP spouse and significant other course into French.</td>
</tr>
<tr>
<td>Promotion of success stories (e.g., videos, testimonials)</td>
<td>In response to client feedback, the PSPNET team has added client quotes highlighting some of their successes in the course. The PSPNET team has also created a promotional video which is included on the main website, as well as a 3 year anniversary video. These features will be communicated to leaders through the PSPNET newsletter. Inclusion of videos of client success stories is not possible due to professional guidelines that suggest that psychologists cannot employ the use of testimonials to promote or advertise services (Canadian Psychological Association, 2001).</td>
</tr>
<tr>
<td>Additions to therapist support (e.g., videoconferencing option, additional check-ins)</td>
<td>Suggestions for changes to therapist support are under consideration.</td>
</tr>
<tr>
<td>Addressing timelines and concentration challenges (e.g., including audio of content)</td>
<td>Audio versions of the lessons have been added to the course. The PSPNET team will provide leaders with a communication (i.e., newsletter article) about changes to the course that have been made, such as the inclusion of audio. The PSPNET team offers a flexible timeline and has found that most clients end up completing the course within this timeline, despite reporting difficulties. Therefore, the team does not intend to adjust the timeline but will continue to remind clients of the flexibility.</td>
</tr>
</tbody>
</table>

Feedback for improving PSPNET primarily included the need for increased promotion and uptake of the program. As previously discussed, PSP leader stakeholders...
valued the innovation characteristics of ICBT, and therefore, little feedback for improvement of these characteristics was given. Instead, PSP leader stakeholders generally commented on how to increase the uptake of the program. Some of these comments included increasing partnerships or communications that could continue to increase support for PSPNET in the outer setting or the ability of individual PSP leaders to be able to promote the program. Based on the suggested areas for improvement given, it can be concluded that PSP leader stakeholder’s assessment of the innovation domain was strong, there is support in the outer setting for PSPNET, and there is support from individual PSP leaders, however, this support could be further maximized which could help reach more PSP.

**Implications**

The current study results have implications for PSPNET and other providers looking to provide digital mental health services tailored to PSP, such as ICBT. One of the best way to reach PSP appears to involve building collaborative relationships with PSP organizations and creating personable presentations. PSP leaders appear supportive of ICBT services and view the services as beneficial for individual PSP, as well as PSP organizations. Providers intending to offer digital mental health services should consider aspects of the innovation characteristics of PSPNET that leaders believed made the program successful (e.g., no costs; knowledgeable therapists). Finally, leaders reported that PSPNET should be maintained and is filling a gap in current services offered, suggesting there is a need for more digital mental health services which can increase accessibility. The study was conducted in Saskatchewan, Canada, but the results may extend to PSP in other provinces or countries.
Limitations and Future Research

The current study results may be influenced by a selection bias. First, PSP leader stakeholders were contacted based on their previous connections with PSPNET. Therefore, leaders selected were more likely to be supportive of PSPNET and have faced less barriers to being able to promote PSPNET. The selection process may have limited being able to identify barriers or areas for improvement along different dimensions of the RE-AIM framework. Second, PSP leader stakeholder responses may have been influenced by a response bias as stakeholders may have been hesitant to report negative aspects of the program to a member of the PSPNET team. Throughout the interview process the researcher attempted to manage response biases by emphasizing that feedback on areas for improvement was important to continuous improvement of PSPNET programs. The results nonetheless identified several factors acting as facilitators or strengths of ICBT for PSP. Future research can expand on identifying barriers by seeking out PSP leaders who have not partnered or promoted PSPNET in the past. One way to approach this is the use of surveys sent out to a wider net of PSP leaders who have had limited contact with PSPNET. The use of surveys may also allow for greater participation by PSP leaders who have time constraints and are unable to participate in an interview. During recruitment, there was some difficulties accommodating the schedules of PSP leader stakeholders, therefore, surveys which could be completed in a shorter timeframe could allow for greater participation by PSP leaders. This approach may be able to capture responses from PSP leaders who have had less involvement and inclinations to take part in PSPNET research.
Attempts were made to have at least one representative from several PSP sector (i.e., border services, corrections, fire, paramedics, police, public safety communicators) during the interview recruitment process; however, no interviews were scheduled with a member of corrections. There was initial interest expressed in participating from one corrections stakeholder, but after multiple follow-ups an interview time was not successfully scheduled and the analyses was finalized for pragmatic time constraint reasons. Therefore, the study is limited with respect to correctional services stakeholder perceptions, which should be assessed in future research.

The current study included leaders from Saskatchewan as the first province wherein PSPNET was implemented and enough time had passed to allow for evaluation of PSPNET. However, there may be differences in perceptions of PSP leaders located in other provinces. Future research may assess PSP leaders’ perceptions of PSPNET from other provinces to identify any facilitators or barriers that are regionally specific. There is also a need to assess PSP leaders’ perceptions of ICBT or digital mental health interventions in other countries, as the local attitudes and conditions may vary.

The current study used qualitative data to evaluate PSPNET according to the RE-AIM framework. Future research may address the domains of the RE-AIM using quantitative data. For example, research could evaluate the reach domain by considering the percentage of PSP who report mental health concerns compared to those who use PSPNET. PSPNET outreach data could also be used to assess the percentage of PSP organizations within Saskatchewan, or other provinces, who have accepted promotional materials, met with PSPNET members, or booked presentations by a PSPNET team member. Future research could also address whether suggested changes made to the
program have led to any quantitative changes in reach, effectiveness, adoption, implementation, and maintenance of the program.

**Conclusion**

PSPNET offers tailored ICBT to PSP. The current study is part of the PSPNET micro-LHS approach wherein data is used to make iterative changes to the program. PSP leaders were interviewed to assess their perceptions of PSPNET along the RE-AIM evaluation framework. The study results evidenced PSPNET as reaching PSP and that facilitators for reaching PSP include building relationships with PSP and an organizational environment that is supportive of mental health initiatives. Despite support for mental health initiatives from PSP leaders, PSP still experience stigma which prevents uptake in the program. PSP leaders have suggested promotions of PSPNET have helped reduce stigma and increased awareness about PTSIs and mental health issues suggesting continued promotions may further reduce stigma and lead to increased uptake and reach of services. In terms of effectiveness, PSP leaders view PSPNET as effective for individual PSP and beneficial for their organization. According to PSP leaders, the greatest strengths of PSPNET are the innovation characteristics of PSPNET’s ICBT and outreach presentations by the PSPNET team. PSP leaders reported being willing to continue to promote PSPNET and believing losing PSPNET would negatively impact their organization. PSP leaders also offered ideas for improving reach, promotions, and implementation. Some of the changes offered have already been made, demonstrating a communication gap with PSP leaders. For example, one suggestion was to add audio components to lessons, which have already been added, signaling a need to communicate this to PSP leaders. Other changes are under consideration, such as putting more emphasis on the preventative aspects of ICBT in
presentations and adding an overview video of how to access and work through PSPNET’s ICBT. The current study results can benefit other service providers seeking to offer ICBT or digital mental health services to PSP as the results indicate ICBT is viewed as beneficial, filling a services gap, and providing insights for reaching PSP and promoting services.
Chapter 5: Final Discussion

Summary and Integration of Studies

The current dissertation used a micro-LHS framework to evaluate ICBT tailored to PSP. In a micro-LHS approach, feedback from a variety of stakeholders is rapidly collected to make continuous improvements to a program (Menear et al., 2019). Although the data collection and evaluation is rapid, research practices are still systematic and the rapid approach does not undermine the integrity of the research process. In this approach, the results and application of each study’s results influence the research questions of the next study (Menear et al., 2019). In the current dissertation, a series of three studies were conducted, each inspired by the results of the previous study. The studies evaluated PSPNET, an ICBT program tailored to meet the needs of Canadian PSP. The first two studies used client-level data to assess one of PSPNET’s ICBT courses, known as the PSP Wellbeing Course. The third study used organizational level data to assess the entirety of PSPNET’s activities and courses, or the entire program.

Study 1 was designed to explore client perceptions of the program and to identify benefits, strengths, and areas for improvement. Previous research has identified how clients perceive ICBT within general populations (e.g., Hadjistavropoulos et al., 2018), as well as ICBT tailored to specific populations (e.g., caregivers; Biliunaite et al., 2021). PSP are a unique group that face mental health challenges to a greater extent than the general population (Carleton, Afifi, Turner, Taillieu, Duranceau, et al., 2018), and PSPNET provides the first ICBT services tailored to meet their unique needs. Therefore, there was a need to assess if PSP clients felt they were benefiting from the program and what they viewed as strengths and weaknesses of the program. As a result, Study 1 was
chosen as an initial starting point for assessing the course and gathering data to rapidly improve the course.

The study results evidenced that most clients perceived themselves as benefiting from ICBT. Clients were also using a variety of skills and resources to work on their mental health. The results also showed that clients found many aspects of the course helpful (e.g., therapist support, the psychoeducation materials, stories, and the accessibility and convenience). Clients also identified several areas to help improve the course, many of which suggestions were implemented into the PSPNET program (e.g., adding audio and video, adding additional resources, fixing technical issues). One request from clients that was only partially addressed from the feedback was a request to improve case stories included in the lessons. The client’s request was difficult to meet because Study 1 provided limited data on how clients wanted the case stories improved. A second limitation of Study 1 was insufficient data clarifying whether clients were using the course to manage occupational stressors. If PSP clients reported not working on occupational stressors, that would contraindicate the need to tailor course materials for PSP or build a specialized ICBT program for PSP.

Study 2 was designed as a response to the results and limitations of Study 1. Study 2 was designed to better understand whether and how PSP were seeking and using ICBT to work on occupational stressors. The Study 2 results evidenced clients were accessing and using ICBT to primarily work on occupational stressors, as well as personal stressors. Operational and organizational stressors were both cited as a reason for enrolling in ICBT, and were discussed with therapists throughout the course of ICBT. Study 2 complemented Study 1 in at least two ways. First, the data showed that PSP were
using ICBT to work on occupational stressors, indicating the important beneficial impacts of ICBT for PSP and their organizations. This was demonstrated by PSP discussing operational and occupational stressors with their therapists both at intake and throughout the course. Second, the Study 2 results helped to inform further tailoring of case story materials to meet PSP needs, such as making technical changes to the occupational duties of PSP and refining examples of PSP implementing skills (e.g., thought challenging).

Study 3 was designed after data was collected and analyzed from Study 1 and 2. Collecting client-level data and identifying how clients were using the program, as well as strengths, benefits, and areas for improvements, clarified that there was also a need to assess data from the organizational level. The client-level data suggested PSP clients were supportive of PSPNET; however, program implementation and sustainment literature emphasizes the need of leadership support for the success of programs (Damschroder, Aron, et al., 2009; Damschroder et al., 2022; Scheirer, 2005; Shelton et al., 2018). Study 3 was designed to explore PSP leaders’ perceptions of PSPNET. Interview data was collected to assess perceptions of PSPNET along the dimensions of an evaluation framework, known as the RE-AIM framework (Glasgow et al., 1999, 2019; Holtrop et al., 2018). The RE-AIM framework is designed to assess reach (of clients), effectiveness, adoption (by organizations), implementation, and maintenance of programs. Study 3 identified key facilitators for promoting PSPNET and reaching PSP include building relationships and creating trust with services, as well as a supportive organizational climate. However, there are still stigma barriers that need to be overcome despite the accessibility and confidentiality of PSPNET’s services. The results also evidenced that PSP leaders view PSPNET’s ICBT as beneficial for individual PSP and
for their organization, and PSP leaders are willing to continue to support PSPNET. Study 3 also identified several innovation characteristics that PSP leaders viewed as strengths of PSPNET (e.g., accessibility, tailoring, credible information, external to PSP organizations). PSP leaders also provided suggestions for improving outreach and implementation of PSPNET. Some of these suggestions had already been implemented and reflected a need for more communication between PSPNET and PSP leaders. Overall, the three studies included in the current dissertation demonstrate how data can be rapidly collected and analyzed to make continuous changes to an intervention, such as ICBT.

**Implications for Literature on Evaluating and Improving ICBT**

The studies within this dissertation contribute to ICBT literature on the need for making continuous improvements to digital mental health programs throughout a clinical trial (Graham et al., 2020; Mohr et al., 2015, 2017, 2018). The current dissertation studies show how a micro-LHS approach can be used to make improvements to a digital mental health program. A significant amount of research has used LHS approaches within the biomedical field (e.g., Forrest et al., 2014; Krumholz, 2014; Munoz-Plaza et al., 2016), and while there are growing calls and initiatives to use LHS frameworks within the field of mental health (Gremyr et al., 2019; Kilbourne et al., 2018) and digital mental health (Whelan et al., 2020), research demonstrating processes of how to use an LHS approach to improve digital mental health programs is limited. This dissertation shows how this framework can be applied and can be used to make rapid program improvements to ICBT. The dissertation highlights how various feedback was rapidly collected, assessed, and applied throughout the implementation of PSPNET.
The current dissertation demonstrates the value of using qualitative feedback from a variety of stakeholders within a micro-LHS to make improvements to ICBT. The use of data from client-level and organizational level stakeholders allowed for different types of strengths and areas for improvement to be identified. For example, data from clients lead to insights on specific improvements to be made to ICBT courses but did not provide insight into improvements to outreach or promotions. Data from leaders provided insights into facilitators, barriers, and improvements to outreach and promotions but provided limited feedback on improvements that could be made to the course. Collecting data from different types of stakeholders allowed the PSPNET team to assess the program along a variety of dimensions that would not have been captured if only one group of stakeholders provided input. Within an LHS approach, collecting data from a variety of stakeholders is emphasized as important (Menear et al., 2019) and the current dissertation provides an example of the value of engaging with multiple stakeholders to improve an ICBT program.

The current dissertation also demonstrates the value of using qualitative feedback from a variety of stakeholders to demonstrate perceived benefits or satisfaction with a program or course. Previous research suggests that different types of stakeholders may value different aspects about a program or assess a program in different ways (Lyles et al., 2021; Neher et al., 2022). Using data from multiple types of stakeholders provided insight into perceptions of both PSP clients and PSP leaders. The current results evidence both PSP clients and leaders viewed tailored ICBT as beneficial at both the individual and organizational level. This demonstrates how having data from two levels of
stakeholders allows for PSPNET to make a stronger case for satisfaction of the program and the value of tailored ICBT.

Study 1 and Study 2 also contribute to literature on using qualitative data to make improvements to digital mental health programs, and specifically ICBT programs. The use of qualitative data to evaluate users’ perceptions of ICBT programs, how clients are using programs, and to identify areas for improvement is an accepted and frequently used practice (e.g., Bendelin et al., 2011; Biliunaite et al., 2021; Hadjistavropoulos et al., 2018; Lillevoll et al., 2013; Richards et al., 2016). Studies using this approach have used survey or interview data from clients after completing a program to assess the programs’ benefits, strengths, and weaknesses. Study 1 and Study 2 expanded on the extant results by showing how client communication throughout a program can be used to qualitatively evaluate and improve a program. The studies show how capturing client data throughout a program can lead to insights that may not have been gained by only looking at post-treatment data. For example, Study 2 was able to show occupational stressors that clients discussed with their therapists throughout the program, which were not captured in the post-treatment data. Study 1 was able to capture how clients were using skills and resources throughout the course. Using data collected throughout the course also allowed the study to explore and compare responses of those who completed the program and those who did not complete the program. Study 1 and Study 2 highlight the benefit of capturing qualitative data at various points throughout the experience of program or course.

Study 3 contributes to RE-AIM literature that suggests there is a need to use qualitative data utilizing the RE-AIM framework (Holtrop et al., 2018). The use of
qualitative data with the RE-AIM framework is a relatively new practice, as most research using the framework has used quantitative data (Holtrop et al., 2018). Therefore, Study 3 provides an example of how qualitative data can be used to evaluate and improve an ICBT program using the RE-AIM framework. Study 3 also contributes to literature by showing how using the CFIR framework alongside the RE-AIM framework can provide additional insights into successes or impediments for program implementation (King et al., 2020). For example, the use of the CFIR framework demonstrated how the use of specific innovation characteristics of ICBT improved the reach and implementation of ICBT for PSP.

**Implications of ICBT for PSP**

Research on ICBT within general populations has demonstrated client satisfaction with ICBT programs (e.g., Hadjistavropoulos et al., 2018; Richards et al., 2016). Digital mental health literature suggests that tailoring programs to meet the needs of specific groups or individuals is beneficial for improving outcomes and engagement (Borghouts et al., 2021; Morrison et al., 2012). Based on this previous literature, it could be assumed that PSP would be satisfied with a program that was tailored to meet their needs. However, prior to the implementation of PSPNET, there were no ICBT programs tailored to meet the needs of PSP, and it was not known if this specific group would be accepting of such a service, particularly given the skepticism that can exist amongst PSP towards mental health programs (Jones et al., 2020; Martin et al., 2021; McCall, Beahm, et al., 2021). The dissertation results from both levels of stakeholders provide evidence that most PSP clients and PSP leaders are satisfied with the ICBT services provided by
PSPNET and view the services as beneficial. These results may provide insight and promise to other providers seeking to provide ICBT services to PSP groups.

Other ICBT or digital mental health providers should pay particular attention to the innovation characteristics that were cited as making PSPNET beneficial for PSP as not all ICBT programs include these characteristics. First, PSP clients and leaders suggested that they viewed the therapist support as beneficial. PSPNET made efforts to ensure that PSPNET therapists were aware of the occupational duties of PSP and the occupational stressors that they face. Service providers who do not train ICBT therapists in these areas may not have as much success, particularly given PSP skepticism about therapist cultural competence or PSP beliefs that therapists will not understand them (Jones et al., 2020). Second, PSP leaders also emphasized the fact that there were no costs for the clients to access PSPNET was a strength of the program. Therefore, service providers may seek out grants or funding rather than creating for-profit services at the expense of the clients who access the program or PSP organizations. Third, the results suggest that the stories were considered helpful by most clients, although some viewed them as needing improvement. PSPNET put efforts into tailoring the stories through interviews and by having the case stories reviewed by PSP stakeholders. Despite this, there were still some clients who viewed the stories as needing improving. Potential service providers should note the effort it takes to make stories and examples relatable and ensure they allot the time required for tailoring examples and stories and that they use input from actual PSP throughout this process. Fourth, PSP leaders emphasized the confidentiality of PSPNET. Providers seeking to offer services to PSP should ensure that they have secure encryption in place, and ensure confidentiality amongst all team members.
members. Selling of data should be strictly prohibited (e.g., Hurler, 2022). Fifth, PSP clients viewed the additional resources included in PSPNET as helpful suggesting a need to include a variety of resources on various topics (e.g., sleep, managing anger, communication skills), in addition to the core CBT skills including in ICBT programs.

Other areas of concern that ICBT or digital mental health providers should consider when offering services to PSP is considerations around timelines and concentration challenges, as well as the need to build relationships with PSP. Both PSP clients and leaders brought up concerns about timelines and concentration. Therefore, there is a need for service providers to be aware of PSP’s busy schedules and allow for flexible timelines. Initial timelines from the program were based on interviews with PSP stakeholders who suggested a need for flexibility (McCall, Beahm, et al., 2021). Therefore, the initial eight week timeline from the original Wellbeing Course was adjusted to allow for flexibility up until 16 weeks. Despite offering flexibility, PSP still struggled with keeping up with timelines, however, most clients still completed the course within 16 weeks. There is a need to offer flexible timelines and continue to remind PSP clients that timelines are flexible as many PSP may feel the need to keep up with shorter timelines due to type A personalities (McCall, Beahm, et al., 2021). However, previous research has shown that allowing too much timeline flexibility can negatively impact outcomes (Paxling et al., 2013). Future research should address what is the optimal amount of time and flexibility that should be offered to PSP clients for completing the program. Both PSP clients and leaders brought up the need for audio and interactive components in the course in order to help with concentration or time challenges. Including audio and video should be considered when offering ICBT to PSP.
The results from Study 3 also highlighted the need for building trust with PSP for reaching PSP. Some examples of building trust that can be considered include presentations and meetings with PSP organizations informing them of services, creating official partnerships with organizations, and adapting messaging about services to specific organizations and sectors.

**Implications for PSP Organizations**

Results from study 2 highlighted how organizational issues within PSP organizations are impacting the mental health of PSP. Many clients reported organizational stressors as a reason for seeking ICBT and discussed organizational stressors throughout ICBT with their therapist. Some clients identified that skills from ICBT were helpful for managing some organizational stressors (e.g., becoming more assertive about harassment situations at work). Nevertheless, these findings align with previous research suggesting a need for PSP organizations to address organizational issues in order to decrease mental health challenges of PSP (Ricciardelli, Czarnuch, Carleton, Gacek, et al., 2020).

**Limitations and Future Research**

**Self-Selection Bias**

Results from all three studies may be influenced by a self-selection bias. The client-level studies only include PSP who chose to enroll in ICBT as ICBT was not mandatory as part of their training. Therefore, clients who chose to enroll in such a course may be pre-inclined to view ICBT as acceptable and beneficial. However, some clients chose to enroll in the course because other services were limited at the time due to COVID-19 and reported result the course beneficial. Nevertheless, the results may not
extend to all PSP who would prefer to use other mental health services. However, ICBT is not meant to be a panacea for all mental health challenges (Titov et al., 2019), therefore, the results indicate that those who are seeking services are satisfied. In Study 3, PSP leader stakeholders were those already involved with PSPNET and those who were willing to participate in an interview. Therefore, they already demonstrated some support for PSPNET. There were no leaders who did not promote PSPNET in their organization included in the interviews. Therefore, the results may have been overly positive and there is a need to seek out PSP leaders who are less supportive of PSPNET to identify ways to overcome barriers to support or why they do not view ICBT as beneficial.

*Evaluate the Changes Made*

Based on the results within the studies, PSPNET has made several changes to the *PSP Wellbeing Course* and is considering more changes to program outreach and promotions. The dissertation used three different approaches to make improvements, however, it did not evaluate whether any improvements that were made had implications for client engagement or outcomes. Now that changes have been made to the program, there is a need to continue the cyclical nature of the micro-LHS approach and evaluate if changes made to PSPNET’s ICBT are having any effects on program outcomes, engagement, or stakeholders’ satisfaction with the program. There are recommendations to make changes throughout a clinical trial (Graham et al., 2020; Mohr et al., 2015, 2017, 2018), however, there is limited research on how to assess programs once changes have been made. Therefore, there is a need to develop methods to assess such changes. For example, future research could randomize groups to different versions of the course, including different implementation efforts.
Feedback from other stakeholders

The current study used two different types of stakeholders to gather feedback on the program. A micro-LHS approach suggests using feedback from all stakeholders affected by the program (Greene et al., 2012; Menear et al., 2019). Therefore, future research may also seek feedback from other stakeholders, such as clinicians administering ICBT to PSP, to assess the strengths and weaknesses of the implementation process and identify areas for improvement. PSPNET therapists have insight into how the program was implemented and what worked and what did not work. Therefore, gathering systematic data from this group could contribute to the evidence base of best practices for delivering ICBT for PSP. PSPNET staff or therapists could offer a different viewpoint of strengths and areas for improvement than PSP stakeholders. Other insights could be gathered from stakeholders associated with PSP, such as PSP human resources personnel and worker’s compensation boards.

Different forms of Feedback

Future research may also use different data collection strategies to gather feedback from the two different types of stakeholders. At the client-level, data was collected through course surveys and communications with therapists. The strength of this data collection strategy was that it allowed for real-time assessment of the course. However, a limitation of this strategy is that it did not allow for follow-up questions specific to the research project. Therefore, to address this limitation, data could also be collected from clients through interviews in order to gain more feedback specific to the research questions and to allow for follow-up questions on particular topics. For example, some clients suggested that stories needed to be improved but the nature of the data
collection did not allow the PSPNET team to gain insight into specific ways that clients wanted them to be improved, making it difficult to implement changes directly from this feedback. Interviews would allow for PSPNET researchers to probe about why clients liked or disliked certain aspects of the course, and how, specifically, they want the course improved. In Study 2, there were few differences found in the number of reported occupational stressors across PSP sectors, gender, and location of employment, however, there may have been differences in the type or context of these stressors. Interviews would be able to seek in-depth information about the types of stressors faced by PSP across these categories.

At the organizational level, data from PSP leader stakeholders was collected through interviews. The strengths of this approach was that it allowed for leaders’ to share rich experiences about what they believed to be strengths of the course and what they wanted improved. A limitation of this approach is that it required PSP leaders to take time out of their schedules to participate in interviews and therefore, this may have limited responses from PSP leaders who have less involvement with PSPNET increasing a self-selection bias. Moreover, responses were likely influenced by response biases as leaders may have felt the need to provide more positive accounts of PSPNET because they were being interviewed by a PSPNET team member. To address this limitation, surveys could have been administered to leaders, in addition to the interviews, to gain feedback from a wider variety of PSP leaders. Given that surveys could be anonymous, leaders who were not satisfied may feel more comfortable expressing negative opinions, identifying weaknesses, and areas for improvement. Additionally, given the recruitment process of contacting leaders for interviews and the time devotion required of leaders for
interviews, surveys may reach a wider audience as they could be distributed among PSP networks and filled out in a relatively shorter period of time compared to interviews.

**Feedback from more Diverse Stakeholders**

Future research may use purposeful sampling in order to gather feedback from a more diverse background of PSP. The current studies included primarily white stakeholders. Therefore, there is a need to gather information from other racial or ethnic identities to identify their perceptions of the course. These clients may have different experiences and offer valuable insights into the course. Enrollment from these clients was low indicating that there could be potential barriers to enrolling in the course. One approach to gathering data from these clients could be interviews so that potential barriers to enrollment and ideas for promotion could also be identified.

**Evaluation of Other PSPNET Courses**

The current dissertation evaluated PSPNET from the client-level by evaluating the therapist-assisted version of the *PSP Wellbeing Course*. PSPNET also offers a self-guided version of this course, as well as a therapist-assisted PTSD course. Therefore, there is need for future research to evaluate these courses from the client-level. There is also a need for more in-depth analysis of the various additional resources that PSPNET has developed. This research should use client-level feedback to assess perceptions, helpful aspects, and areas for improvement of these courses and resources.

**Cost Evaluation**

An LHS approach emphasizes providing the best care at the lowest costs (Greene et al., 2012; Menear et al., 2019). Therefore, as part of PSPNET’s LHS approach, there is a need to assess the costs of providing ICBT to PSPNET compared to offering face-to-
face treatments. Given that many PSP face barriers to care that can be overcome by ICBT, there is also a need to assess the return on investment for treating PSP’s mental health through ICBT compared to no treatment and the costs of PTSIs on PSP organizations.

**Final Conclusions**

PSPNET offers the first ICBT services tailored to meet the needs of PSP. The current dissertation is part of a larger evaluation of PSPNET’s services. PSPNET uses a micro-LHS framework in which research and clinical practice are integrated and the collection of data is used to make rapid changes to the program. The dissertation is comprised of a series of three studies that use qualitative data to evaluate the program and guide optimization of ICBT for PSP. Study 1 assessed clients’ perceptions of the program in terms of course impacts, strengths, and areas for improvement. Overall, most clients viewed ICBT as beneficial. The most frequently cited strength of the program was therapist support. Clients offered several suggestions for improving the course (e.g., changes to course design and materials, improving case stories, improving or adding additional resources) which were used to guide improvements to the course. Study 2 also used client-level data and explored whether clients were seeking and using ICBT to manage occupational stressors. The results showed that clients were using ICBT to manage occupational stressors and the data was used to help adjust case stories and examples. Study 3 used data from PSP leaders and assessed their perceptions of PSPNET along the RE-AIM evaluation framework. PSP leaders showed support for PSPNET and identified several strengths of program outreach (e.g., presentations by PSPNET) and of the innovation characteristics of PSPNET’s tailored ICBT (e.g., accessibility,
convenience, credibility). PSP leaders also helped identify barriers to reaching PSP and offered suggestions for improving PSPNET. The dissertation contributes to PSPNET’s evaluation of PSPNET. Additionally, the dissertation provides insights into how to use qualitative data as part of a micro-LHS to improve an ICBT program throughout a clinical trial. The dissertation also shows that PSP clients and leaders view ICBT as beneficial and what aspects of ICBT they view as helpful or needing improvement, which can provide insights for other service providers or policy makers seeking to offer ICBT for PSP.
References


Andersson, G., Cuijpers, P., Carlbring, P., Riper, H., & Hedman, E. (2014). Guided Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and


Angehrn, A., Teale Sapach, M. J. N., Ricciardelli, R., MacPhee, R. S., Anderson, G. S.,
& Carleton, R. N. (2020). Sleep Quality and Mental Disorder Symptoms among
Canadian Public Safety Personnel. *International Journal of Environmental
Research and Public Health, 17*(8), 2708. https://doi.org/10.3390/ijerph17082708

mobile phone app predicts changes in mental health and wellbeing:
https://doi.org/10.1111/ap.12383

Baumeister, H., Reichler, L., Munzinger, M., & Lin, J. (2014). The impact of guidance on
Internet-based mental health interventions—A systematic review. *Internet

Bautista, J., & Schueller, S. M. (2022). Digital Mental Health Deserves Investment but
the Questions Are Which Interventions and Where? *AJOB Neuroscience, 13*(3),

Beahm, J. D., Landry, C. A., McCall, H. C., Carleton, R. N., & Hadjistavropoulos, H. D.
(2022). Understanding and Addressing Occupational Stressors in Internet-
Delivered Therapy for Public Safety Personnel: A Qualitative Analysis.
*International Journal of Environmental Research and Public Health, 19*(8), 4744.
https://doi.org/10.3390/ijerph19084744

Beahm, J. D., McCall, H. C., Carleton, R. N., Titov, N., Dear, B., & Hadjistavropoulos,
public safety personnel: Exploration of client experiences during and after
treatment. *Internet Interventions*, 26, 100481.
https://doi.org/10.1016/j.invent.2021.100481

https://doi.org/10.1186/1471-244X-11-107

https://doi.org/10.1146/annurev.publhealth.28.021406.144037

https://doi.org/10.1111/hex.12357


https://doi.org/10.1177/1748895817695856


https://doi.org/10.1177/0049124113500475

Canadian Institute for Public Safety Research and Treatment. (2019). *Glossary of terms: A shared understanding of the common terms used to describe psychological trauma (version 2.1).* https://www.doi.org/10.37119/10294/9055


practice: A consolidated framework for advancing implementation science.


https://doi.org/10.1080/15614263.2011.596714

https://doi.org/10.1017/S0033291715001427


https://doi.org/10.1016/j.invent.2017.07.003

https://doi.org/10.1007/s11469-019-00214-x


Therapy for Depression: A Systematic Review and Individual Patient Data


https://doi.org/10.1001/jamapsychiatry.2020.4364


https://doi.org/10.1002/wps.20482


https://doi.org/10.3389/fpubh.2020.00059


https://doi.org/10.1177/0706743719842565


LeBlanc, V. R., Regehr, C., Tavares, W., Scott, A. K., MacDonald, R., & King, K. (2012). The Impact of Stress on Paramedic Performance During Simulated
https://doi.org/10.1017/S1049023X12001021

Leroux, J., Richmond, R., Fitzpatrick, S., Kirkland, H., Norris, D., Mahar, A.,
safety personnel: A systematic review protocol of qualitative evidence. *Systematic
Reviews, 10*(1), 258. https://doi.org/10.1186/s13643-021-01807-1

Lillevoll, K. R., Wilhelmsen, M., Kolstrup, N., Høifødt, R. S., Waterloo, K., Eisemann,
Internet-Based Treatment for Depression: Qualitative Study of Integrated
Therapeutic Dimensions. *Journal of Medical Internet Research, 15*(6), e126.
https://doi.org/10.2196/jmir.2531

Alignment of Key Stakeholders’ Priorities for Patient-Facing Tools in Digital
Health: Mixed Methods Study. *Journal of Medical Internet Research, 23*(8),
e24890. https://doi.org/10.2196/24890

Maia, D. B., Marmar, C. R., Metzler, T., Nóbrega, A., Berger, W., Mendlowicz, M. V.,
elite unit of Brazilian police officers: Prevalence and impact on psychosocial
functioning and on physical and mental health. *Journal of Affective Disorders,
97*(1–3), 241–245. https://doi.org/10.1016/j.jad.2006.06.004

Marcu, G., Ondersma, S. J., Spiller, A. N., Broderick, B. M., Kadri, R., & Buis, L. R.
(2022). The Perceived Benefits of Digital Interventions for Behavioral Health:
Qualitative Interview Study. *Journal of Medical Internet Research, 24*(3), e34300. https://doi.org/10.2196/34300


https://doi.org/10.1016/j.jpsychires.2019.11.018


House of Commons Canada.


https://doi.org/10.1371/journal.pone.0062873


Turner, K. D. (2015). *Effects of Stress on 9-1-1 Call-Takers and Police Dispatchers: A Study at the San Jose Police Department* [Master of Science, San Jose State University]. https://doi.org/10.31979/etd.3yxn-3pvm


https://www.wcb.ab.ca/assets/pdfs/workers/WFS_Presumptive_coverage_for_traumatic_psychological_injuries.pdf


https://doi.org/10.3389/fpsyt.2022.832167
Appendix A: Treatment Satisfaction Questionnaire

Would you feel confident recommending this treatment to a friend? Yes/No
Was it worth your time doing this course? Yes/No
Why or why not?
For you, what was the most helpful skill taught in this course? (for example, thought challenging, becoming more active, graded exposure, controlled breathing, other)
Can you give us an example of how a skill or strategy from the PSP Wellbeing Course made a difference in your life?
What did you like about the course? (for example, comments about the lessons, DIY Guides, Stories, or Resources)
What did you not like about the course? What should we do to improve it? (for example, comments about the lessons, DIY Guides, Stories, or Resources)
During the online course, have you experienced any unwanted negative events that you believe are related to the online treatment or have you encountered any unwanted negative effects that could be related to the online treatment?
If yes, please describe the unwanted negative events or unwanted negative effects, and define when during treatment these events/effects occurred, how often they happened, and how long they lasted. If you have experienced more than one event/effect, please describe each one separately.
Appendix B: Email Invitation

Dear X,

Our research unit at the University of Regina, PSPNET, has developed an Internet-delivered cognitive behavioural therapy (ICBT) program specifically geared towards Public Safety Personnel (PSP). We have tailored ICBT services for PSP including, but not necessarily limited to, public safety communications officials (e.g., call centre operators/dispatchers), correctional workers and officers, firefighters, paramedics, border services, and police officers.

Clients who are accepted into ICBT learn strategies that are typically covered in face-to-face cognitive behavioural therapy for depression, anxiety, or trauma. We adapted ICBT programs that were developed in Australia and which have been used successfully for over 10 years in Saskatchewan. These programs present lesson materials online on a weekly basis over 8 weeks. Clients are sent automated emails that encourage them to complete the lessons. Lessons are presented in an engaging manner and homework assignments are given at the end of each lesson to help with learning strategies.

We offer a therapist-assisted ICBT program in Saskatchewan, Quebec, Nova Scotia, New Brunswick, and Prince Edward Island. In this program, once or twice weekly therapist support is offered in the form or emails and/or phone calls (depending on the client’s preference). Therapist-assisted services are available in both English and French. We also offer a self-directed version of the program to PSP across Canada.

PSPNET has been operational since January 2020 and has treated over 600 PSP to date in the provinces we provide service in. In Saskatchewan specifically, PSPNET has treated 298 clients.

PSPNET has been effective in helping PSP. Outcomes from clients identify:

- More than 90% report increased confidence in managing their mental health challenges.
- More than 95% believe PSPNET was worth their time and would refer the service to a friend.
• Large reductions in symptoms of anxiety and depression, moderate reductions in symptoms of PTSD, and small reductions in symptoms of social anxiety.

• Clients found the course beneficial for:
  o Improving their skills to manage their wellbeing,
  o Normalizing or creating awareness about mental health issues,
  o Improving family and personal relationships, and
  o Providing the first steps for managing their wellbeing.

We are currently reaching out to you to ask if you would be interested in participating in an interview to gather information and opinions that can inform further improvements and sustainment of the program. The interviews will focus on your perceptions of PSPNET and what you believe are the strengths of the program or areas we need to improve. We would like to learn about any factors you feel facilitated or interfered with the implementation of PSPNET. This type of study is critical for ensuring continued improvement and sustainment of the program.

We are interested in gaining information from PSP in a variety of leadership positions. Information will be gathered during individual interviews conducted over either the phone or by zoom, depending on your preference. In total, we anticipate interviewing approximately 15 stakeholders with diverse backgrounds and perspectives. The interview should take approximately half an hour to one hour of your time. We have attached our participant consent form and our intended interview questions.

The project has University of Regina Research Ethics Board approval (REB 2022-107).

If you are interested, you can schedule an interview time on the Coconut Calendar link: INSERT COCONUT CALENDAR LINK

If you have questions, comments, suggestions, or feedback, please contact the PSPNET project staff at 306-337-7233 or email pspnet@uregina.ca. Thank you very much in advance for your consideration.

Sincerely,

Janine Beahm, M.A.
Heather Hadjistavropoulos, PHD, RD Psych

Nicholas Carleton, PHD, RD Psych
Appendix C: Informed Consent

PARTICIPANT CONSENT FORM

Please take the time to carefully read the following information. If any information is unclear, please email us at pspnet@uregina.ca or phone us at 306-337-7233

Project title: Utilizing Leaders’ Perceptions to Optimize the Implementation of Internet-Delivered Cognitive Behavioural Therapy for Public Safety Personnel

Researchers:

<table>
<thead>
<tr>
<th>Principal Investigators:</th>
<th>Co-Investigator:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janine Beahm, M.A.</td>
<td>Nicholas Carleton, PhD, R.D.Psych</td>
</tr>
<tr>
<td>PhD Student, Department of Psychology</td>
<td>Professor, Department of Psychology</td>
</tr>
<tr>
<td>University of Regina</td>
<td>University of Regina</td>
</tr>
<tr>
<td>Contact #: (306) 520-2976</td>
<td>Contact # (306) 585-4595</td>
</tr>
<tr>
<td>Email: <a href="mailto:Janine.Beahm@uregina.ca">Janine.Beahm@uregina.ca</a></td>
<td>E-mail: <a href="mailto:nick.carleton@uregina.ca">nick.carleton@uregina.ca</a></td>
</tr>
</tbody>
</table>

Heather Hadjistavropoulos, PhD, R.D.Psych
Professor, Department of Psychology
University of Regina
Contact # (306) 585-5133
E-mail: heather.hadjistavropoulos@uregina.ca

Team:

<table>
<thead>
<tr>
<th>Team:</th>
<th>Team:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shimona Sekhar, Senior Project Director</td>
<td>PSPNET - CIPSRT</td>
</tr>
<tr>
<td>Hugh McCall, PhD Student</td>
<td>University of Regina</td>
</tr>
<tr>
<td>Caeleigh Landry, MA Student</td>
<td>Contact: (306): 337-7233</td>
</tr>
<tr>
<td>Melissa Schletgen, Clinical Research Associate</td>
<td>Email: <a href="mailto:pspnet@uregina.ca">pspnet@uregina.ca</a></td>
</tr>
<tr>
<td>Isabelle Dena, Clinical Research Associate</td>
<td></td>
</tr>
<tr>
<td>Abby Phillips, Research Assistant</td>
<td></td>
</tr>
<tr>
<td>Ese Dukuye, Research Assistant</td>
<td></td>
</tr>
<tr>
<td>Jody Burnett, Clinical Research Associate</td>
<td></td>
</tr>
</tbody>
</table>
Overview: You are being asked to participate in a research study involving individual interviews. Please take your time to review this consent form and discuss any questions you may have with the study staff before you make your decision. This consent form may contain words that you do not understand. Please ask the study staff to explain any words or information that you do not clearly understand.

Purpose and Objectives of the study: Since 2020, PSPNET has offered internet-delivered cognitive behavioural therapy (ICBT) to public safety personnel (PSP). This ICBT program is designed to treat symptoms of depression, anxiety, and posttraumatic stress disorder. The results of our initial research show that it is an effective treatment for symptoms of various mental disorders. Additionally, most clients perceive the course as beneficial, would recommend the course to their friend, and believe the course was worth their time.

The purpose of this study is to explore PSP leaders’ perceptions of the strengths and weaknesses of the implementation and outcomes of PSPNET’s ICBT program tailored to PSP in Saskatchewan. This study will identify the factors PSP leaders perceive as facilitating or impeding ICBT implementation within their organization. The study will also assess how PSPNET can be sustained and if PSP organizations are willing to advocate for the promotion of PSPNET.

The objectives of this study are as follows:

1) Identify the barriers and facilitators for reaching potential PSP clients within PSP organizations.
2) Identify the barriers or facilitators that enabled/hindered PSP organizations from adopting or promoting PSPNET.

3) Determine whether and why PSP leaders perceive PSPNET as beneficial or not.

4) Explore what PSP leaders’ perceive as strengths and weaknesses regarding the implementation of PSPNET.

5) Explore whether PSP leaders would be willing to advocate for the sustainment of PSPNET.

**Participant Selection:** You are being asked to participate in this study because you are a leader in a public safety organization such as public safety communicators (e.g., call centre operator/dispatcher), correctional worker/officer, firefighter, paramedic, border services, or police officer. In total, we anticipate interviewing 15 stakeholders with diverse backgrounds and perspectives.

**Procedures:** You are being asked to participate in this study by taking part in a telephone or zoom interview that will take approximately 30 to 60 minutes to complete. Your participation in this study is completely voluntary and there will be no penalty should you choose not to participate in the study.

You will be asked questions about your perceptions of PSPNET’s ICBT program, including strengths and weaknesses of the program. You will also be asked about facilitators and barriers for implementing and reaching PSP within your organization. You are invited to share only information you are comfortable sharing. You will also be encouraged to participate in a confidential space so that your responses cannot be overheard.
The interviews will be conducted by a University of Regina researcher who is trained in this method of data collection. Please know that your responses will play a vital role in helping us improve and sustain ICBT tailored to PSP.

**Audiotaping and Transcribing:** The interviews will be audio recorded via zoom or telephone and transcribed by a professional transcriber hired to work on this project. Transcribers will sign a confidentiality agreement that mandates they not discuss any information on the recording with anyone other than the researchers. All participants will be identified by a participant number in the transcripts.

**Data Storage:** Consent forms, interview notes, audio recordings and transcripts will be stored on a password-protected, encrypted computer in a locked room at the University of Regina. Only the principal investigators and their research staff will have access to the data. Audio recordings will be deleted once the interview has been transcribed. All contact information collected for the study will be deleted once the study has been completed.

**Use of Data:** The perspectives shared in interviews will be pooled together and analyzed as a whole. The data collected from this study will be used as part of a doctoral dissertation, journal articles, conference presentations, and a program evaluation report for PSPNET stakeholders. We will also publish a summary of the results on PSPNET’s website.
**Destruction of Data:** Consent forms, transcripts, and notes will be destroyed (shredded or deleted) five years after publication of the study results. It is estimated that this destruction will happen in February 2028.

**Funding:** This research is supported by funding from the Government of Canada (Public Safety Canada).

**Potential Risks:** There are no known or anticipated risks to you by participating in this study. You will not be asked questions about your personal mental health issues. Nevertheless, you may find that the discussion of ICBT for PSP makes you think about emotional or stressful situations. You do not have to answer any question that makes you feel uncomfortable or that you find too upsetting.

**Potential Benefits:** Your responses will play a vital role in helping us continue to provide our services to PSP across the country and help address the critical need for effective mental health care services tailored to PSP. Participation in this study has the benefit of providing you a voice that will influence the how ICBT is delivered to PSP in Canada. However, there are not guaranteed personal benefits for participating in this study.

**Compensation:** Participation in this study is on a volunteer basis. No compensation will be provided for taking part.
**Confidentiality and Right to Withdraw:** Your participation in this study is voluntary, and you can answer only those questions that you are comfortable with. Should you choose not to participate in this study, or if you wish to stop participating at any time during the interview, you may do so without explanation and without consequence. Of note, once the data has been transcribed and pooled for analysis (approximately November 2022), it will no longer be possible to withdraw your data from the study. Your responses will be kept confidential, however, given the small sample size of this study there may be some limitations to confidentiality. You will not be asked to state your name during your interview and all identifying information (e.g., names, other identifying details) will be removed from interview transcripts and notes. Rather, all participants will be identified by a participant number. If the results of this study are presented in a scientific meeting or published, there will be no way to know that you took part in the study. Please note, however, that your words may be used to highlight specific ideas. To address these limits to your confidentiality, our team will select quotes that do not include any specific or identifying information and will not include any identifying information with your words (e.g., the PSP sector you are from, your gender, age, etc.). If you chose to have your data withdrawn from the analysis, you can do so by emailing the PSPNET at pspnet@uregina.ca. Your decision to participate in this study and any feedback you may give (e.g., negative feedback on PSPNET) will not affect your ability (both personally and that of people within your organization) to access PSPNET programs. Please note, if you choose to participate in a Zoom interview, Zoom servers
are located outside of Canada and Zoom stores users’ names and usage data outside of Canada.

**Costs:** The most significant cost to you will be your time.

**Follow-up:** A summary of the research results for this study can be obtained from the PSPNET and CIPSRT websites. Please visit the PSPNET website ([www.pspnet.ca](http://www.pspnet.ca)) or the CIPSRT website ([www.cipsrt-icrtsp.ca](http://www.cipsrt-icrtsp.ca)) where the results of the study will be posted once they are available. We expect the results of this study to be posted by July of 2023. If you have any further questions about the research findings, please feel free to contact us using the telephone numbers or email addresses listed above.

**Questions/Concerns:** If you have questions regarding the procedures and goals of this study or your participation in it, please contact any member of our team using the information on page 1.

**Ethics Approval:** This research project has been approved on ethical grounds by the Research Ethics Board of the University of Regina (REB 2022-107). Any questions regarding your rights as a participant may be addressed to the University of Regina Ethics Board at 306-585-4775 or email: research.ethics@uregina.ca. Out of town participants may call collect.

**Copy of Consent Form:** We encourage you to keep a copy of this consent form for your own records.
**Consent:** By verbally consenting to the researcher, you indicate that you understand the above conditions of participation in the current study and you agree to take part in the current study. By verbally consenting to the researcher, you agree to the following:

1. I have read the Information Page and have had any questions answered to my satisfaction.
2. This research project has been approved on ethical grounds by the Research Ethics Board of the University of Regina (REB 2022-107). I am aware that any questions regarding my rights as a participant may be addressed to the University of Regina Ethics Board at (306) 585-4775 or email: research.ethics@uregina.ca. Out of town participants may call collect.
3. I understand that my participation is voluntary and that I am free to withdraw at any time.
4. I freely and voluntarily consent to participate in the interview.

**Oral Consent (To be completed by the researcher):**
I read and explained this Consent Form to the participant before receiving the participant’s consent, and the participant had knowledge of its contents and appeared to understand it.

Researcher Signature : ______________________ Date : ______________________
Appendix D: Interview Guide

Reach

1. To what extent do you feel that PSPNET reached PSP within your organization/sector?
2. Were there groups that were not reached?
3. What do you think helped or hindered PSPNET reaching PSP in your organization?

Adoption

4. Has your organization promoted or partnered with PSPNET? In what ways?
5. [Only ask Q2 if respondent says "yes" to Q1] What factors allowed you to promote PSPNET within your organization?
6. What factors made it more difficult for you to promote PSPNET within your organization?

Effectiveness

7. Have you heard any feedback from PSPNET users about the program that you can share?
8. Do you feel that PSPNET is making a difference in the individual lives of PSP?
9. To what extent do you believe PSPNET is beneficial or not beneficial for your organization and why? [Prompts: Such as being able to refer individuals to PSPNET or being able to incorporate PSPNET into your workplace practices]
10. Do you feel that PSPNET has improved awareness about posttraumatic stress injuries within your organization?

Implementation

11. What do you think are strengths of PSPNET or factors that make the program successful?
12. What do you think are weaknesses of PSPNET or things the program could improve on?
13. Do you believe there are any disadvantages or unintended consequences of PSPNET?
14. Are there any other services that PSPNET should provide?

Maintenance

15. How would not having PSPNET available affect your organization?
16. Would your organization be willing to continue to work with PSPNET or to advocate for PSPNET to help sustain the program?
17. What else is needed to support mental health in your organization beyond what PSPNET does?

18. Is there anything else you would like to tell us about PSPNET including things you liked, disliked, or things we should improve on?
Appendix E: University of Regina’s Research Ethics Board Certificates of Approval

University of Regina

Research Ethics Board
Certificate of Approval

PRINCIPAL INVESTIGATOR
Dr. Heather Hadjistavropoulos

DEPARTMENT
Department of Psychology

REBB#
2019-157

TITLE
Internet-Delivered Cognitive Behaviour Therapy (ICBT) for Public Safety Personnel (PSP): Examination of Engagement, Outcomes, Strengths and Challenges

APPROVED ON
October 9, 2019

RENEWAL DATE
October 9, 2020

APPROVAL OF
Application for Behavioural Research Ethics Review, PSP Online Screening Consent Form, Basic Online Eligibility Questions, Full Online Screening Questions, Telephone Screen, PSP Treatment Consent Form, PHQ9 Measure, GAD7 measure, Distress Measure-K10, PTSD Checklist 5, Panic Disorder Severity Scale, Social Interaction Anxiety Scale 8, EQ-ED-5L, Disability measure-SDS, Sleep Concerns Questionnaire 15, Service Usage, Treatment satisfaction and Credibility, Working alliance SR measure, confidentiality agreement, Recruitment Poster, Website information

Full Board Meeting ☐
Delegated Review ☒

The University of Regina Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol, or related documents.

Any significant changes to your proposed method, procedures or related documents should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for the renewal and closure forms:
https://www.uregina.ca/research/for-faculty-staff/ethics-compliance/human/ethicsforms.html

Chris Street PhD
REB Chair
University of Regina

Please send all correspondence to: Research Office
University of Regina
Research and Innovation Centre 109
Regina, SK S4S 0A2
Telephone: (306) 585-4775
Fax: (306) 585-4923
research.ethics@uregina.ca
Research Ethics Board
Certificate of Approval

PRINCIPAL INVESTIGATOR
Janine Beahm

DEPARTMENT
Psychology

REB#
2022-107

SUPERVISOR
Heather Hadji-Stavropoulos

TITLE
Utilizing Leaders’ Perceptions to Optimize the Implementation of Internet-Delivered Cognitive Behavioural Therapy for Public Safety Personnel

APPROVED ON
September 16, 2022

RENEWAL DATE
September 16, 2023

APPROVAL OF
Application for Behavioural Research Ethics Review
Email Invitation
Informed Consent
Interview Guide

Full Board Meeting
Delegated Review

The University of Regina Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol, or related documents.

Any significant changes to your proposed method, procedures or related documents should be reported to the Chair for Research Ethics Board consideration in advance of implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration one month in advance of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for the renewal and closure forms:
https://www.uregina.ca/research/for-faculty-staff/ethics-compliance/human/ethicsforms.html

Kim Dorsch PhD
REB Chair
University of Regina

Please send all correspondence to:
Research Office
University of Regina
Centre for Kinesiology Building 227
Regina, SK S4S 0A2
Telephone: (306) 585-5777 Fax: (306) 585-4803
research.ethics@uregina.ca

209