

**CLINICIAN'S PERCEPTIONS OF THE INTEGRATION OF ANXIETY MOBILE
APPLICATIONS TO COUNSELLING: A CRITICAL INCIDENT STUDY**

by

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Abstract

Anxiety disorders are the most common mental health condition among the general population. Technology offers a great platform to deliver and supplement mental health services. Over the last decade the development and use of mental health mobile apps has proliferated. Some of the advantages of using apps are accessibility, anonymity, privacy, the ability to monitor symptoms and to track progress in real time. On the other hand, some concerns are safety of personal information and lack of robust research demonstrating their effectiveness. Mobile apps have been conceived, for the most part, as stand-alone interventions. However, the inclusion and integration of mobile apps as tools in psychotherapy is an area of growing interest. Integrating apps in the context of therapy is promising and could increase treatment adherence. However, no previous research has sought to understand how this integration takes place. Fifteen clinicians participated in an open-ended semi-structured interview based on the enhanced critical incident technique (ECIT). The ECIT is a well-established qualitative research method that guides the exploration of what helped, hindered or would have helped (wish list) participants' decision to use mobile applications in their clinical work with clients who struggle with anxiety. Results highlight therapists' reasons for using mobile apps in therapy, when they consider it would be useful to integrate them into therapy, ways of integrating them and client factors to consider. The potential contribution of the study included delineating practical aspects of the process of integrating mobile applications in clinical work with clients struggling with anxiety, in hopes of assisting practitioners who are interested in using these tools more effectively with clients, and therefore, facilitating their use with clients to assist in managing their mental health needs.

Lay Summary

Over the last decade there has been a proliferation of mobile mental health applications. There is growing interest in integrating mental health mobile applications to therapy. However, there is no research available looking at how this integration takes place. With the help of open-ended interview questions, fifteen psychotherapists, who identified themselves as having used mental health mobile applications at least once with clients over the previous year, were asked about factors that helped and hindered their decision to integrate apps in their therapy with clients who struggle with anxiety. Questions about what they believed would have helped were also asked. The participants identified several situations, and ways in which they found the integration of mobile applications helpful in their work with clients. These findings are expected to help counsellors and practitioners who are interested in using these tools in their work with clients to support client progress in therapy.

Preface

This dissertation is the original and unpublished work of the author Liliana Cortes. Data collection and data analysis were conducted independently with the approval of the University of British Columbia Behavioural Research Ethics Board (BREB), under certificate number: H18-02519-A002

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List of Abbreviations

ADHD	Attention-deficit/hyperactivity disorder
App	Mobile application
CBT	Cognitive Behavioral Therapy
cCBT	Computerized Cognitive Behavioral Therapy
CI	Critical Incident
COVID-19	Coronavirus disease of 2019
ECIT	Enhanced Critical Incident Technique
PTSD	Posttraumatic stress disorder
WL	Wish list

List of Key Terms

mHealth	A branch of telehealth that focuses on delivering information, interventions, and monitoring through portable and electronic mobile devices such as smartphones, tablets, and wearable devices.
Mobile applications	Type of application software designed to run on a mobile device, such as a smartphone or tablet computer.
Telehealth	The delivery and facilitation of health and health-related services including medical care, provider and patient education, health information services, and self-care via telecommunications and digital communication technologies like video conferencing and mobile health apps.

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Dedication

This dissertation is dedicated to my family:
my husband Juan, my children Sebastian, Clarissa and Alejandra;
my parents, Jaime y Norma, my brother Jaime and my cousin Patricia;
and to all the people who, like my Father, lost their lives to COVID-19.

Chapter 1: Introduction

The Canadian mental health system is fragmented and underfunded (Standing Senate Committee on Social Affairs, Science and Technology, 2006). In any given year, one in five people in Canada experiences a mental health problem or illness with a cost to the economy of well in excess of 50 billion dollars, which includes health care costs, lost productivity, and reductions in health-related quality of life (Mental Health Commission of Canada, 2016; Lim et al., 2008). Existing literature indicates that roughly 75% of those with a mental illness do not seek care (Clement et al., 2015). The traditional method of providing psychological services and support via face-to-face sessions in the therapist's office does not necessarily fit the needs of all clients (Sucala et al., 2017). Accessing services can pose several barriers such as stigma, clinical cost, transportation, and time commitment among others (Boydell et al., 2014). In rural communities, in addition to these barriers, there are fewer mental health services as it is often challenging to recruit and retain specialists. This can result in significant staff turnover, professional isolation, and burnout (Hastings & Cohn, 2013).

The Mental Health Commission of Canada (2017) has called for a re-examination of existing approaches and consideration of additional strategies to reduce the burden of mental health conditions among Canadians. Technology offers a great platform for the delivery of mental health services. Before the COVID-19 pandemic, the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care (telehealth) had grown exponentially at a global level (Lingely-Pottie & McGrath, 2006). Shortly after the COVID-19 pandemic began, in-person mental health services were not viable due to social distancing recommendations, which forced a rapid transition to and adoption of telehealth. According to Perrin et al. (2020), "telepsychology has a demonstrated ability to

expand services to underserved and hard to reach populations, and its wide applicability makes it extremely well suited to become a permanent fixture of our profession” (p. 1183). Today, telehealth is used to deliver mental health services in the areas of prevention, assessment, diagnosis, counselling, and treatment (Reed et al., 2000).

Telehealth is defined as the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration. It can be synchronous (e.g., real time video-conferencing) or asynchronous (e.g., email or SMS) (Health Resources and Services Administration). On the other hand, mHealth is defined as a branch of telehealth that focuses on delivering information, interventions, and monitoring through portable and electronic mobile devices and technologies such as smartphones, tablets, and wearable devices that offer appealing, cost-effective, and accessible services to individuals (Donker et al., 2013; Luxton et al., 2011). Mobile apps fall within this category, therefore this study will contribute to the area of mHealth.

The most common mental health conditions among the general population are anxiety disorders, with a lifetime prevalence of 31.9% (Merikangas et al., 2010). They are twice as frequent as mood disorders and have a median age of onset of 11 years (Kessler et al., 2005; Kessler et al., 2012). In Canada, nearly four million people live with either a mood or an anxiety disorder (Mental Health Commission of Canada, 2016). Early onset anxiety disorders are powerful predictors of subsequent depression, substance use, and other challenging mental health conditions (Bandelow & Michaelis, 2015; Langley et al., 2004; Stein et al., 2017). People struggling with anxiety disorders also are more likely to present difficulties maintaining employment and developing stable intimate relationships (Zaider et al., 2010). Some symptoms

that individuals struggling with anxiety experience are pervasive worry, pessimistic thoughts, and frequent nervousness (Haller et al., 2014).

One of the psychological approaches for which there is more research showing effectiveness for the treatment of anxiety is Cognitive Behavioural Therapy (CBT) (Connolly & Bernstein, 2007; Kendall & Peterman, 2015). The efficacy of CBT has been supported by a comprehensive review of more than 106 meta-analyses across different clinical groups (Hofmann et al., 2012). Beck (1976) was the first researcher to deliver and adapt CBT to a manualized treatment format for the purpose of conducting randomized control trials to evaluate its effectiveness for the treatment of depression. Since then, CBT has been expanded to treat many other mental health conditions including anxiety, schizophrenia, ADHD, eating disorders, insomnia, and PTSD among others (see <https://www.div12.org/treatments/> for more information).

CBT has proved to be amenable, versatile, and effective when adapted to online computerized formats (cCBT) and more recently to mobile applications (apps), in part because of its emphasis on psychoeducation and promotion of skill building (Hollis et al., 2017; Spence et al., 2011), although it is not the only theoretical model adapted in those ways. There is more evidence and research supporting the effectiveness of Computerized CBT (cCBT), with small-to-moderate effects for depression outcomes, and moderate-to-large effects for anxiety (Hollis et al., 2017). On the other hand, while apps show great promise for delivery of and access to mental health support, there is insufficient research evidence to support their effectiveness (Grist et al., 2017).

The development and use of apps for mental health related purposes has proliferated to the point of outpacing research and regulatory policies. In the span of four years, commercially

available apps related to mental health went from 700 in 2012 to over 4000 in 2016 (Anthes, 2016). The latest estimates suggest that between 165,000 and 325,000 health and wellness apps are now commercially available to individuals (Neary & Schueller, 2018), with more than 10,000 designed specifically for mental or behavioural health (Torous et al., 2018).

Some of the advantages of using apps are accessibility; anonymity; privacy; ability to track and monitor mood, symptoms, and progress in real time; and improving adherence to psychological treatment when used in the context of therapy possibly leading to better clinical outcomes (Firth et al., 2017; Hollis et al., 2017; Nicholas et al., 2015; Sucala et al., 2017). On the other hand, some of the concerns related to the use of apps for mental health purposes are risks involving privacy and confidentiality of information due to inadequate data protection (Prentice & Dobson, 2014), low retention rates among users (Owen et al., 2015), and poor quality of the research conducted to date on the efficacy of app usage, which calls for caution when results and conclusions are interpreted (Grist et al., 2017; Hollis et al., 2017).

Sucala and colleagues concluded that although “apps have the potential to enhance access to mental health care, there is a marked discrepancy between the wealth of commercially available apps, and the paucity of data regarding their efficacy and effectiveness” (2017, p. 518). These authors conducted a systematic review of apps for anxiety and identified that only 3.8% of the apps had been rigorously tested.

Mobile apps have been conceived, for the most part, as stand-alone interventions; however, research is showing that the field is not quite there yet and the full potential of apps for supporting the treatment of mental health problems needs to be reformulated. A possible reason could be that apps are tools that facilitate interventions, but are not comprehensive enough to be considered as interventions that may account for change.

The inclusion and integration of mobile apps as tools in psychological treatments is an area of growing interest in mHealth (Hollis et al., 2017; Price et al., 2014; Socala et al., 2017). Research is showing that human facilitation/support is an important factor in influencing the uptake of, engagement with, and outcomes of apps use (Firth et al., 2017). It appears that “blended” apps or programs that integrate human facilitation/support may achieve greater engagement and treatment adherence and improved retention in intervention trials. The field of mHealth is slowly moving in that direction (Possemato et al., 2017) and this study seeks to explore this notion in more detail.

Rationale for the Study

The use of technology, more specifically mobile apps, for the delivery of mental health prevention strategies and early intervention in communities is relatively new. Research shows inconclusive results about the effectiveness of the use of apps as stand-alone interventions. According to Firth et al. (2017), currently, the strongest evidence for using apps to treat anxiety and other mental health conditions is when they are integrated in face to face programs to enhance and support their delivery. However, there is no literature on how this integration takes place.

Purpose of the Study

The purpose of this study is to deepen our understanding of the factors that influence the decisions of therapists to integrate mental health mobile apps into the therapeutic work they do with clients experiencing anxiety, given that anxiety is the condition with highest prevalence in the general population, and to discuss how apps may or not contribute to the therapeutic process.

Research Question

The research question for this study is: what helps and hinders the decisions of therapists to integrate mobile apps into the therapeutic process with clients who struggle with anxiety?

Relevance to Counselling Psychology

Technology has become a widely used tool in psychotherapy, especially since the start of the COVID-19 pandemic. Mobile apps are part of what technology has to offer to our field. It is important that counsellors understand the role mobile apps can play when they are used in therapy with clients. However, it is not clear which factors help and hinder the decisions of therapists to integrate mobile apps into their work with clients, and how to successfully integrate apps to enhance the therapeutic process. As there is currently no research on the topic of what helps or hinders decisions to use mobile apps as a therapeutic tool, the purpose of this study is to seek to understand the decision-making process of adopting apps in therapy to contribute to and expand our knowledge and address this gap.

Rationale for the Methodology

The research method chosen for this study is the Enhanced Critical Incident Technique (ECIT, Butterfield et al., 2009). The data collected will allow the researcher to delineate meaningful incidents that can contribute to or can detract from counsellors' decisions to integrate mobile apps into their work with clients. According to Butterfield and colleagues, ECIT is a widely recognized qualitative research method, recognized as a particularly effective tool for the exploration of under-researched phenomena; its interviewing method facilitates the development of a sense of comfort and safety with participants that has a direct and positive effect on the depth of the information shared. The outcomes of this study will include the development of pragmatic recommendations designed to assist in mitigating barriers and increasing the effectiveness of integrating mobile apps in therapy in a meaningful and relevant way. In addition,

future publications in journals and the delivery of workshops on the findings of this study may shed light on the future implementation of mental health apps in therapy and contribute to the scholarly literature within this emerging field.

In the next chapter, I present the relevant and current research on anxiety, telehealth, mobile apps, and prevention.

Chapter 2: Literature Review

This study focuses on deepening our understanding of the factors that influence the decisions of therapists to integrate mental health mobile apps into the therapeutic work they do with clients struggling with anxiety, given that anxiety is the most prevalent mental health condition in the general population. A literature review was conducted within the following areas foundational to this research study: the mental health of Canadians, anxiety, prevention, and telehealth and mHealth as alternative ways to support people struggling with anxiety.

Overview of the Canadian Mental Health Landscape

According to the Mental Health Commission of Canada (MHCC) (2016) one in five Canadians experiences mental health illness in any given year, which translates to more than 6.7 million Canadians. The MHCC indicates that by age 40 nearly 50% of the population will have or have had a mental illness, and that unless we embrace a different approach to mental health, by 2041 there will be 8.9 million people in Canada living with a mental health conditions, representing an increase to 20.5%. Suicide accounts for 24% of all deaths among 15–24 year olds and 16% among 25–44 year olds, making suicide one of the leading causes of death in both men and women from adolescence to middle age in Canada (Canadian Mental Health Association, 2020).

These statistics do not take into account the effects of the COVID-19 global pandemic on mental health. However, the Canadian Mental Health Association (CMHA) (2020) points out that the COVID-19 pandemic has caused higher levels of anxiety at a national level that may lead to significant, unprecedented mental health effects. Research suggests that Canadians will still be struggling with their mental health long after a vaccine is available (CMHA, 2020).

In 2006, the Canadian Senate Committee on Social Affairs, Science and Technology published a report that analyzed the Canadian mental health system, including the needs of individuals living with mental health and addiction issues. This document reported that the Canadian mental health system is fragmented and underfunded, and that “what is needed is a genuine system that puts people living with mental illness at its centre, with a clear focus on their ability to recover” (p. 37).

It is estimated that the cost to the economy exceeds 50 billion dollars, including health care costs, lost productivity, and reductions in health-related quality of life (Mental Health Commission of Canada, 2011). This could be explained by the fact that most people experiencing mental health problems do not receive help. Existing literature indicates almost one half (49%) of those who feel they have suffered from depression or anxiety do not seek help (Clement et al., 2015; Mental Health Commission of Canada, 2016). Possible explanations could be insufficient access to and delivery of services, under detection of mental health conditions, and the stigma associated with mental health issues (Smith & Applegate, 2018).

The Canadian Standing Senate Committee on Social Affairs, Science and Technology (2006) report stated that in Canada,

The range of choices that have been available to consumers of mental health services has been severely limited. The system has lacked both the resource capacity and the flexibility to provide personalized services that engage individuals in their own recovery, whether they are seeking treatment in an acute inpatient ward or living in their communities. (p. 46)

Accessing services in rural and northern communities in Canada is difficult due to challenges in recruiting and retaining specialists (Boydell et al., 2014; Friesen, 2019). In the

Rural and Remote Mental Health in Canada: Evidence Brief on Best and Promising Practices

report, the Mental Health Commission of Canada (2020) states that individuals in rural communities need to travel great distances to get the help they need, and where services exist, there are “long waitlists, high turnover rates, and poor communications infrastructures despite the increased dependence on telehealth” (p. 1). Other common barriers to accessing services are stigma, lack of privacy, cultural and/or gendered inequities, and socio-economic conditions (Caxaj, 2016). Hippe et al. (2014) found similar results in a study that sought to identify barriers to accessing health care services in Newfoundland and Labrador. They conducted surveys among individuals living in rural areas (n=1049) and held ten kitchen table discussions, and they found that the main barriers identified by the community included long wait times, services not available in the area, transportation challenges, financial concerns, lack of medical insurance coverage, distance to travel, and weather conditions.

Friesen (2019) points out that there is a higher proportion of Indigenous populations in rural and remote regions of Canada, who have experienced a long history of colonization and ongoing systemic racism that is also reflected in the lack of services for both mental health and health services. In a scoping review of the literature related to Indigenous mental health in Canada, Nelson and Wilson (2017) found that the “research related to Indigenous peoples in Canada overemphasizes suicide and problematic substance use”, even though the validity of much early research on these topics has been called into question (Kirmayer & Valaskakis, 2009). The authors also found that several Indigenous groups are underrepresented in the literature, including Métis peoples and urban or off-reserve Indigenous peoples.

In recent years, policymakers have observed a reduction in health service provision capacity in rural communities in British Columbia, with roughly 10% of rural communities

categorized as “communities in crisis” due to staffing that is inadequate to provide core health services (Grzybowski & Kornelsen, 2013). In their 2018 report, the Canadian Medical Association stated that the number of psychiatrists in rural areas of the country is significantly inferior to urban areas per capita and insufficient. Notably, the Yukon, Northwest Territories, Nunavut, and Saskatchewan have the lowest number of psychiatrists per capita.

In addition, Jorm et al. (2017) pointed out that when services and treatment options increase, in the traditional way of delivery, there are no significant differences in the prevalence of some disorders. The burden of major depressive episodes in Canada has not changed in the last two decades in spite of increasing provisions of treatments, medications, and therapy (Patten et al., 2015). Similarly, Canada continues to experience an escalating opioid overdose crisis that has claimed more than 13,000 lives since 2016 (Perrin, 2020). The majority of these deaths were unintentional (Government of Canada, 2018). It is becoming evident that the way in which treatments are offered is not reaching the people who are affected in an effective manner.

In the last decade there have been some efforts to offer services to Canadians struggling with anxiety and depression using telehealth. For example, the Canadian Mental Health Association, Anxiety Canada, and Kelty’s Key, among others, have made free online self-help programs (e.g., Bounce Back and Mindshift) available to Canadians to support them in a self-paced, private, and convenient way. Research on the effectiveness of these programs is not yet available. It is important that we broaden our understanding of delivery of mental health services in order to reach individuals who otherwise would not seek support, cannot access support, or whose needs are not met through traditional delivery methods.

Anxiety Disorders

Anxiety disorders are the most common form of mental health condition among the general population, with a lifetime prevalence of 31.9% (Merikangas et al., 2010). According to the Mental Health Commission of Canada, nearly four million people lived with either a mood or an anxiety disorder in Canada in 2011, and it forecasts that by 2041 this will increase to nearly 4.9 million people (2016). Research has found that women are significantly more likely than men to develop an anxiety disorder throughout their lifespan (McLean et al., 2011), that anxiety disorders are twice as frequent as mood disorders, and that they have a median age of onset of 11 years (Kessler et al., 2005; Kessler et al., 2012).

Anxiety is a powerful predictor of subsequent anxiety disorders, depression, substance use, and other negative mental health outcomes (see Bandelow & Michaelis, 2015; Kashani & Orvaschel, 1988; Langley et al., 2004; Lewinsohn et al., 1997; Simonoff et al., 1997; Stein et al., 2017). People struggling with anxiety disorders are also more likely to present difficulties maintaining employment and developing stable intimate relationships (Zaider et al., 2010). Additionally, youth with early-onset anxiety disorders seldom receive treatment, mainly due to barriers such as accessibility, cost, and the stigma associated with having a mental health label (Essau et al., 2000; Sawyer et al., 2001). Due to their frequency, early onset, and chronicity, anxiety disorders impose a substantial burden on society (Bienvenue & Ginsburg, 2007).

The Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-V, APA, 2013) defines fear as the emotional response to a real or perceived imminent threat, whereas anxiety is defined as the anticipation of a future threat. Although these two emotions tend to overlap, they differ in that fear is often associated with surges of autonomic arousal essential for fight or flight, thoughts of immediate danger, and escape behaviours. Anxiety is more often

associated with muscle tension, a constant state of vigilance and alarm in preparation for anticipated danger, and avoidant behaviours.

The DSM-5 outlines the symptom criteria for each type of anxiety disorder: specific phobia, separation anxiety disorder, social anxiety disorder, selective mutism, panic disorder, agoraphobia, generalized anxiety disorder, and substance/medication-induced anxiety disorder. The main feature of these disorders is the experience of intense and excessive fear and worry expressed through specific cognitive, physiological, and behavioural reactions associated with impairment in functioning (Higa-McMillan et al., 2014).

There is converging evidence that anxiety disorders are complex genetic disorders with an etiological influence of biological, environmental, and psychological factors, respectively (Domschke & Dannlowski, 2010). Since the early 1920s, the Pavlovian laboratory model has provided support for a learning theory that explains some of the processes involved in the development of fear, such as classical and inhibitory conditioning, stimulus competition, and generalization (Boddez et al., 2014; Emmelkamp & Ehring, 2014).

Cognitive theory has played an influential role in describing the etiology of anxiety and related disorders, proposing that a faulty appraisal of a situation creates an anxiety response. Several studies have shown higher levels of threat appraisal in people struggling with anxiety disorders that trigger maladaptive cognitive schemas and lead to inadequate coping mechanisms such as safety-seeking behaviours and avoidance of situations and people (Beck & Clark, 1997; Beck et al., 1985). More recently, information-processing bias toward threats is being studied as a promising line of intervention (Bar-Haim et al., 2007). For instance, Enock et al. (2014) used Cognitive Bias Modification (CBM) training in an innovative study that compared three groups in a randomized control trial using a double-blind design. They used a mobile application in a

smartphone specifically designed to modify attention and interpretation biases via repeated practice of cognitive tasks with the purpose of treating social anxiety. In the study, they compared a treatment group, a control (neutral) group, and a waitlist group. The study found that CMB reduced social anxiety significantly compared to the waitlist condition but found no difference between the treatment group and the control (neutral) training condition. The authors concluded that the active ingredient was not the contingency of probe placement, as the no-contingency program in the control group was as helpful as the one given to the treatment group. The common elements of the apps used warrant further investigation as they seem to help reduce anxiety, but not necessarily through reducing attention bias for threat.

Anxiety and Cognitive Behavioural Therapy

Different psychological interventions have been proven to be effective for the treatment of anxiety and depression (Arch et al., 2012; Bandelow & Michaelis, 2015; Cuijpers et al., 2013), with strong support for cognitive-behavioural therapy (CBT) (see Connolly & Bernstein, 2007; Hofmann et al., 2012; Kendall & Peterman, 2015). The roots of CBT are learning and cognitive theory, which means that one of the main foci of treatment are changing maladaptive learning and thought patterns. Treatment concentrates on intervening in the “here and now,” identifying and exploring factors that maintain symptoms and difficulties the individual is experiencing (Beck, 2011).

According to Reinecke and Freeman (2003), the following are the basic assumptions of Cognitive Behavioral Therapy: (a) the way individuals interpret events mediates how they feel and behave, (b) the interpretation of events is active and ongoing, (c) belief systems influence perception and memories and these guide emotions and behaviour, (d) maladaptive cognitive processing is the result of stressors and ineffective coping responses, and (e) the “cognitive

specificity hypothesis” states that clinical disorders can be distinguished by the specific content of the belief system and processes that are activated. These assumptions guide the conceptualization of the client’s problems and the therapeutic process.

Psychological disorders are formed and maintained by the combination of three variables: the cognitive triad, schemata, and cognitive distortions (Beck et al., 1979):

1. The cognitive triad describes the negative thoughts and dreams clients have about themselves, their world, and their future.
2. Schemata refers to organized, tacit cognitive structures made up of abstractions or general knowledge about the attributes of a stimulus and the relationships among these attributes. Beck (1979) stated “a schema constitutes the basis for screening out, differentiating, and coding stimuli that confront the individual” (p. 13). It also incorporates emotions or affective valences related to events. Schemata are established as individuals abstract similarities between events, and they are maintained, elaborated, and consolidated through processes of assimilation and accommodation to novel experiences. Schemata are developed over the course of an individual’s infancy and childhood and keep developing with feedback from the environment over the course of the person’s life.
3. Cognitive distortions arise from the limited ability people have to process information. According to Ellis (1962), some distortion of experience is necessary in order to make sense of the world. An individual’s perceptions, memories, and thoughts can become distorted in a variety of adaptive and maladaptive ways. Some examples are dichotomous thinking, mind reading, personalization, overgeneralization, catastrophizing, etc.

From this theoretical orientation, psychological distress is caused by the interaction of factors such as bio-chemical predisposition and learning history. Certain stressors activate

schemas, which in some cases are latent, resulting in maladaptive responses and psychological distress.

Kaczurkin and Foa (2015) identified essential CBT components in the treatment of anxiety disorders that included: (a) psychoeducation about the nature of anxiety, (b) relaxation techniques for managing somatic symptoms, (c) cognitive restructuring for the thoughts that provoke anxiety, (d) problem-solving skills for coping with stressors, (e) systematic exposure to fearful situations, and (f) desensitization to feared stimuli and (g) prevention of relapses. These components are part of most CBT treatment protocols (see, for example, Barlow, 2014; Simos & Hofmann, 2013). Because of their effectiveness and adaptability, several of these components have been included in mobile applications to reach populations that otherwise would not access services.

Computerized CBT (cCBT)

CBT has been proven to be amenable, versatile, and effective when it has been adapted to online formats and mobile applications, in part because of its emphasis on education and promotion of skills building (Kendall et al., 2011; Spence et al., 2011). Furthermore, individuals view internet-based treatment as an appealing option because it offers anonymity, privacy, and accessibility (Nicholas et al., 2015).

Due to the advantages that cCBT has to offer, some countries have endorsed and promoted its use. In 2008, the United Kingdom National Institute for Health and Clinical Excellence implemented a large-scale initiative called “The Improving Access of Psychological Therapies” (IAPT). This program includes the delivery of guided self-help and cCBT for adults struggling with mild to moderate depression and some anxiety disorders with relative success (Clark, 2011). Similarly, the Canadian Network for Mood and Anxiety Treatments recommends

cCBT as an alternative for service provision when traditional CBT treatment is not accessible (Milev et al., 2016). Kelty's Key, in collaboration with the Vancouver Coastal Health Authority, offers free cCBT courses to individuals struggling with anxiety, depression, chronic pain, and grief, among other conditions (see <https://www.keltyskey.com/self-help/>). This mode of service delivery can also help reduce waiting times and lower treatment costs. For many, it can be a first step into receiving support; for others it can be the only available option. To date, there is limited research on the effectiveness of this resource.

In a scoping review looking at interactive, computer-based programs used to treat depression, Renton and colleagues (2014) found 32 programs that met inclusion criteria. These programs included mood assessments and homework sheets such as activity planning and goal setting. Of the 32 programs, only 12 had published evidence in support of their efficacy in treatment of depressive symptoms. The authors concluded that future interactive computer programs would benefit from offering a greater selection of alternative languages, removing registration restrictions, offering free trial periods for programs requiring fees, and from being structured in a flexible and developmentally sensitive fashion. These recommendations can be also applicable to mobile applications, as they can potentially help overcome low treatment adherence rates.

Other studies examining cCBT have reported patient acceptability and outcomes superior to control conditions, and comparable to outpatient CBT (March et al., 2009; Spence et al., 2011; Khanna & Kendall, 2010). In a randomized clinical trial with 115 youth 12–18 years old, the authors compared a cCBT program (BRAVE-Online), in which the youth completed web-based modules from home and a remote therapist followed up with weekly e-mails and one telephone call throughout the program, with a group receiving in-person CBT, and a waitlist control

condition. Both active treatment conditions showed significantly greater reductions in anxiety compared with the waitlist control condition at post-treatment assessment. Improvements were maintained or further enhanced for both conditions, with minimal differences between them, at six and 12 month follow ups. The authors concluded that cCBT, with minimal therapist support, was equally as efficacious as clinic-based, face-to-face therapy in the treatment of anxiety disorders among this population (Spence et al., 2011). BRAVE-Online is the most researched cCBT program and features the strongest effectiveness to date (Reyes-Portillo et al., 2014).

In a systematic review and meta-analysis evaluating the effectiveness of cCBT for treating symptoms of anxiety and depression, Pennant et al. (2015) reviewed 27 studies and found that for individuals with risk of diagnosed anxiety disorders and/or depression, cCBT had positive effects in the reduction of symptoms, whereas with people identified as free from risk of being diagnosed with anxiety disorders or depression, there were smaller positive effects for anxiety and depression. These studies conclude that cCBT has potential for treating and preventing anxiety and depression in both clinical and general populations.

Similarly, Hollis et al. (2017) analyzed 12 meta-reviews focusing on anxiety and/or depression. Most of these studies compared modularized cCBT interventions with inactive (e.g., waitlist or no treatment) or/and with non-therapeutic controls (e.g., waitlist or placebo). Meta-analyses found support for the effectiveness of cCBT with small to moderate effects on depression outcomes, and moderate to large effects for cCBT targeting anxiety.

In summary, cCBT is considered a second line of treatment (Level 2), which means that they are recommended when first-line treatments (e.g., face-to-face therapy) have failed or are unavailable (Milev et al., 2016). Meta-analyses and reviews of computer-based psychological treatment for depression and anxiety have shown small to moderate effects for depression and

moderate to large effects for anxiety (Hollis et al., 2017). Computerized CBT has also been found to be helpful in relapse prevention for depression (Holländare et al., 2013), and when the cCBT treatment is mediated by a clinician, both adherence and efficacy are much more substantial (Cuijpers, 2015; Spence et al., 2011).

Prevention and Health Promotion

According to Lyneham and Rapee (2008), the distinction between prevention, early intervention, and treatment is blurred when the targeted disorders have an early age of onset, as in the case of anxiety disorders. Prevention is defined as “different types of interventions and actions aimed at alleviating all manners of distress, illness, dysfunction, and disease in both individuals and larger populations, as well as promoting health and optimum social functioning” (Silverman, 2014, p. 49).

In 1957, the Commission on Chronic Illness (COCI) presented a classification system differentiating between three different types of prevention categorized by the goals they sought to achieve (as cited in Ogden et al., 2019, p. 16):

- Primary prevention seeks to reduce the prevalence of a disorder by reducing the incidence or number of new cases that appear in a defined population.
- Secondary prevention seeks to reduce the duration of a disorder in individuals who have expressed signs and symptoms of that disorder.
- Tertiary prevention seeks to reduce the of episodes of the disorder.

Prevention is better understood as a spectrum of interventions that can move from primary to tertiary. An example of primary prevention programs is alcohol and drug use education programs. Secondary prevention programs usually involve early detection and

intervention with adolescents who are abusing drugs, and tertiary prevention programs are treatment services such as those for youth in criminal detention facilities.

This classification was very controversial, and in 1983 Gordon proposed a new system of classification using a risk-benefit perspective that differentiated between

- Universal prevention: this level of prevention is thought to be beneficial for the entire population in question (e.g., adolescents in general, the local community, schools) and seeks to prevent or delay the occurrence of a disorder or problem. All individuals, without screening, are provided with information and/or skills needed to prevent the problem.
- Selective prevention: this level of prevention is aimed at groups of individuals whose risk of developing a disorder or symptoms is above average. These subgroups of the population may be identified by exhibiting characteristics such as exposure to known contextual risk factors, family history, or economic status (for example, adolescent children of parents with mental health problems).
- Indicated prevention: this level of prevention involves a screening process, and targets individuals who exhibit early signs of a particular disorder or syndrome. Identifiers are often known risk factors for the illness in question exhibited by a teenager. For example, behaviourally inhibited youth are at risk for developing anxiety disorders. Likewise, falling grades and truancy are risk factors for juvenile delinquency (as cited in Ogden, et al., 2019, p. 16).

According to the Encyclopaedia of Primary Prevention and Health Promotion the definition of primary prevention is:

The promotion of health and the prevention of illness that involves actions that help participants (or to facilitate participants helping themselves) to: (1) prevent predictable and interrelated problems, (2) protect existing states of health and healthy functioning, and (3) promote psychosocial wellness for identified populations of people. These consist of (a) whole populations in which everyone requires certain basic utilities of life; (b) selected groups of people at risk or with potential; and (c) indicated subgroups at very high risk. Primary prevention may be facilitated by increasing individual, group, organizational, societal, cultural, and physical environmental strengths and resources, while simultaneously reducing the limitations and pressures from these same factors. (Gullota & Bloom, 2014, p. 51)

Cowen (1983) contended that primary prevention in mental health comprises both the prevention of psychological and emotional disorders and dysfunctions as well as the promotion of mental health and mental well-being. Silverman (2014) suggested that in order to evaluate models of prevention, one must look to see whether the models focus on disease prevention, health protection (maintenance), health promotion, or all three. In addition, the author claimed that it is important to determine to what extent these models may be overlapping, mutually exclusive, enhancing, additive, or complementary to others. The next sections will discuss how telehealth, and more specifically mobile applications, are being used to deliver mental health services in the areas of prevention and treatment.

Telehealth and mHealth

There are common terms and abbreviations used to describe different forms of digital remote healthcare. According to Health Resources and Services Administration (2018), telehealth is defined as the use of electronic information and telecommunications technologies to

support and promote long-distance clinical health care, patient and professional health-related education, public health, and health administration. It can be synchronous (e.g., real time video-conferencing) or asynchronous (e.g. email or SMS). On the other hand, mHealth is defined as a branch of Telehealth that focuses on delivering information, interventions, and monitoring through portable and electronic mobile devices and technologies such as smartphones, tablets, and wearable devices that offer appealing, cost-effective and accessible services to individuals (Donker et al., 2013; Luxton et al., 2011). Mobile apps fall within this category, therefore this study will contribute to the area of mHealth.

The rapid growth of technology and the accelerated use of smart phones encouraged developers, academics, and researchers to use apps as a way to increase access to evidence-based mental health. It is estimated that the first mental health apps were available in 2011 (Anthes, 2016). Apps vary in function and focus on different processes such as symptom assessment, psychoeducation, coping skills, or self-monitoring symptoms or mood (Luxton et al., 2011). According to Barrio and colleagues (2017), apps allow users to practice self-management skills in areas such as weight management and exercise, stress regulation, and symptom management, through common therapeutic exercises such as diaphragmatic breathing, meditation, muscle relaxation, mindfulness, and behavioural activation. In a report published in 2016, the National Institute of Mental Health (NIMH) highlighted trends in the development of apps for skills training (e.g., cognitive remediation, focus, attention, coping), illness management and supported care (e.g., provider-patient data exchange, monitoring, education, peer support), passive symptom tracking (e.g., movement patterns, social interactions, vital signs), and for data collection, including data accrual from self-assessments via apps.

Furthermore, in 2020 NIMH identified several potential advantages for using mental health mobile applications that included: (a) convenience—apps can be used anytime and anywhere and may be ideal for those who have trouble with in-person appointments, (b) anonymity—clients can seek treatment without involving other people and reducing the barrier of stigma, (c) introduction to care—technology may be a good first step for those who have avoided mental health care in the past, (d) lower cost—some apps are free or cost less than traditional care, (e) reaching more people—technology can help mental health providers offer treatment to people in remote areas or to many people in times of sudden need (e.g., after a natural disaster), (f) interest—some technologies might be more appealing than traditional treatment methods, (g) round the clock access, (h) consistency—technology can offer the same treatment program to all users, (i) support—technology can complement traditional therapy by extending an in-person session, reinforcing new skills, and providing support and monitoring, and (j) objective data collection—technology can quantitatively collect information such as location, movement, phone use, and other information (see <https://www.nimh.nih.gov/health/topics/technology-and-the-future-of-mental-health-treatment/index.shtml>).

For all the previous reasons global and international organizations, such as the World Health Organization (WHO), are seeking to generate initiatives for the integration of mHealth into mental health services, including services for children and adolescents (East & Havard, 2015). However, there are significant challenges that need to be considered. Luxton et al. (2011) pointed out that the use of apps poses risks involving privacy and confidentiality. Data gathered from apps can be accessed by unauthorized individuals through digital theft or physical loss of the phone. Apps also may have inadequate data protection (i.e., lack of encryption) or may not

fully inform users as to what information is automatically gathered and returned to software developers (Prentice & Dobson, 2014). In addition, the development and dissemination of mental health apps continues to proliferate and outpace both research and regulatory policies. To illustrate that point, in 2012 MobiHealthNews reported over 700 mental health apps available to download, and only four years later, in 2016, more than 4,000 mental health apps were available to download (Anthes, 2016).

Another identified challenge is that mobile apps seem to have low retention rates. Owen et al. (2015) conducted a study analyzing objective data use for PTSD Coach and found that although participants provided positive usability feedback and reported a positive impact on the distress caused by PTSD symptoms, only 80% of first-time users reached the home screen and only 37% progressed to one of the primary content areas.

The NIMH suggested that mobile apps for mental health pose the risk of overselling. In other words, apps may promise more than they deliver, possibly discouraging consumers from seeking more effective therapies. In addition, “there is insufficient empirical support for any 1 particular app to be considered evidence-based” (Lui et al., 2017, p. 1). The research conducted so far has not shed light on the mechanisms of change (mediators) and the conditions under which and for whom interventions using apps may work well or not (moderators). Reviews of previous research have highlighted the disappointingly poor quality of RCTs conducted to date (Hollis et al., 2017), and suggest that results and conclusions from these studies need to be interpreted cautiously (Grist et al., 2017). For example, most of the studies published to date can be categorized as pilot studies due to their small sample sizes, which can impact the generalizability of the conclusions made (Pramana et al., 2014; Rizvi et al., 2016; Watts, 2013). Additionally, some studies conducted treatment interventions and collected data over a very

short period of time, sometimes over a week or two, and they did not include follow up protocols, which can compromise the validity of the results obtained (Carrà et al., 2016; Kenny et al., 2015).

Another concern is the fact that many apps are marketed as mental health apps without focusing on a specific diagnostic category or issue, which makes it difficult for individuals and researchers to understand how an app may be best for a particular population and disorder and what outcome measures to use when conducting a study (Boydell et al., 2014). This could potentially explain why some studies found no difference in treatment effect between participants using mental health apps and the control groups.

Schueller et al. (2013) explained why conducting good quality RCTs is challenging in mHealth. RCTs usually take 5–7 years from initiation to reporting and this time frame is too slow to keep pace with the growth of mobile technology. Given the continuing process of improvement and iterations in digital technology platforms and interfaces, it is likely that an app may be obsolete by the time an RCT is completed. Hollis et al. (2017) proposed applying the concept of “substantial equivalence” as used for medical devices and pharmaceutical regulation by the US Food and Drug Administration and other regulatory bodies. Essentially if a pivotal/clinical trial exists, the mobile app could meet criteria for “substantial equivalence” and would not require further RCT evidence. For example, if a previous RCT demonstrated the effectiveness of a cCBT program for anxiety in children and youth, then each subsequent version/iteration of this cCBT program for anxiety would not be required to demonstrate further RCT efficacy and safety evidence but rather substantial equivalence to existing interventions (FDA U.S. Food & Drug Administration, 2014). Once substantial equivalence was established,

then the relevant data to collect would focus on usage, adherence, demographic access parameters, and user preferences (Murray et al., 2016).

As a result of the lack of good quality research, users struggle to make informed decisions about which mobile app to use given the overwhelming number of options. A review of 52 apps aiming to support people struggling with anxiety identified that the great majority of these apps were not grounded in any particular psychological theory or therapeutic approach, and only two of the 52 apps provided information about the evidence supporting its effectiveness (Sucala et al., 2017). This study is grounded in cognitive behavioural theory.

In summary, mobile apps seem to be a promising method of delivering evidence-based support to users. Apps are easily accessible and convenient, many of them are free or available at low cost, and they may include tools to self-monitor and track symptoms. However, most apps available on the market lack research support, are not grounded in theory, have low retention rates, and are produced at a pace that is overwhelming and confusing for users. It is necessary to develop clear guidelines to regulate the dissemination of mobile apps in order to orient the public and prevent potential adverse consequences.

Review of the Current Research on Mental Health Apps

To date some studies have shown promising results for mental health apps developed following the structure of evidence-based approaches in reducing depressive symptoms, stress, anxiety, and substance use (Donker et al., 2013). One of the mobile apps with the most research evidence is PTSD Coach. In 2011, the U.S. Department of Veterans Affairs and U.S. Department of Defense released PTSD coach, a free mobile app designed to help individuals struggling with trauma and PTSD manifestations to better comprehend and manage their symptoms (Kuhn et al., 2014). PTSD Coach was developed following evidence-based assessment, psycho-educational,

and cognitive-behavioural strategies. PTSD Coach has attracted a large user base, over 130,000 downloads in 78 countries, and has received very favourable user reviews.

Kuhn et al. (2014) conducted a study to evaluate PTSD Coach by examining user satisfaction, perceived helpfulness, and usage patterns in a sample of 45 veterans receiving PTSD treatment. Results showed that participants were very satisfied with the application, and perceived PTSD Coach as being moderately to very helpful with regard to PTSD symptoms. In 2016, Possenato et al. evaluated the feasibility and potential effectiveness of the use of the app in two types of primary care: self-managed and clinician-supported app usage (n = 20 veterans with PTSD). Results indicated procedures and intervention conditions appeared feasible given high rates of assessment and intervention retention, and high clinician fidelity and satisfaction (Possenato, 2016). Both conditions yielded a decrease in PTSD symptoms, with the clinician supported condition reporting a greater change, increased rates of post-intervention service access, and a greater decrease in PTSD symptoms.

Miner et al. (2016) conducted a pilot feasibility, acceptability, and potential efficacy trial of PTSD Coach with a community sample of trauma survivors (n = 49). Participants were randomized to one month using PTSD Coach or a waitlist condition, data was collected pre-post and one month follow up. Results indicate that participants used the app several times a day in a variety of contexts, with few barriers to use. Participants also reported that PTSD Coach components were moderately helpful and that they had learned tools and skills from the app to manage their symptoms. Between conditions effect size estimates were modest ($d = -0.25$ to -0.33) for PTSD symptom improvement, but not statistically significant.

Kuhn et al., (2017) conducted an RCT randomly assigning 120 participants into treatment and control groups. The sample included people who had recently experienced a traumatic event,

who were over the age of 18, and who scored 25 or greater on the Total PTSD Checklist score (see Weathers et al., 2013). Participants were assessed at baseline and three months for PTSD symptom coping. Results indicate that the group using the PTSD Coach app was better able to manage their symptoms at three months than the waitlist control group. The authors also found that PTSD symptoms themselves were not reported as being less severe (assessed using PCL-C), indicating that it was coping that had increased with app usage.

In a different study Owen et al. (2015) analyzed objective use data for PTSD Coach and found that although participants (n=156) provided positive usability feedback and reported a positive impact on the distress caused by PTSD symptoms, only 80% of first-time users reached the home screen and only 37% progressed to one of the primary content areas. This finding illustrates well one of the main barriers in the use of mobile apps: the low retention rate they have among users. A study conducted among mobile app users (n=176) found that that 10.5% of mental health apps were used multiple times per day, 29.5% were used once per day, 21.1% were used several times per week, and 38.9% were used less than once per week (Rubanovich et al., 2017). Mental health app users in this same study identified that the main purpose for using these apps were training or habit building (57/95, 60.0%) followed by tracking mood (11/95, 11.6%).

In a systematic review, Grist et al. (2017) identified studies on mental health apps designed for users younger than 18 years that would target depression, bipolar disorder, anxiety disorders, self-harm, suicide prevention, conduct disorder, eating disorders and body image issues, schizophrenia, psychosis, and insomnia. The authors found 24 publications that described 15 apps, two of which were available to download. Their findings demonstrated that there is insufficient research evidence to support the effectiveness of apps for children, preadolescents, and adolescents with mental health problems.

Rizvi and colleagues (2011) conducted a pilot study seeking to determine the impact of the Dialectical Behavior Therapy (DBT) Coach app for borderline personality disorder and substance use disorder. Participants (n=22) were also enrolled in a DBT treatment program and were given a smartphone with the DBT Coach app to try for 10 to 14 days with the instruction to use the app as needed. The DBT Coach app asked participants to rate their daily emotional intensity and urges to use substances on a 0–10 scale and coached them to make choices in the opposite action, a DBT technique. Results indicated that the use of the app was associated with reductions in emotional intensity and urge to use substances. However, this study did not include a control group and it is not possible to determine if the results are attributed to the DBT program, the app, or a combination of the two.

More recently, Moberg et al. (2019) conducted an all-virtual randomized control trial with 500 adults with mild-to-moderate anxiety or depression to evaluate the effectiveness of a popular commercially available self-help app called Pacifica (now known as Sanvello). Pacifica is an app grounded in CBT and mindfulness. The authors used a web-based portal to recruit, screen, and randomize participants. They gave instructions to participants to use the app for one month, with no level of use required, in an effort to replicate real-world app usage. Participants in the waitlist group were given access to the app after one month. Measurements included self-reported symptoms of stress, anxiety, depression, and self-efficacy. Results found that participants in the active condition had greater decreases in depression, anxiety, and stress, and increases in self-efficacy. There was no relationship between overall engagement with the app and symptom improvement, although participants who completed more thought record exercises sustained improvements in their symptoms through the two-month follow-up to a greater degree than those who completed fewer. In addition, the authors found that participants who were taking

psychiatric medications during the trial did not show significant reductions of their symptoms of anxiety and stress. Limitations of this study include using a convenience sample: the sample was homogeneous, formed by mostly college-educated white females, and there was minimal information about participants' use of medications. The study did not have access to types of medications, dosage, or any change to medication across the course of the study. In addition, the authors stated conflicts of interest: two of them received salaries from the company which developed the app, and one of them was the cofounder and CEO of Pacifica Labs Inc., owning a large share of the company's stock.

There is also a need to conduct more qualitative studies in the area to gain a deeper understanding of the experience users have of mobile applications, more specifically to determine what aspects of apps can promote engagement and symptom reduction (Firth et al., 2017; Menon et al., 2017). For example, Kenny et al. (2016) conducted a qualitative study using a thematic analysis method to explore adolescents' perspectives on mental health mobile apps (n=34, 60% male). The researchers conducted five focus groups and found the following important factors: (a) safety, (b) engagement, (c) functionality, (d) social interaction, (e) awareness, (f) accessibility, (g) gender, and (h) young people having control as important factors.

In relation to safety, participants expressed interest in confidentiality (e.g., giving users the choice of whether to share their information or keep it private/anonymous), and indicated that password protected apps were more appealing. In terms of engagement, participants stated that the information presented in the app "should be concise and to the point" (p. 270). They also reported that an attractive interface that included pictures, music, or games was more appealing. The ability to personalize it and set reminders to use the app during the day was another point of interest. In regards to functionality, participants ascertained that apps which offered useful and

relevant mental health support in the form of advice and resources, or the ability to connect with professional help, were preferred. Moreover, adolescents emphasized that apps that facilitated social interaction were more interesting. Connection and the ability to share and relate to other people's experience in an anonymous way was also valued. Participants reported that promoting awareness by talking to their peers or hearing from their peers about helpful apps or promoting them through social media would increase their usage and social acceptability. In terms of accessibility, participants reported that it was important that apps were easy to use and free of cost. In regard to gender, there were conflicting views. Some participants stated that males would be less likely to use apps, whereas others suggested that app usage would not be based on gender, but rather personality traits. The last factor was "young people in control" and made reference to participants having the choice of which apps to use and how to use them, as opposed to feeling "forced" to use them. Understanding end users' needs and concerns in relation to this topic will inform the future development of mental health apps that are acceptable to users (Kenny et al., 2016).

Integration of Apps to Therapy

The inclusion and integration of mobile apps as tools in psychological treatments is an area of growing interest in mHealth (Firth et al., 2017; Hollis et al., 2017; Sucala et al., 2017) and the main focus of this study. Lui et al. (2017) have suggested that apps can potentially increase psychological treatment adherence by supporting clients with homework between sessions and offering personalized reminders to monitor their progress or use coping skills in real time. The possibility of doing printouts from the apps (e.g., mood diary from the week or behavioural activation practice record) to inform in-person therapy sessions is valued and

preferred to paper and pencil recordings. These aspects are particularly helpful for therapeutic approaches such as CBT, DBT, and Acceptance Commitment Therapy (ACT) among others.

Newman and colleagues (2014) found that the addition of an app intervention to six sessions of group CBT was associated with significantly greater reduction in anxiety symptoms relative to a six-session standalone group therapy, as well as comparable results to 12 sessions of standalone group therapy at post-treatment with 34 participants who were randomized into three different conditions. These results point to the fact that treatment programs that include a combination of human interaction and apps may achieve greater engagement and treatment adherence and improved retention in intervention trials. The field of mHealth is slowly moving in that direction. For instance, Possemato et al. (2017) developed and refined an intervention that includes the provision of clinician support to support users of PTSD Coach app in primary care. The idea of integrating mobile apps into the context of a therapeutic process is more realistic and promising than thinking about apps as replacing clinician-administered therapy.

Researchers in the field of mHealth (Berry & Lai, 2014; March et al., 2014) agree that the decision about which apps to use or recommend to clients should occur on a case-by-case basis, taking into consideration: (a) the purpose of the app (prevention, early intervention, or treatment), (b) the degree of therapists' involvement, (c) the type of technology required, (d) its effectiveness, (e) the individual's level of comfort and ease with technology, and (f) safety and security issues.

Clinicians' Adoption of Telehealth and mHealth

Elliott (2020) identified that psychotherapists represented the most substantial barriers to the adoption of telehealth, in spite of evidence suggesting that telehealth is no less effective than in-person treatment for the majority of presenting concerns (Varker et al., 2019), and that it can

be a useful extension to in-person services (Heesacker et al., 2020). Elliot suggested that “relevant research and work to date has remained on the fringe of mainstream clinical and counseling psychology” (p. 923) in spite of being available for over two decades. The author also reported that clinicians may feel unclear about potential legal issues, they lack training in telehealth, they may experience problems with internet infrastructure, and they may have limited reimbursement for services, all of which have impacted this low adoption. However, since the Covid-19 pandemic started practitioners in the field of psychology quickly shifted to telehealth and have addressed several of the barriers.

In terms of mHealth, clinicians seem to be aware of the benefits of apps in terms of personal use, such as accessibility, convenience, and anonymity. Research findings suggest that the adoption of apps by clients greatly improves when it is recommended or “prescribed” by clinicians or mental health providers (Schueller et al., 2016). Literature concerning the perception, adoption, and implementation of mobile apps in clinical practice is limited, and the extent to which therapists use mobile apps in their clinical practice remains largely unknown (Hempel et al., 2018).

A study conducted in 2016 explored mental health providers’ attitudes and interests in using technology in clinical treatment using a mixed-methods approach in diverse populations (Schueller et al., 2016). Researchers concluded that although providers reported a high level of interest in using websites and mobile apps to support mental health treatment, very few are doing so. Additionally, providers are unwilling to endorse technology-based resources unless the value added to clinical practice is clear. Previous studies assessing the diffusion of technology in mental health care settings have suggested that factors such as age influence technology usage. For example, a survey of clinician characteristics and perceptions of PE Coach, a mobile app for

prolonged exposure (PE) therapy for post-traumatic stress disorder (PTSD), found perceived ease of use and younger age significantly predicted self-reported use of the app (Kuhn et al., 2015).

Miller et al. (2017) conducted a study exploring clinicians' perceptions of the CBT-I Coach app. They found that the most frequently cited reasons for not using the app were (a) clinicians working with patients without smart phones, (b) not being aware of or forgetting about the app, and (c) not having time to orient to or learn about the app. Three important recommendations from this study are that it is best when apps (a) are relatively low in complexity, (b) are compatible with the therapist's practice style, and (c) offer the possibility of sharing information with their therapist. A limitation of this study is that findings are based on clinician self-report and not objective measures of their use in their practice; therefore, the actual rate of app use and how much of the app features the clinicians used are unknown.

Mental health providers are key stakeholders because they are gatekeepers to clinical knowledge, whom clients rely on for opinions about clinical resources (East & Havard, 2015). Clinicians' perceptions of mobile apps are critical to their adoption and integration into practice (Miller et al., 2017). It is the purpose of the current study to provide insight into which factors help and hinder clinicians' decisions to integrate mobile apps into their work with clients, and how they do it. Gaining a greater understanding of how these processes take place is imperative to facilitate the effective adoption of tools such as mobile apps as part of therapy, when appropriate, given all the advantages they seem to have.

Summary

The Canadian mental health system is fragmented and underfunded (Standing Senate Committee on Social Affairs, Science and Technology, 2006). As a result, it is estimated that the cost to the economy is over 50 billion dollars including health care costs, lost productivity, and

reductions in health-related quality of life (RiskAnalytica & desLibris, 2011). Some barriers experienced by people in need of mental health support are insufficient access and delivery of services, underdetection of mental health conditions, and social stigma (Smith & Applegate, 2018).

Anxiety disorders are the most common form of mental health condition among the general population, with a lifetime prevalence of 31.9% (Merikangas, 2010). Early onset anxiety disorders are powerful predictors of subsequent onset and persistence of other mental and substance use disorders (Kessler et al., 2010). A re-examination of existing approaches to, and consideration of, additional strategies to reduce the burden of mental health conditions among Canadians is needed (Mental Health Commission of Canada, 2017). In the last fifteen years, telehealth has become more popular for delivering mental health services at a global level (Lingely-Pottie & McGrath, 2006; Reed et al., 2000). The rapid growth in the use of mobile phones has allowed mobile applications to be used as another medium to deliver mental health care, especially for prevention and early intervention practices (Sucala et al., 2017). The main advantages of using mobile apps are low cost, convenience, simplicity, and anonymity. The disadvantages are low retention rate, lack of personalization, lack of data protection, lack of evidence of their effectiveness to date, and the disparity in pace between app development/commercialization and research studies.

Research results indicate that mobile apps are more effective when they are integrated into or blended with either prevention or educational or therapeutic programs as tools to support users to track their experience, to increase their awareness, and to practice coping strategies to regulate their distress, instead of seeing apps as standalone interventions that may “replace” face-to-face therapy (see Firth et al., 2017; Hollis et al., 2017; Lui et al., 2017, Sucala et al., 2017).

However, it is not clear which factors help and hinder the decisions of therapists to integrate mobile apps into their work with clients and how to successfully integrate them to possibly enhance the therapeutic process. There is currently no research on the topic of what helps or hinders decisions to use mobile apps as a therapeutic tool. The purpose of the current study was to understand the decision-making process of psychotherapists using apps in clinical practice.

Chapter 3: Methodology

In this chapter the history, nature, and evolution of the Enhanced Critical Incident Technique (ECIT) will be described. Additionally, participant recruitment methods, data collection and analysis, and credibility and trustworthiness reliability procedures will be described. In this methodology, as in other qualitative studies, the researcher is considered an integral part, therefore, this chapter will include information to “situate” the researcher within the research.

Rationale for Using ECIT

In the current study, the purpose was to understand the factors that help and hinder the decisions of clinicians to integrate mobile applications into the work they do with clients struggling with anxiety. The ECIT method allowed this researcher to inquire about what aspects of the therapeutic relationship or presenting problem made the use of apps helpful. This method provided understanding about which client characteristics facilitated or hindered the decision to use apps, and identified factors that clinicians wished were present or available to them to make this decision in their clinical practice, also referred to as wish list items (WL). Participants in this study were considered experts in their experience and their insights helped this researcher describe which factors were useful, which were not useful, and which they wished they had had available in deciding whether to integrate mobile applications into their work with clients.

ECIT is a method that can help discern important and necessary contributions to the current gap in the literature. According to this researcher’s knowledge, there are no studies addressing this problem. Additionally, this method allowed for deeper insight into the clinician’s experience using apps in therapy. Understanding their experiences can help mental health

professionals guide their decisions and be more successful integrating mHealth into their work with clients.

The first step in ECIT is to establish a clear and defined research aim. In the current study, the focus was identifying what helps and hinders the decisions of clinicians integrating mobile apps into the work they do with clients who struggle with anxiety. The aim was to understand what these factors were in the therapeutic process and which characteristics of the client, the presenting concern, and the scope of the work informed that decision.

History of the Critical Incident Technique

The Critical Incident Technique (CIT) appeared in the 1940s when behaviourism was one of the predominant influences in western psychological theories. The focus was on observable behaviour that could be categorized in order to predict human behaviour. During the Second World War, John C. Flanagan and a team of psychologists with the Aviation Psychology Program of the US Army Air Forces were tasked with developing an approach that would aid in selecting and classifying aircrews (Flanagan, 1954). It was in this context that James Flanagan developed the Critical Incident Technique (CIT). There was a pressing need to understand why some airmen were unable to learn to fly. Flanagan attempted to gather general and specific behavioural information from these men to explain their challenges. He also conducted a similar study with men who failed bombing missions.

Flanagan's seminal work on the CIT was published in the *Psychological Bulletin* (1954). This technique was later used to perform job and task analysis in an effort to gather information on critical requirements for different jobs. CIT was also used to develop performance indicators for pilots in the US Air Force and in commercial airlines. CIT became recognized as a reliable and valid method for collecting and analyzing data on specific behaviours and constructs, and it

continues to be a research method used for research on a variety of topics (Anderson & Nilsson, 1964; Butterfield et al., 2005). CIT is considered appropriate for the field of Counselling Psychology due to its ability to explore and provide insight into psychological processes and to provide a foundational ground for interventions and theories to emerge (Butterfield et al., 2009; Woosley, 1986). CIT is recommended and applicable for answering research questions that aim to learn about little understood events, and it seeks to identify factors or critical incidents (CI) “that help promote or detract from effective performance of some activity or the experience of a situation” (Butterfield et al., 2005, p. 483).

What is the ECIT?

The ECIT is an extension of Flanagan’s (1954) ECIT is a widely used qualitative research method that has expanded beyond organizational and industrial psychology. Butterfield and colleagues (2005) have described the evolution from CIT to ECIT. The authors have identified four main departures from CIT. The first one relates to the unit of analysis. It expanded from targeting only observable behaviours to include internal experiences, making it more applicable to other psychological constructs, and more useful for exploration of a phenomenon and theory building.

The second departure identified by Butterfield et al. (2005) is the use of retrospective self-reporting as opposed to direct observation of behaviour. The third change is both to use more detailed procedures for analyzing data, and to highlight the importance of trustworthiness and consistency through the addition of nine credibility checks. These credibility checks are discussed in detail later in this chapter.

Butterfield et al. (2009) described other contributions of ECIT such as the inclusion of contextual questions that are asked at the beginning of the interview, prior to the CIT questions.

These contextual questions help participants position themselves in the topic of the interview and help them feel more at ease with the interview. Additionally, ECIT includes questions related to what participants believed would have been desirable or beneficial with regards to the aim of the activity being studied. The findings from those questions constitute the wish list items (WL) and they are helpful to understand the subjective perspective of the participants in terms of what they expected would have made the activity or situation better.

Besides the two additions to the CIT method, Butterfield et al. (2009) provided a sample interview guide. This is particularly helpful when multiple interviewers are conducting the data collection to ensure some consistency. In addition, the authors provide a sample table that lays out a systematic procedure to track the emergence of new categories and to determine when exhaustiveness occurs (data collection is complete).

Butterfield et al., (2009) have suggested that the interview process should not stop after exhaustiveness has been achieved. Any additional data that is obtained when a larger sample size is available can be used for making conclusions with greater confidence. ECIT's flexibility allows researchers to study a wide range of aspects of experience that includes performance of activities, exploring the helping and hindering factors of choices, producing functional or behavioural descriptions of problems or events, examining successes and failures, or establishing characteristics that are important aspects of an activity or event (Butterfield et al., 2005). ECIT is recognized as an exploratory tool that is effective when the researcher is seeking to understand under-researched problems and it has been applied and proven useful in the field of Counselling Psychology (Woolsey, 1986). ECIT is now utilized by researchers in a wide range of fields including nursing and counselling psychology (for a comprehensive accounting see Butterfield et al., 2005).

Philosophical Underpinnings of ECIT

Originally, the CIT was intended to collect only direct, observable behaviour that met specific criteria. The researcher needed to collect data that was observable, such as behaviours and actions that would be categorized as “incidents.” The purpose and action had to be clear enough to understand and predict the outcome; these would make the incident be considered “critical” (Butterfield et al., 2005). It can be stated that CIT was situated within a positivist philosophical paradigm of science, which considers that “there is an objective world with a single fixed, independently knowable, and measurable reality” (McDaniel et al., 2020, p. 741).

Today, ECIT has moved away from direct observation and has been enhanced to include retrospective self-reports from participants exploring what helped and hindered their choices in a particular experience or activity (Butterfield et al., 2005). This shift allows ECIT to be situated within a post-positivist philosophy of science, which is based on the ontological assumption that reality exists separate from the perceiver and that the development of knowledge is imperfect in the sense that it recognizes that the researcher’s subjectivity can influence what is observed (Haverkamp & Young, 2007). The researcher is expected to assume a detached, observer role to categorize and understand the information gathered, recognizing the effects of biases and acknowledging that complete objectivity is not achievable or possible. With regard to epistemology, personal factors that affect the interaction between the participant and the researcher are considered a potential source of subjectivity and bias in how knowledge is acquired. Therefore, objectivity is sought through conducting data collection procedures and analyses in a rigorous manner to match the post-positivist paradigm.

Role of the Researcher

I have worked as a registered clinical counsellor for more than 15 years, supporting children and adolescents. Over the years, I have witnessed not only exponential growth in the usage of mobile phones by adolescents and children, but also the central role phones play in their lives in terms of connecting with others and participating in what is happening in their world. I have tried to incorporate mobile applications into the work I do with clients and I have felt like I have been missing something. Even though I was familiar with the apps, I struggled to integrate them into the work I was doing with clients successfully, and often it left me feeling as if the client and I were missing out on the possibility of using helpful tools. When I started reading the literature on mHealth I was surprised to learn that there were no articles that looked at how to integrate apps into therapy successfully. Most of the research, which is still scarce, looks at the effectiveness of apps. This experience has motivated me to try to investigate the factors at play in the decision-making process of therapists and to find out whether and how they integrate apps into the work they do with clients.

Participant Selection and Recruitment

After receiving approval from the University of British Columbia's Research Ethics Board, the recruitment poster was advertised (see Appendix A) in the B.C. Counselling Association (BCCA) newsletter, on the Canadian Psychological Association (CPA) website, and in the College of Psychologists of British Columbia (CPBC) newsletter. The flyers specified that participants should identify as currently practicing mental health professionals who used mobile applications in their work with clients struggling with anxiety. Prospective participants also received information on the study's significance, purpose, methods, time commitment, potential outcomes, and participant criteria. The contact information for the researcher was available to

allow participants to contact them directly. All participants were given consent forms and a demographic questionnaire (see Appendices B and C) to review prior to the screening interview.

Participants

A total of fifteen participants were selected to take part in this study. In ECIT, the sample size is not dependent on the number of participants but on the number of critical incidents (Butterfield et al., 2005; Woolsey, 1986). Data collection stops when exhaustiveness has been reached within the categories of critical incidents. In this study, exhaustiveness was reached at nine interviews.

This researcher interviewed 15 practicing psychotherapists: seven of them were registered psychologists (professionals with PhD-level education and members of their provincial College of Psychologists), and eight were registered clinical counsellors (professionals with a master's-level education and members of the Association of Clinical Counsellors). Fourteen participants were female, and one was a male. Two participants practiced in Canadian provinces other than British Columbia, and all of them were actively seeing clients. Eight participants worked in private practice, three of them for non-profit agencies, two in hospital settings, one in a public high school, and one in a higher educational institution. The average age of participants was 42 and the average number of years of experience working as a psychotherapist was 14, with a range of 3 to 45 years. All participants reported having used apps in the work they did with clients in the previous year, from one time to over a hundred times. The psychological theoretical orientation of participants was Cognitive Behavioural Therapy (9), Dialectical Behaviour Therapy (2), Eclectic Approach (2), Solution Focused Therapy (1), and Emotion Focused Therapy (1).

Inclusion and Exclusion Criteria

At the time of data collection, selected participants were practicing as psychologists, counsellors, and/or social workers, and seeing clients who struggle with anxiety. Participants were required to have used mobile applications as tools in their work with clients during the last year, and they needed to speak and read English fluently and be willing to talk about the factors that influenced their decision to integrate mobile applications into their work with clients in a confidential interview. All participants met the inclusion criteria

Data Collection Procedures

In ECIT, the researcher is considered a key instrument in data collection and data analysis. Before the first interviews with participants, an interview guide or protocol was created to ensure consistency. In the current study, interview questions were formulated to elicit information regarding the decision process clinicians go through when they work with clients in regard to the integration of mobile applications. The protocol also included questions that were designed to discern information regarding the critical incidents and how they were important for the participants (see Appendix D). Data collection was done through a semi-structured interview that took place with each participant, nine of them were conducted by phone and six were conducted in person. The interviews were conducted in English. Consent forms were read and explained to participants before the start of the interview and participants were reminded that they could withdraw their consent at any time and their confidentiality would be upheld, regardless of withdrawal. Participants were reminded of the limits of confidentiality, as per the Canadian Counselling and Psychotherapy Code of Ethics (2020).

Next, participants were re-informed about the purpose of the study and the protocols associated with it. All interviews were audio recorded and then transcribed verbatim. According to Butterfield et al., (2009) it is important to build rapport by eliciting background information in

an empathetic and validating manner, since this can potentially yield richer data. In addition, this provides the researcher with context and demographic information to better situate the data. This also served as another way to ensure that participants did meet the criteria for the study.

Participants were asked about their experience using apps in their personal life and in their work with clients. This helped establish a safe space for participants to share their stories. Follow-up questions were asked to probe and to clarify statements. Amundson and colleagues (2014) recommend that the researcher spend time at the end of the interview summarizing critical incidents (CI) and wish list items (WL) in an effort to ensure internal credibility and verify that there is agreement in the content of the interview between participants and the researcher. After each interview, each participant was contacted by email with the list of critical incidents (CI) and wish list items (WL) items as a cross-checking step.

Data Analysis Procedures

Data was analyzed by forming categories that emerged from collected information. Once the domain of inquiry was clarified, the researcher engaged in the following five steps that have been adapted from Flanagan's original method:

1. *General aim*: It is essential that the researcher has a clear objective in the study.

Important questions are: What is the aim of this study? What is the person who engages in the activity expected to accomplish? (Butterfield et al., 2005). The answers to these questions serve as a guide for the researcher in determining the specific information that is collected and analyzed. Creating a brief statement that captures the general aim will help ensure the delivery of consistent information to all participants, and this was captured in the interview guide (see Appendix D). The present study sought to explore

what helps and hinders clinicians in integrating mental health mobile applications in their work with clients who are struggling with anxiety.

2. *Plans and specifications*: In this step, the researcher defines the type of situations to be observed and their relevance to the general aim, identifying the effect incidents have on the general aim, and deciding who will make the observations. This step involved the creation of an interview guide and a set of protocols for the interviewer to follow to ensure accuracy and consistency (see Appendix D).
3. *Collecting the data*: Data can be collected in four different ways, including individual interviews, group interviews, questionnaires mailed out to participants, and a review of records (Flanagan, 1954). It is important to conduct a screening interview to determine if the person interested in the study meets the inclusion criteria. Individual interviews constituted the main source of data collection in the present study. Informed consent was obtained prior to interviews, and participants were given time to ask questions about the study. The first interview is considered to be the most important because it invites participants to tell their story and it fosters connection with the researcher by creating a space where participants feel heard and understood. Contextual questions were used in the interview to obtain background information and therefore allow the data to be situated in a particular context. In addition, contextual questions assisted with participants' accurate recall of incidents, and in building the rapport necessary for in-depth participant disclosure (Butterfield et al., 2009). It is important not to rush the interview, to cover all the points from the interview guide, and to ask clarifying or follow-up questions as needed.

4. *Analyzing the data*: This three-step process allows the researcher to organize the data, to extract ` items, and to create categories to describe them. Wish list items are defined as people, supports, information, programs, etc., that were not present at the time of the participant's experience, but that they wished had been available to them in the situation being studied (Butterfield et al., 2009).

The three steps in analyzing the data included:

- Frame of reference: Classification of incidents following the study's main objective. All incidents were reviewed and those that met criteria for a CI were included in the results.
 - Category formation: It is an inductive process that starts with the first three interviews. The researcher sorted through CIs and placed them into tentative categories. A description of each category was created and all subsequent incidents were later placed into these tentative categories. In the process, new categories were defined and developed. At the end of this inductive process, larger categories were divided into subcategories.
 - Determining the level of specificity or generality: With the general aim of the study in mind, the level of generality and specificity was determined to report the data. ECIT supports maximizing practicality in data reporting (Flanagan, 1954).
5. *Interpreting the data and reporting results*: In this part of the method, the main contributions of ECIT expand on the CIT method: it involves the use of nine credibility checks developed by Butterfield and colleagues (Butterfield et al., 2005) as follows:
- Audiotaping interviews: All interviews were audiotaped. This helped the researcher not to miss any important incidents in an interview, increasing the

likelihood that transcripts were accurate. Audiotaping interviews also aided in descriptive validity.

- Interview fidelity: An expert on ECIT was consulted throughout the data collection to ensure that the ECIT method was followed and that there was adherence to the interview guide. Interview questions were followed in the same order during each interview.
- Independent extraction of critical incidents: A person not involved in the research was given 25% of the transcripts with the purpose of having them extract items that fell into CIs and WL items. Later, this was compared against the researcher's extractions and a percentage of agreement was estimated. The transcripts and coding tables were forwarded to another researcher with experience using ECIT methodology. An agreement rate of 92.5% was reached after the extractions. A final agreement rate of 100% was met after discussion between parties regarding differences.
- Exhaustiveness: Determining when exhaustiveness occurs is essential to determining the number of participants needed and to maximizing the usefulness of the data. Data collection can stop when CIs from new interviews do not contribute towards the creation of new categories, reaching a point of redundancy or exhaustiveness. In the current study, no new CIs occurred after the ninth transcript in this study. It was recommended that an additional six interviews be conducted to ensure exhaustiveness.
- Participation rates: To assess the strength and credibility of each category, a participation rate was calculated by the number of participants whose responses

were coded into a category divided by the number of participants. The minimum threshold for a category to be included is 25%.

- Placing incidents into categories by an independent judge: In this step, an independent judge was asked to review 25% of the incidents and WL items that the researcher had extracted and placed into categories. The independent judge was a master's level graduate student who was asked to match items into operationalized categories. A match rate of 88% was achieved. A common threshold for agreement is above 80%. Butterfield et al. (2005) recommend that whenever there are discrepancies between the independent judge and researchers, items are categorized during cross-checking based on the participant's preference.
- Cross-checking by participants: At the end of each interview, the researcher summarized the factors that helped or hindered each participant, or that they wished had been present during their experience using mobile applications with clients. This is considered the first participant cross-check (typically referred to as a member-checking procedure). Subsequently, after the initial analysis was completed, a second interview with participants took place through email or telephone with the following objectives: (a) to seek feedback on the items extracted from the participant's initial interview, (b) to ensure that the categories their items had been placed into reflected their experience, and (c) to ask follow-up or clarification questions that this researcher may have had after reviewing the initial interview. Out of 15 participants, nine participants cross-checked their data. Feedback was positive and no changes were required.

- Expert opinions: The categories created were submitted to three experts within the field of telehealth and anxiety. Butterfield et al. (2005) suggest the following questions be asked of the experts: (a) Do you find the categories to be useful? (b) Are you surprised by any of the categories? (c) Do you think there is anything missing, based on your experience? The purpose of reviewing the categories is to ensure that they were logical and complement or expand on what is understood about the phenomenon.
- Theoretical agreement: This procedure refers to examining the findings in light of the existing scholarly literature. As ECIT is exploratory, lack of support for a category may suggest new knowledge and may require more research be conducted to fully understand its significance. This is expanded upon in the discussion chapter.

Data Management

Data was kept in an encrypted and password protected USB in a locked cabinet. Consent forms were stored separately from the interview data in a different locked cabinet. All data will be destroyed after the five-year post-study in accordance with the policy from the University of British Columbia's Behavioural Ethics Research Board.

Ethical Considerations

Engaging with research participants in an ethical manner that acknowledges their vulnerability and protects them from harm is of the utmost importance and prompts several ethical considerations in conducting this research. Participants were given the opportunity to review the informed consent form in advance. This form clearly articulated the purpose and procedures of the present study, reviewed the researcher's responsibility to protect participant

confidentiality and rights, and provided prospective participants with this researcher's contact information. Participants were given the option to review the consent form in advance of the research interview and were encouraged to ask any questions before granting consent. The consent form was signed and dated by the participants and the researcher. The participants received a copy of the consent form. The participants were also given the contact information of the Office of Research Services in case they had concerns about the research.

The possibility of harm to participants in this study arises in the form of the potential for the disclosure of confidential and sensitive information about the participant and his or her clients. In light of this concern, all quotations used in the final dissertation manuscript were analyzed for potential threats to participant confidentiality, and all identifying information was removed from the text.

Another important consideration is the potential for researcher bias to influence data interpretation. This point is addressed in ECIT through the participant cross-checking that is built into the methodology. Once final interpretations were made, the resulting document was shared with participants to check whether the interpretation matched their experience. Participants were given contact information for the participant's rights helpline, in case they thought that their rights had been contravened during the course of data collection.

Chapter 4: Findings

The findings are based on interviews with 15 participants who took part in this study. The results included in this chapter will be discussed in further detail and contextualized with the literature in the discussion chapter. Across the entire study, there were a total of 313 helping critical incidents, 84 hindering incidents, and three wish list items that met the 25% participation rate threshold.

Helping critical incidents were first arranged into five major groups and within those major groups, another 25 categories emerged. Hindering critical incidents were arranged into six major categories, two of which had seven subcategories between them. Only three wish list items met the 25% participation rate threshold. Information from the helping and hindering critical incident sections will be provided in tables before being discussed more fully. The tables provide a list of critical incidents demonstrating participation rates as well as the number of critical incidents within each category. Each critical incident main category will then conclude with a definition of each category with examples from participants of critical incidents that met the participation rate threshold. The wish list table will be introduced after the critical incident sections and will conclude with definitions of categories that met the participant rate threshold.

Helping Categories

Five major groups were established among participants, and within those five groups, 25 categories were created. Only one category did not meet the minimum standard of a 25% endorsement rate and it will not be discussed in this section.

Table 1

Categories of Helping Critical Incidents

Categories	Helping		
	P#	P%	I#
Ways to integrate apps in counselling	15	100%	101
Consistent with therapeutic goals	15	100%	20
Using the app first	15	100%	15
Using it together in session	13	73%	19
Researching/learning about available apps	11	73%	11
Following up with clients	11	73%	12
Downloading apps in session	9	60%	15
Developing implementation intentions for using apps	7	47%	9
Reasons for using mobile apps in counselling	15	100%	37
Apps can be used as therapeutic tools	15	100%	16
Apps can help to connect with clients	7	47%	11
Apps can reduce mental health stigma	7	47%	10
App characteristics that are helpful in counselling	15	100%	42
Free of cost	13	87%	13
Usability and personalization	10	67%	12
Evidence-based apps and/or developed by a reputable institution	9	60%	17
When it is useful to integrate apps in counselling	15	100%	95
Practicing between sessions	14	93%	27
Sharing information with therapists	9	60%	12
Psychoeducation	7	47%	15
Relapse prevention	7	47%	11

Categories	Helping		
	P#	P%	I#
Emotional regulation	6	40%	8
Waiting or limited access to services	5	33%	10
Exposure	5	33%	7
Crisis	4	27%	5
Client factors to consider	15	100%	38
Access to technology	10	67%	11
Readiness for change	9	60%	12
Learning style	7	47%	8
Age	5	33%	7

Note. P# = Number of Participants; P% = Percentage of Participants; I# = Number of Incidents.

Category 1: Ways to Integrate Mobile Apps in Counselling (101 Incidents, 15 Participants, 100% Participant Rate)

This category describes helpful factors worth keeping in mind when deciding to integrate apps in clinical work with clients. These include, choosing apps that are consistent and support therapeutic goals, the therapists getting familiar with the app first, using the app with the client in session, taking time to learn and research about available apps, following app with the client about the use of the app between sessions, downloading the app in session when possible, and helping the client develop implementation intentions to make more likely the use of the app.

Consistent with Therapeutic Goals (20 Incidents, 15 Participants, 100% Participant Rate). In this category, participants described how therapeutic goals help them determine

whether or not they want to integrate mobile apps in their work with clients. For instance, one of the participants expressed:

Mindshift is my go-to app for relaxation strategies, calming, because I think the ones on there are very good; but if the client and I decide that it is important to raise their awareness and tracking their mood seems helpful, then I would use something more like What's Up? or mood tracker. I think they do a good job of helping people track their mood. I think it depends on what is the specific thing that I want to use the app for, and which one does the best job at relating to clients.

Similarly, another participant mentioned,

I have used Habitica with clients when the goal is behavioural change to increase or decrease a certain behaviour. It's great for people who struggle with ADHD and work compliance because they can customize it. They can add any behaviour they want to change, so it could be my ability to work on a project for 15 minutes uninterrupted or stay on task. Then they customize it to how often they want to be doing this, if they want to practice daily, weekly, hourly, and they track their progress. I also use it with clients when the goal is behavioural activation.

Another participant said,

I also like the Imood journal for clients that struggle with low mood, and I like it mostly because you get reminders to check in, you can add an entry about what was going on, difficult situations that clients can then share in session. I also like to use Headspace for meditation and mindfulness. They can practice meditation at home. They are short and easy to follow, but it can be expensive. That's why I prefer Mindshift because it addresses worry, tolerating uncertainty, and the chill out tools.

A participant shared a memory of working with a client who struggled with anxiety and self-harm:

I remember suggesting the Calm Harm app to my client, she started using it and she came one time to a session and shared that a few days ago she was going to cut herself, but then decided to use the app and it helped her remember the tools we had learned together and it distracted her, she said it was helpful. I think that it is essential that the content of the apps relates to what we are covering in session.

Another participant explained,

If the therapeutic goal with the client is learning to identify maladaptive thoughts and challenging them, I often suggest Catch It, clients like it and find it helpful. To me it is more a question of what the purpose of it is, and how it fits into the work being done in therapy.

Another use of apps in therapy is to create a soothing atmosphere: “I would have the calm app playing river nature sounds in the background while working with clients or working in my office with the intention of creating a soothing environment.”

Using the App First (15 Incidents, 15 Participants, 100% Participant Rate). In this category, participants reflected on the importance of familiarizing themselves with apps and using them to better understand how they can become a useful tool for some of their clients. A participant explained,

I think that it is important to become familiar with apps first and see how they work.

There are many, thousands of apps out there, so it is very important to me to make sure that it aligns with the work I’m doing with the client. When I use the app myself, then I can guide the client and answer their questions and help them understand how to use it.

Another participant said,

I always use the app first before I recommend it. I don't have a long list of apps that I use, but the ones I recommend I'm very familiar with. I would never recommend an app that I wasn't familiar with because that's not ethical in my opinion.

Some participants described in more detail what they look for in the app when they first try it:

I read about it, do some research, look at the reviews, find out who developed it, if it has any research behind it or if it is evidence-based, then I download it to see what it offers, and if I think it would be helpful and relevant to what my clients go through, I move it to my mental health app folder, where I keep it. I keep using it for a while before deciding if could use it with clients.

Another participant reflected on their personal experience with mental health apps:

I think going back a few years now, I was using mental health apps for myself first, and found them helpful. I saw the benefit of it, and then I started to wonder how I could bring that into therapy. If it's an app that I think would be useful, then I would download it and look through it, explore it. I see if it would be useful for the way I do therapy with my clients.

Using it Together in Session (19 Incidents, 13 Participants, 87% Participant Rate).

In this category, participants explained the way in which they introduce apps to clients and how they use them with clients in session. Participants identified these two steps as helpful in the integration of an app in their work with clients. A participant explained,

Let's say that we have been talking about meditation or mindfulness and I may say, there are some apps that can help and one I like is this one. Would you like me to show you how to use it? So I open my phone and show them. I may even suggest that we do a

guided meditation in session to get a better sense of the app. I usually ask: Would you be interested in an app? Would that help? And then would you like to give it a try right now with me? And after I ask, what do you think?

When participants introduce an app to a client in session, they allocate time to go over it with the client, one of them said:

I may spend five or 10 minutes introducing them to the app and how it works as a way to help them have a tool outside of therapy. Often at the end of the session I show it to them on my phone and I ask them to download it on their phone. I show them the different sections and how it works. For example, these are the chill out tools, or this is how you can track your mood. I think people have to have “buy in” before they can go on their own to use it.

Another participant stated,

I would use the app in session so that they can get a better sense of how it works, so that they can hear the voice, because sometimes that is important, they can hear the words, and see what it looks like, have an experience with it, have a sense of what it can do for them, then they will be more likely to use it.

A participant explained that taking the time to demonstrate how to use the app increases the probability that clients would use it:

I think it is important to use the app together in session first, try it out with them, I think it makes clients more likely to use it. It lessens the fear factor of trying out something new and helps the client familiarize themselves with the tool, to me it is all about creating a safe space.

In addition, participants valued the ability to use the app with the client in session:

The nice thing about the app is that you can play a visualization exercise for example and you are just listening to it, and as the counsellor you can also participate, whereas if you are the one reading the script you can't really participate and it's also helpful because if you don't have enough knowledge or experience with mindfulness because you can just rely on the app.

Another participant shared, "I think it was important for my client that we would do mindfulness together and we could both reflect after the exercise how our bodies felt. It becomes a shared experience, another point of connection."

Finally, a participant spoke about the importance of encouraging and motivating clients to use the app as a way to own their process:

I say to patients, let me show you something that is going to help you and it's easy for you to use. I say I want you to use this app during the week, I want them to have something to do when they are not in my office, I commonly tell patients that if they are in my office an hour a week that's 167 hours they are not, they are in charge not me. And all I can do is guide them to things they can do when they are not with me to help them feel better and this can be an extension of the work we do in the room together.

Researching/Learning About Available Apps (11 Incidents, 11 Participants, 73% Participant Rate). In this category participants explained that it is important to screen the apps that they choose to use in their work with clients. Several participants learned about new apps mainly in three ways: from colleagues, by doing their own research, or by having clients tell them about them. For example, a participant stated,

There are so many apps out there that I prefer to use the ones that I have received positive feedback from people that have similar clients to mine. I ask my colleagues about apps that they like and find helpful.

Another participant shared,

I would say I learn about apps through email newsletters, in workshops or conferences, podcasts, and just doing my own research. When I download one in google play, it recommends others and I check them out. I also look up a site called behavioural technology to look up stuff.

Some participants stated that clients also shared apps that they use:

Often times if I'm thinking about introducing an app to a client, I ask them if they have used mental health apps and what their experience has been like, and clients often tell me about apps that they like and if I don't know them, I make a point to check them out.

Following Up with Clients (12 Incidents, 11 Participants, 73% Participant Rate).

In this category participants described the importance of following up with clients about whether or not they used the app, just like they would with any other weekly goal set in therapy. A participant shared,

Sometimes I would ask clients to play with the app and get familiar with it during the week. When clients come back the following session and report that they haven't used it, I explore the barriers that got in the way, I find out how far they were able to get with it. Sometimes they say, "Well you know I open it, but I wasn't really sure what to do with it" or "I forgot," so I reflect and validate that they took the time to open it this week and that they had the intention of using it, and how hard it is to start something new.

Another participant stated,

If the client says, well I forgot, then using motivational interviewing I would explore what got in way of them remembering. We talk about what would make it easier, identify obstacles. If they tried the app and they didn't keep using it, I would assume it is because they didn't like it for some reason, so then we talk about the things they possibly didn't like about it and then we go from there, because there might be something specific about the app that they didn't like or that they don't like using technology as part of their coping strategies. Each person is different.

Other participants spoke about the importance of removing guilt or shame when following up with clients:

I ask patients the following session, what they thought of the app and if they had a chance to use it. If they say they haven't used it, I usually say "Oh I didn't explain myself well enough." I remove the guilt or shame they may feel. I use it as an opportunity to work on the therapeutic relationship, and I say let me figure out how I could better help you do this. Sometimes when they say I don't think that can help me, I say, well I don't know either, what I know is that this tool has helped other people who have been in a similar situation and I think it is worth trying it.

In cases when the client expresses no interest or no motivation to use apps, a participant said,

If they come back and they haven't done it, that's usually a sign to me. I then check out why and I kind of judge if it is something that I need to review with them and better explain or if it something that I need to let go and focus on other strategies like workbooks and writing things down, or we may need to adjust the goal according to the client's readiness and motivation. Just like with any other intervention it is important to tailor it to the client.

Downloading Apps in Session (15 Incidents, 9 Participants, 60% Participant Rate).

In this category several participants spoke about the importance of encouraging clients to download the app in session as a way of increasing the probability of clients using this tool and removing barriers. A participant expressed, “It helps when there is Wi-Fi in the office and clients can download apps in session, because it removes another step in the process and makes clients more likely to start using the app between sessions.” When downloading the app in the office is not possible, some participants stated,

Sometimes clients prefer to download the app at home as they may not have enough data.

In that case I will definitely show them on my phone what it looks like, and if they are open to it, we can turn downloading it into a goal for the week.

Another participant shared,

Downloading an app doesn’t seem like a big deal, but it is just another thing to remember for the client, so whenever possible we download the app on their phones, after I have showed it to them and we have used it together in session. That becomes another point of connection with me during the week, especially when they are tracking their mood or doing journal entries.

Developing Implementation Intentions for Using Apps (9 Incidents, 7 Participants, 47% Participant Rate). In this category participants talked about the importance of helping clients anchor the intention of using the app to an already established habit in order to increase the probability and frequency of use. One participant mentioned,

I think it is important to help the client create an intention to use the app in their day, after all it is a new habit. I normally explore with the client times in their day that they think it would be more helpful, like as soon as they wake up, before bed, or after dinner, so that

there is a higher chance that they will use it. We link the intention to an action, for example, every night after brushing my teeth I will do a breathing exercise.

Another participant said,

After I use the app with the client in session, we try to think of times when they could use it, sort of to plant an intention, think of helpful reminders in their life, so that I know that they will be more likely to remember to use it.

Finally, participants also spoke about the importance of developing an intention to introduce the app in session, if relevant to the counselling process and their client, to practice certain skills when they are preparing for their session with clients. For instance,

If I know that in session, we are going to be covering mindfulness for example, I make a note when I'm preparing for the session with the name of the app I think would be helpful for that particular client.

Another participant said, "I have my "go to" apps for different counselling goals, so I make a point to bring up the app in session by writing it down in my notes, if I think it may be a good fit for my client."

Category 2: Reasons for Using Mobile Apps in Counselling (37 Incidents, 15 Participants, 100% Participant Rate)

This category describes the reasons for integrating apps in counselling. These include using apps as tools to practice skills or raise awareness, using apps to connect with clients between sessions, and finally using apps to help normalize the experience of clients and individuals struggling with mental health conditions.

Apps Can Be Used as Therapeutic Tools (16 Incidents, 15 Participants, 100% Participant Rate). Participants considered apps as important tools in counselling in two

different ways. First as tools to share with clients when they want to learn, review, or practice information that is helpful and relevant to their situation; and second, as tools to reach out to people who do not have access to services or who are not ready to initiate counselling. In regards to the first point a participant mentioned:

I think apps can help reinforce what people are learning in therapy. They can be a good extension of the work we do in therapy; it can't replace counselling, but it is a way of them taking what we talked about, what we worked on in session outside the session. I see it as a good bridging tool.

Another participant reported:

I see them as an adjunct to therapy. I think they can help clients practice and remember the strategies. You know when a client is outside the therapeutic hour, in their normal life, and their anxiety goes up, they know they have this app that can turn on all the time. As I say to my clients, when your anxiety comes it floods the brain and your internal hard drive is gone and you can't access that information, but you have an external drive that you can use.

Several participants affirmed that apps are not seen as an alternative to therapy, for example one of them mentioned:

Apps can help clients practice and feel more empowered. I don't think they can take the place of the common factors that therapy offers like the relationship, the validation, and all the good things that come out of that authentic relationship, but they are a valuable tool.

In relationship to the second point, seeing apps as tools to reach out to people who don't have access to services or who are not ready to engage in counselling, a participant shared:

I believe that as professionals we have a duty to help our individual clients and also we have a responsibility to the field of psychology, and my reading of the literature right now is that we are at the beginning, if not already, in a mental health resource crisis where we don't have enough resources to respond to the need of our communities, and we need to use technology to reach more people.

Another participant stated, "Apps can act as step towards receiving help for people who are not ready to start therapy or who can't access service. Apps can offer valuable information to people struggling with mental health issues."

Apps Can Help Connect with Clients (11 Incidents, 7 Participants, 46% Participant Rate). Participants in this category valued the use of apps in the therapeutic process as tools that could facilitate the connection with clients, especially young clients. A participant stated,

More and more apps are how young people are communicating nowadays. They are spending a lot of time on their phone. For them their phone is very important. If they are on the phone a lot anyway an app can be a great way to reach them and assist them when they are needing help.

Another participant explained,

Clinicians are not always available and it is nice to build capacity and help clients use tools and develop connections with you. If I suggest an app to you, it becomes a point of connection as well, even if it is symbolic.

Apps Can Help to Reduce Mental Health Stigma (10 Incidents, 7 Participants, 46% Participant Rate). Participants identified that mobile apps can help reduce the stigma of mental health and the stigma of seeking help for individuals who are struggling with mental health issues. A participant stated:

Some apps can help shift the way people think about mental health, specifically apps can help people realize that they are not alone in their problems and, in that sense, it can normalize their experience. They can be a great way to offer positive support, so if you are struggling with anxiety or depression, it can be helpful to learn that you are not the only one, and to see that there are things you can do to feel a bit better.

Category 3: App Characteristics that are Helpful in Counselling (42 Incidents, 15 Participants, 100% Participant Rate)

This category includes app characteristics that therapists consider helpful in counselling, such as apps that are free of cost, apps that are easy to use and allow clients to customize their use, and apps that are developed following evidence-based psychological theories or that are developed by reputable institutions.

Free of Cost (13 Incidents, 13 Participants, 86% Participant Rate). Participants considered free of cost apps an essential factor that influences significantly their decision to recommend and integrate apps to clients. As a participant explained, “I look at cost, you know. Many clients can’t afford to buy them. I don’t want to suggest something that is going to be an obstacle for them to access it or may pose a financial burden.” Participants are aware that many apps may offer a limited free version, but they feel weary because many of these apps require payment if individuals want to access the premium version or after a few weeks of use, so they prefer to not recommend these apps. One participant said,

I tend to recommend apps that are free, but sometimes they start as free, and then they raise the cost. So, when I do my research about apps, I go over those details carefully. Mental health services are difficult to access, and they are expensive if people go the private route, so sometimes I struggle with the idea of adding more costs to the client.

Usability and Personalization (12 Incidents, 10 Participants, 66% Participant Rate).

Participants reported that usability and the ability to personalize apps are important factors when selecting apps that they may use with their clients. One of them explained,

The biggest factor to me is usability. Is this a friendly easy app to use? Is it simple enough for me to understand and navigate? Because I know that when clients come in and if they feel stressed or anxious their capacity to understand is diminished, their ability to retain information is also diminish, and the ability to process complex things is also diminished, so the app needs to be simple otherwise it will not be useful.

Participants also mentioned that they value the ability to customize or personalize apps, for example one participant shared,

Some clients prefer practicing deep breathing instead of visualization, having options is important, being able to choose the kind of voice they want to hear when doing an exercise, the kind of meditation and the length of it is important to me as a therapist.

Other participants considered important characteristic of apps when they offer developmentally, age-appropriate language and content for different client population including young children, teens, and adults. One participant stated,

It is difficult to find apps that offer different options according to the age of the user. I really appreciate when apps, like Smiling Mind, allow users the ability to select an age group and then the language and the length of the guided mediations changes to meet the developmental needs of the client. Most apps are developed for adults and they lack that developmental lens.

Other participants described the value they find in apps that allow users to set goals that they can work on, for example,

In some apps clients can add any behavior they want to change, so it could be for instance their ability to work on a project for 15 minutes uninterrupted or stay on task. Then they customize to how often they want to be doing this, if they want to practice daily, weekly, hourly and they track their progress.

Moreover, participants preferred apps that could remind clients to practice skills. One participant stated:

What I really like is apps that have reminders that would give clients a ding and then remind you to check in or practice a skill because trying to remember establishing new ways of doing things or habits can be difficult.

Finally, participants also valued when apps include sections that allow users to shift their perspective with helpful questions. A participant mentioned, “Some apps have great questions to help you shift your perspective or tools to enhance our practice in between sessions and sometimes within session.”

Evidence-based Apps and/or Developed by a Reputable Institution (17 Incidents, 9 Participants, 60% Participant Rate). Here participants addressed the importance of selecting apps that are developed or endorsed by reputable and well-established organizations such as Universities or well-known non-profit organizations such as Anxiety Canada, and apps that are developed following principles of evidence-based research. In their opinion, it serves as a screening process for therapists who may find themselves overwhelmed with the excessive amount of mental health apps available on the internet. A participant described,

I only recommend apps that are made by institution. Many apps are created by businesspeople and I feel reluctant to use those. It is important to me that it is empirically

supported. I know those are issues clients don't care about, but that are important to me.

If I recommend an app, then they can trust that I think it is valid and appropriate.

In addition, a participant mentioned, "It is good to have knowledge about who is behind the development of a particular app, if it is a university or an institution to me feels better because I can more easily trust it." Another participant stated:

Usually, I go on the internet to read more about the app. I want to know who developed it, how it is designed, what it offers, and if it is evidence-based, if it is informed by empirically supported theory, otherwise I don't feel comfortable recommending it.

Category 4: When to Integrate Apps in Counselling (95 Incidents, 15 Participants, 100% Participant Rate)

This category describes several uses of apps in therapy that include supporting clients with practicing skills between sessions, allowing clients to share app entries with their therapists, in psychoeducation, in relapse prevention, in supporting clients with emotional regulation, while individuals are waiting for services to learn more about anxiety, for practicing exposure and in crisis situations.

Practicing between Sessions (27 Incidents, 14 Participants, 93% Participant Rate).

Many participants identified the ability of apps to help clients practice skills between sessions and to help increase their awareness by tracking their mood and journaling among others, as very helpful. A participant shared,

I basically teach them skills in session, and I explain that it is important to practice at home between sessions. I show them the app and they are typically open to it because they value that they can do it by themselves. They appreciate when there is an audio of a

visualization exercise for example. Having the app helps clients to practice on a consistent basis because they get reminders to use the app.

In addition, some participants mentioned that they prefer to not spend much time in session practicing relaxation skills, and that they resort to apps to teach and guide clients practice between sessions, one participant described,

I was working with a client that was really struggling at the beginning of this school year, so I didn't want to spend a lot of our session time helping her learn relaxation strategies and help her understand how relaxation could help, so I explained the role of breathing and grounding when we are activated, I introduced the app and asked her to practice at home every day. I wanted to spend more time in session exploring her difficulties and finding ways to help her break the cycle of avoidance she was engaged in. Now almost exclusively I don't take much time in session to teach relaxation skills, I let the apps do it.

Other participant stated that using apps to practice between sessions can help clients increase their self-awareness and bridge the gap between sessions. The participant mentioned,

I was interested in using thought records and other forms that allowed clients to monitor their mood. I found some apps that can help clients do that easily. Clients can reflect on their triggers and how different situations affect their mood. They can save entries and get a graphic of their mood during the week. I think it allowed her to be more in the moment with keeping track of the thoughts and emotional triggers she was having when she was interacting with certain people or making certain choices.

Some apps allow clients to record their practices, and this becomes a great way to evaluate their progress. A participant explained,

I often suggest apps to clients that help them track their mood. I can say that the majority of clients overestimate how much of the time they spend feeling anxious and don't realize the improvement that they are making. One of my clients started to notice that she was making less entries and that she was engaging in more pleasant activities, as time went by her mood lifted, and we could see that clearly reflected in her entries. It gave us something tangible to work with and I think is a very good way to see improvement in a tangible kind of way.

Sharing Information with the Therapist (12 Incidents, 9 Participants, 60%

Participant Rate). In this category participants expressed appreciation for apps that allowed them to receive client's entries about their mood or other goals they may be working on in therapy together. Participants explained that this allowed for a more accurate representation of clients' experiences in between sessions that were beneficial on two levels. First, the clients may forget to bring up in session important information or forget their paper forms at home; and second, that it may save time in session because the client doesn't have to use valuable time in session summarizing what happened in between sessions in a lot of detail, unless they chose to. For example a participant stated:

When my clients use the Imood journals then I can get a better sense of what their week was like, with more detail and in a more accurate way. I can have a better idea of what is going on and we can focus on what may be most important according to the counselling goals.

Similarly, another participant noted:

One of the reasons that helped me decide to suggest the app to my client was that she couldn't come to sessions frequently; so, it was one way for us to stay in contact and also

because when she came to session, she was often times in distress, and we hadn't seen each other for a while, which meant that we spent a lot of time recapping and helping her regulate. The app allowed me to see how the week had gone with a graph, so we could really focus on what we really wanted to work on.

In addition, participants mentioned that clients at times would open their phone to share with the therapist important information in the form of posts, text ex-changes and pictures. A participant stated,

Patients will use their phones to share information with me. Some teens will pull out like their Instagram account to show me pictures. They will read me texts from of exchanges they have had with other people. So I see how more and more phones and apps are becoming part of the counselling process and they are helpful for clients to share with us.

Psychoeducation (15 Incidents, 7 Participants, 47% Participant Rate). Participants appreciated the role apps have when they engage in psychoeducation with clients. For instance, one participant described,

Some apps have great explanations for anxiety, depression, sleep difficulties. They are great because clients can learn more about their experience and get good information, instead of going on Dr. Google and find out all sorts of inaccurate information. The app provides education and more accurate information that has been revised and is more informative. I also like that some apps have great resources like a body scan and mindfulness style exercises, as well as good ideas for sleep hygiene that I use with my clients.

Another participant mentioned,

I usually do the psychoeducation component of standardized CBT. I introduce one of the initial CBT pillars, unwanted physiological arousal, and then I introduce an app to explain how to deal with it using different sections of the app such as breathing or grounding.

Other participant shared a more specific example,

I remember introducing an app in session to a client to look at how the esophagus is shaped and how her stomach is shaped and what happens when her stomach acids sit on the stomach, to really understand that process and that is actually hard for food to come back up because I knew she would benefit from learning more about the process in an accurate way.

Relapse Prevention (11 Incidents, 7 Participants, 46% Participant Rate). In this category participants described the value of apps as tools that allow clients to access and remember what they covered in therapy after it is over. Participants indicated that it is important to encourage clients to use apps in this way, a participant explained,

To continue using the tools as part of the relapse prevention plan because anxiety comes back and clients need to stay on top of healthy ways of coping otherwise they can default to patterns that can intensify their anxiety and create a sense of hopelessness. I think apps can really play a major role in relapse prevention because they are accessible, and the client is already familiar with it.

Participants recognized that therapy in most cases is a short experience in the client's life span and they need to learn to navigate uncertainty and life challenges beyond the therapy room.

One participant stated:

I'm not going to be in this client's life forever, so it gives them something else to begin using so that she will have it when we are not working together, and even if her anxiety improves to the point that she doesn't need to practice these skills on a regular basis, it is likely that there will be other transition points that she may struggle again with she can go back because she knows it helped her and she already has an experience with it, whereas handouts or YouTube videos can be much harder to go back and find again in the future.

Emotional Regulation (8 Incidents, 6 Participants, 40% Participant Rate).

Participants reported also using apps to help their clients regulate their emotional response in session and outside the session. One participant explained:

I'm a big fan of a breathing app, because I strongly believe that it is the main way we have to regulate the stress response, the autonomic nervous system, it's the mind-body interface. So when we breathe diaphragmatically we are sending a message through the vagus nerve to regulate the autonomic nervous system and this is important for clients to practice frequently.

Other participants shared how they use apps in session when the client is dysregulated. For example:

Apps are something that I would use if I see that the client is very activated. I check their mood and anxiety level every session and if I see that their anxiety level is very high, then we would use the app to ground or regulate. It is part of my toolbox as a therapist and something the client can access and practice outside the therapy office.

Another therapist shared an experience with a client,

I knew beforehand that the client was very anxious about starting therapy and had a history of panic attacks. So, I decided that I wanted to begin our sessions with relaxation.

He liked that and looked forward to starting sessions this way every time. It helped create a sense of structure and mostly to regulate and get ready for the session.

Waiting for Services or Having Limited Access to Services (10 Incidents, 5 Participants, 33% Participant Rate). Participants identified that apps can play an important role helping individuals who are waiting for services or who have limited access to services. For example, one participant shared:

Last week I introduced Mindshift to somebody who was quite under resourced, not receiving therapy and with little support in general, and who would have to wait to receive services. It was a way of giving them a tool that they could get familiar with, that offered helpful information so that they had access to other ways of coping while they waited for services.

Other participants mentioned that they have compiled a list of apps they trust and that they find helpful that they give to people who are on the waitlist for services, one of them said:

I have developed an ongoing list of apps from conferences and so forth, so I give a handout to people who are on the waitlist as a way to bridge the gap and give them helpful information that they can start using. So here is an app that can help you get familiar with and that can help you learn and practice tools that can help you.

Other participants valued apps as tools that can reach people in remote communities for whom access to mental health services is challenging. A participant mentioned:

I knew we were going to have two or three sessions max, so I decided to introduce my client to an app that I thought was helpful in her situation so that she could remember what we were covering in session and keep working on developing self-awareness. The client appreciated it because there were no services available in their community.

Similarly, another participant stated,

In the pain clinic we give patients some apps on the first session because we want to send them home with some tools to manage their situation, so we say check this out until we meet again. So, they can leave with something.

Exposure (7 Incidents, 5 Participants, 33% Participant Rate). In this section participants discussed how they use mental health apps designed for exposure and also social media apps for the same purpose. For instance, a participant explained,

I would sometimes use social media as a platform for exposure; but when I do that I don't think about it as an app even though it is. I would be in a session with a client, and we would be talking about posting something on social media as a behavioural experiment, or replying to a text, or putting a thumbs up on Facebook or posting a picture in Instagram. But for me that's not the point of the app, but it's how I use the app in treatment. To me it's a secondary application of the app.

Another participant added, "I planned a behavioural experiment with a client to challenge some of her beliefs around other people's judgements about her using social media. It often feels safer than having face to face interactions as a first step."

Other participants have used apps designed for specific exposure purposes, one participant explained:

I have used apps with clients struggling with vomit phobia, and it was great because sometimes it's hard to recreate those situations in the room, and it was helpful. It provided images, videos, sounds, all in one place that we could time and intensify according to her hierarchy.

Another participant shared:

I have used NOCD for ERP with clients. We would work on identifying the obsessions, the compulsions and the rituals the client engaged in in session, and then they would use the app to practice at home. Last week I was working with a client with fear of contamination and their goal was to eat a snack after touching surfaces that they considered contaminated around the home. They would then rate how much anxiety they had before eating the snack and after the exposure using the app. My clients really like it because the apps make them feel supported and they can share their entries with me or we can review their progress in session, and they don't lose the paper form or forget it at home.

Crisis (5 Incidents, 4 Participants, 27% Participant Rate). Some mental health apps can offer therapists and clients the ability to communicate between sessions in a secure manner. Even though this is not a common practice, some clinicians may choose to offer this alternative to clients who are in a vulnerable situation and who may need extra support between sessions. Some participants identified apps to be helpful in crisis situations. For instance, a participant stated, "When my client is in crisis and I feel the need to communicate with them between session I may use apps that have the ability to identify their location and call 911 if needed."

Another participant shared:

I have used apps for communication between sessions when clients are in crisis. There is an app that I use that has an encrypted communication tool that allows private texting between parties. I have found this to be very helpful with clients to protect confidentiality and I think it enhances the relationship because it allows the therapist to be more "available" to the client when they are most vulnerable without disclosing my personal number.

Category 5: Client factors to consider (38 Incidents, 15 Participants, 100% Participant Rate)

This last helping category I defined by client factors that therapists need to consider before deciding whether to suggest an app to a client. These include determining if the client has access to a device where they can download apps and internet access, client's readiness for change, client's learning style, and their age.

Access to Technology (11 Incidents, 10 Participants, 67% Participant Rate). In terms of access to technology a participant mentioned:

Before I introduce an app I find out if the client has a phone. I remember working with a client recently who had a flip phone and in that case I won't. If they have an iPhone, then we talk about apps and downloading an app that I think may help them.

Another participant stated,

I make a point of finding out if the client even has something to play the app on, if they have good access to internet, and if they have space on their phones to download it, otherwise I prefer to suggest other tools.

Readiness for Change (12 Incidents, 9 Participants, 60% Participant Rate).

The last factor identified by participants was readiness for change. According to participants whether or not clients use apps as tools in therapy relates to the stage of change that they are in.

One participant stated,

I often see clients in distress. They want to talk about what is causing the distress, but they don't want to change. They don't want to change their behavior at that moment, they are angry and blame others for their situation. I think that a very important variable in my decision is to determine to what extent they want to try new things to get a different

outcome. To me that factor refers to readiness for change and guides my decision to suggest or not an app. If they are not ready for change, I won't suggest it.

Participants suggested that the same obstacles clients face when engaging in any other homework between sessions applies to the use of apps. For example,

I think that the same things that get in the way of doing any practical work for themselves outside of the office interferes with the use of apps. Fear may get in the way, procrastination, lack of motivation. I think sometimes is just hard to want to work on things that are challenging, things that the client is not ready to do. I do think that apps can definitely increase the probability of them doing the work between sessions compared to how clients who would fill out forms or worksheets because it's on their phone.

Participants stressed how important it is to assess the stage of change in which the client is in before the delivery of interventions: “

We may need to adjust the goal according to clients' readiness and motivation. Just like with any other intervention it is important to tailor it to the client and their situation. If a client is not interested in regulating their emotions, it is not because of the app. It's because they are rejecting doing anything in the moment, they feel stuck, we need to meet them there, it is more a matter of assessing where they are. I think that for people that are ready for change apps can increase the amount of time they practice and the likelihood that they do it.

Learning Style (8 Incidents, 7 Participants, 47% Participant Rate). Another important factor in the decision to integrate apps into their therapeutic work is the client's learning style. A participant explained,

The things I consider before I recommend an app is how receptive I think they would be, if I think they are open to that stuff, some clients are totally over technology, they like to keep track, they ask for homework and love apps because they can access them and are organized in a clear way, so I'm looking for how open and how compliant they would be.

Another participant shared,

I'm looking also for signs that tell me an app would be a good fit for them. For example, some clients want something very clear to work on, a form to track their mood, and they ask for work between sessions. They like to complete things and monitor things. So, if I get that sense I would be more likely to suggest it to them.

Participants mentioned that sometimes clients are already using apps and it seems to work for them, for example:

Some clients already use some mental health apps. When that happens, I feel more comfortable making suggestions of apps that are in line with the work we are doing.

Some clients come back after using CALM for example, which requires subscription, so to me it is a lot of money, but they love it so much that they have bought it. It has worked for them, so it really depends on the person. It depends on how they learn, how they process, how ready they are, etc. For me, it is really judging and exploring with them what may work best for them.

Age (7 Incidents, 5 Participants, 33% Participant Rate). In regard to age, participants pointed out that they don't generally recommend apps to young children, they prefer to suggest them to teens and older clients because most apps are not designed with developmentally appropriate language or features for younger children. A participant stated, "I only introduce

apps to clients who are 13 and up, with younger kids I prefer to use written material or art. I also like using websites and videos that they can look at with their parents.”

Another participant shared,

I don’t use apps with young children, generally for me, it is grade 6 and up because most apps are developed for adolescents or adults. They may not be developmentally appropriate. Although I may introduce it to their parents to use at home with their child for example.

Hindering Categories

The six categories identified by participants as hindering to their decision to integrate mobile apps in the therapeutic work they do with clients who struggle with anxiety are described in descending order of frequency of incidents as defined by the number of participants responses relating to each category. The following table lists the six hindering categories including the category name, the incident numbers, and participant frequency. The table frequencies also include percentages.

Table 2

Categories of Hindering Critical Incidents

Categories	Hindering		
	P#	P%	I#
Not having a personal electronic device/data/wifi	11	73%	20
Apps are not a good fit for the client	10	66%	17
Cost	9	60%	17
Apps can add to screen time	8	53%	12
Age and comfort with technology	7	46%	10
Privacy and storage of information concerns	5	33%	8

Note. P# = Number of Participants; P% = Percentage of Participants; I# = Number of Incidents.

Category 1: Not having a personal electronic device/data/wifi (20 Incidents, 11

Participants, 73% Participant Rate)

This category is defined as the inability to integrate mobile apps as tool in therapy due to practical limitations such as not having access to an electronic device, not having data plans or access to internet. A participant mentioned,

Most clients have consistent access to technology and internet, the great majority do, but there are some that don't, they have a pay as you go phone and don't have data or Wi-Fi access consistently, they have socio-economic challenges, and I wouldn't want to increase any stress. In that case I just print out worksheets for them to record and practice.

Other participant stated,

Definitely one of the obstacles was that students didn't have data on their phones and didn't have internet at home, so they couldn't practice at home. They were not able to afford a phone plan that would allow that, sometimes they would have cheaper phones that didn't have enough memory to support the app because it was already full of their music or their photos.

Another participant reflected on the importance of not making assumptions about access to electronic devices and internet services. The participant said,

Even though most people in the community use technology and have access to the internet, it is important to be sensitive to the fact that not everyone does. I was seeing a client a few months ago who didn't use a smart phone, he had a flip phone, so I know suggesting apps wasn't an option in this case.

Category 2: Cost (17 Incidents, 10 Participants, 66% Participant Rate)

Cost is defined in this context as having to pay a subscription for the use of mobile apps. Several mental health apps available on the market require monthly or annual fees. The majority of participants prefer to integrate apps that are free of cost. A participant stated,

I would say that cost is a factor in my decision to use apps in therapy. I would not recommend an app that costs money. I'm a bit cautious of apps that present themselves as free and as you start using them, they present you with a fee later on, especially because I don't know if the client will like it or if they will find them helpful. I think that if Headspace were free, I would probably use it more or suggest it more.

Similarly, another participant said,

I steer away from the apps that cost money, because again I need to think about the client and what they can and can't afford. I know CALM, I use that quite a bit, but I always say to people the free part of it is enough. I say you don't have to buy the full version to benefit from it and I don't recommend that you do that. So I tend to prefer the free ones, and there is enough free ones out there that do enough.

Finally, cost is a limitation for many adolescents and/or for clients who are in a tight financial situation. A participant expressed,

I work with high school students and most of them don't have credit cards or the ability to buy apps that cost money. I just don't suggest them to my clients because I know it is going to be another obstacle.

Category 3: Apps are not a good fit for the client (17 Incidents, 9 Participants, 60% Participant Rate)

This category includes the client having other tools in place that work well for them (e.g., journaling), the client not being motivated to do work between sessions, or lack of readiness to engage with the app, learning/soothing style, and the app not being relevant to what the client is experiencing or what is covered in session. A participant mentioned,

I explore with clients what are some tools or strategies they use in their daily life to regulate their anxiety, sometimes they say that they find going outside helpful, or journaling, or exercising. If that is the case I prefer to reinforce and strengthen some of those habits rather than adding something new when the client is struggling.

Another participant said,

I think some clients are not interested, it just simply doesn't work for them, for some you just put a guitar in their hands and that's what's going to help them regulate, another person may prefer a paint brush and a canvas, I think it is really important knowing your client, knowing what would be best suited for them. It is important to know your client well, how they learn, what's soothing for them, to determine what can help them.

In relation to readiness to engage with the app a participant stated,

I think the client needs to be ready to be able to use an app, in other words if they are in crisis they can't really use it, they can't access their thinking brain. I think it would take a lot of me as an adult if I'm upset about something to listen to this voice telling me what to do. I need to be able to engage my thinking brain to fully embrace it.

Another participant mentioned,

It is very important to have a clear goal for using an app. There are many different apps that offer different content and using it or not also depends on what the client is working on in therapy at any given moment. If I'm working on regulation with a client, then using

an app with mindfulness exercises that includes breathing can be helpful, but if the content of the apps is not linked to what the client needs then it will be useless, that's why is so important to use the app in session with the client and for the clinician to be very familiar with the app to know how to best use it.

Category 4: Apps can add to screen time (12 Incidents, 8 Participants, 53% Participant Rate)

This category is defined as the increasing use of screen time when suggesting an app in situations when the amount of screen time is already problematic for the individual. Some participants mentioned that some clients may be struggling with regulating the amount of time they spend on screens and it may be affecting their sleep. This is particularly true for adolescents and young adults.

A participant stated,

I would say that a significant number of adolescents who are facing sleep deprivation is because of their dependency on technology. Because often they go to bed with their phones and their sleep is disrupted, because even if they have their phone in silent sometimes their phones vibrate with notifications or they are still waiting for a text and a lot of them have a hard time disengaging from that, it's their fear of missing out. In those cases, I rather not suggest an app because I don't want to be adding to screen time because it is already an issue for many.

Other participants commented on the importance of finding out what the internet use policy is at home given that some parents don't want their kids to have more reasons to be on their phone, for example,

If parents say their kid can't have their phone after school or at school, I need to take that into consideration when deciding to suggest an app to my client. There are some teens

whose parents don't want them to be using their screens any more than they already are, or at bedtime and we are working on strategies to help them fall asleep, in that case I need to find other alternatives.

Category 5: Age and comfort with technology (10 Incidents, 7 Participants, 46% Participant Rate)

In this category participants reflected on how the client's age and comfort level with technology informs their decision to integrate apps in counselling. One participant mentioned, An important factor in my decision-making process is considering if the client is comfortable with technology. If it's an older client who is probably in their 60s or 70s, I need to explore how comfortable they are with technology, I need to find out how they use it. I wouldn't want to suggest an app that can be potentially overwhelming because they are not familiar technology in that way.

Another participant expressed, "If the client is too young, I also wouldn't suggest an app directly to them, I may suggest it to their parents to help the child practice breathing or mediation, I may even present it as a family intervention."

Category 6: Privacy and information storage concerns (10 Incidents, 5 Participants, 33% Participant Rate)

In this category participants mentioned their concerns with app's privacy and storage of information. One participant shared,

A lot of apps are developed in Australia, so that is an issue for me. We just don't know what apps can do with our information, apps are not regulated, look at all the issues that have come up with social media apps. Although most clients, especially adolescents,

don't think about that stuff, I do. So, I would say that's a hindrance. I talk to clients about privacy and about being careful with sharing identifying information.

Another participant mentioned,

Technology can do great things and it is part of our life. However, apps are not regulated. That's why I prefer to use apps that are developed by Universities or well-established organizations like Anxiety Canada because I trust that they will respect and use customers' information ethically.

Wish List Items

Only four categories met the minimum endorsement threshold rate of 25% for wish list items. Three other categories did not meet minimum requirements. Two participants in the sample reported that they had no items to place on the wish list. The wish list items are discussed next.

Table 3

Wishlist Items

Categories	Wishlist		
	P#	P%	I#
More creative, interactive and engaging apps	12	80%	18
More comprehensive apps	10	66%	15
Having a centralize place to learn about helpful apps	8	53%	14
Apps that allow users to share information	7	47%	10

Note. P# = Number of Participants; P% = Percentage of Participants; I# = Number of Incidents

Category 1: More creative, interactive and engaging apps (18 Incidents, 12 Participants, 80% Participant Rate)

In this category participants reflected on app characteristics that would make apps more appealing to therapists to use in their clinical work with clients and to users. One participant expressed,

I think clients would prefer to have apps that look like a hybrid of Facebook meets app, they would like to personalize it as much as possible, they would like to immerse themselves in the app and reflect on things. They want a high-level personalized engagement.

Another participant stated,

I would love more use of the phone to provide feedback to the user, like the Belly Bio app, so you put the phone on your belly, and you breathe, and it senses and sends information back and then the music changes. I think the phone is already recording and tracking a lot of personal information, it would be cool if we could use that information to harness habits and choices that promote their mental health, like being active and tracking their steps for example. If someone had depressive symptoms, and they could track how much they are moving around that could be very helpful to raise their awareness and could be a great accomplishment. Dreaming big here.

In regard to gamification features a participant mentioned,

I also think that if apps were more entertaining, more like in a game format they would be used more. I think apps are a great tool with clients, nowadays people are very dependent on their phones, so making apps that are more engaging and entertaining not because they want to learn skills, but more because they want to have a good time. I think young clients would be more interested in apps with gamification features.

Another participant shared,

I think apps need to get bigger, there are apps right now like colour by number, it's not an app for therapy, it's a drawing app, you can tap the different parts and change the colours and I know people that use those apps for relaxing, just kind of being more mindful, so mental health apps should use less words and engage your creativity so that they don't feel like work.

Category 2: More comprehensive and creative apps (15 Incidents, 10 Participants, 66% Participant Rate)

In this category participants reflected on the importance of using apps that include several elements of the therapeutic process. A participant said, "I would like apps to be more comprehensive. I wish they integrated different skills rather than having to go to Headspace for this and Mindshift for that, especially for anxiety management." Similarly, other participant mentioned,

Having apps that can support better the psychoeducation piece of therapy, I would like to have an app for younger children with animations that explain the fight or flight response. It would be helpful as a tool in therapy to look at it together in session and that they can take home to review or go over it with parents.

Another participant commented, "One more thought comes to mind about what I wish was available, I think that it would be cool to include links to resources, like here is where you can go to learn more about OCD for example." Similarly, someone else said,

It would be great to have an app for clients that had a list of issues the clients may struggle with like anxiety or depression, and that would link to short videos of other people who have struggled with those things talking about how they deal with their

struggles and what is helpful for them and what is also difficult for them, to help them normalize their experience, and to help the client feel less alone.

Category 3: Having a centralized place to learn about helpful mental health apps (14 Incidents, 8 Participants, 53% Participant Rate)

In this category clients explained the need to have access to a trusted site where they can go to learn about apps. This is in response to the overwhelming number of mental health apps available on the market. Participants would like to have access to screened and selected apps that can be incorporated into therapy with clients. A participant stated,

It would be so useful if there were some blog, chat or Facebook page where people could post recommendations of apps they use with clients because that would reduce the amount of research I have to do because there are so many apps out there.

Another participant mentioned, “It would be really cool if my registration body had an app corner in the newsletter with information about good apps to use in therapy, its features, the evidence behind it, etc.”

Category 4: Apps that allow users to share information (10 Incidents, 7 Participants, 47% Participant Rate)

In this category participants discussed the ability some apps have of allowing users/clients to share information with their therapist. Participants value this feature because it allows them to get a clearer sense of how clients feel between sessions and helps create accountability. A participant mentioned,

I wish more apps allowed clients to share with their therapist information about their mood and progress because I think accountability is helpful. I also think that there are some apps that allow you to share with friends and relatives and I think that it is also

helpful for some people because they can share how they are feeling with their support system, and I think that is brilliant because there are family members and friends that want to help, and this can help initiate a conversation.

Another participant stated,

I wish all mental health apps had the ability to share information with mental health providers because there is so much that happens in between sessions that clients forget to bring up and it can help me as a therapist to get a better sense of how the client is doing and can help us to identify patterns. I think it is a very useful tool.

Expert Opinions

As part of the validation process, three academics with expertise in the use of mobile apps in mental health reviewed the findings of the study. The first expert stated that this research was very interesting because it gave new and in-depth insights into how apps can be used to support the clinical treatment of anxiety. The factors which help or prevent therapists from using mobile health approaches in the treatment of anxiety are currently under-investigated, so the findings here contribute new knowledge towards filling that gap. In regard to how the findings were presented, this expert commented that separating the information into groups and categories makes the findings comprehensive, clearly reported, and interesting.

The second expert appreciated that findings were divided into helping, hindering, and wish list items. She found the groups and categories to be useful as they clearly captured many of the important incidents in clinical practice. She stated that the results made sense to her and resonated with her experience using mobile applications in therapy with clients, and she considered that the results fill a gap in the current literature.

Finally, the third expert commented that the findings made sense to her and confirmed her experience using mobile apps with clients. She stated that there is a significant shortage of evidence-based mental health apps designed specifically for teens, which is the demographic who may benefit the most from using them by virtue of the fact that they use their phones so much already. Additionally, she reiterated the importance of not using a “one size fits all” approach because there are several factors that play into the selection and introduction of apps in the work with clients. Finally, this expert considered that there is a shortage of apps that have been designed specifically to use in session between therapists and clients and that this is a gap in the market.

Chapter 5: Discussion

Introduction

Anxiety disorders are the most common mental health condition among the general population with a lifetime prevalence of 31.9% (Merikangas et al., 2010). Technology offers a great platform for delivering and supplementing mental health services. Over the last decade, the development and use of mobile apps for mental health related purposes has proliferated. It is estimated that there are over 10,000 mental health apps available worldwide (Torous et al., 2018). According to findings from current research, some of the advantages of using apps are accessibility, anonymity, privacy, and the ability to monitor mood and to track progress in real time (Firth et al., 2017; Hollis et al., 2017; Nicholas et al., 2015; Sucala et al., 2016). On the other hand, some of the concerns reported in using mobile apps involve safety of personal information and the lack of robust research demonstrating the effectiveness of apps (Grist et al., 2017; Hollis et al., 2017; Prentice & Dobson, 2014; Owen et al., 2015).

Mobile apps have been conceived, for the most part, as stand-alone interventions. However, the inclusion and integration of mobile apps as tools in psychotherapy is an area of growing interest in mHealth (Hollis et al., 2017; Newman et al., 2014; Sucala et al., 2017). Human facilitation and support are important factors in influencing the uptake, engagement, and outcomes of mobile apps (Firth et al., 2017). It appears that integrating apps in a context like therapy is promising and could increase treatment adherence. However, there is no literature on how this integration takes place. In the present study, I sought to address this gap.

In this chapter, an examination and discussion of the research findings will be presented in relation to the relevant literature. This process allows the concepts that emerged to be compared and contrasted with the current literature available on the research topic. Any

emergent areas that extend our knowledge and understanding are noted and described. Finally, implications for counselling psychology, limitations of the study, future directions, and the significance of the study conclude this dissertation.

General Discussion

Fifteen participants, clinical counsellors and psychologists, shared their experiences integrating mobile apps into therapy with clients struggling with anxiety. Categories were extracted and divided into helping factors, hindering factors, and WL items (i.e., factors that participants wished were in place to make this integration more effective). Helping categories were organized into five groups: (a) reasons for using mobile apps in therapy, (b) app characteristics that are helpful in counselling, (c) when to integrate mobile apps in counselling, (d) ways to integrate mobile apps in therapy, and (e) client factors to consider.

All participants viewed apps as adjunct tools to therapy, not as a replacement for therapy. Some of the helping factors for using apps were how apps can potentially enhance engagement in therapy, increase a sense of connection with therapists, and reduce mental health stigma. These findings are supported by the literature. According to Clough and Casey (2011), mobile apps have the capacity to enhance existing face to face and virtual therapy practices. The authors found that apps give clinicians and clients the ability to stay connected between sessions by helping clients work towards goals set in therapy. Apps can possibly increase adherence by supporting clients with homework between sessions and offering personalized reminders to monitor their progress or use coping skills in real time. It has been suggested that the ability to customize apps may facilitate their use, empower clients to practice skills, and help strengthen the therapeutic alliance (Liebert et al., 2006; Murdoch & Connor-Greene, 2000).

Another great advantage participants identified is that results can be digitally shared with clinicians in some apps (Lui et al., 2017), which, according to participants in this study, can be helpful to therapists in planning future sessions. More clients value the interactive aspect of apps to complete homework activities on their phones, and prefer this to paper and pen (Marshall et al., 2020a). It is more convenient, more accessible, and it minimizes the risk of losing paper forms or forgetting them at home before their next appointment.

Participants also indicated that it is helpful when apps are congruent with their therapeutic orientation and with the goals of therapy. In a recent review estimating the proportion of apps offering treatment for anxiety and/or depression that use evidence-based frameworks, Marshall et al. (2020a) identified 162 apps out of 293 apps available on the Apple App store and the Google Play store. From the 162 apps, 30% were based on CBT, 15.7% on mindfulness, 9.2% on positive psychology, 3.4% on DBT, 1.7% on ACT, and 6.8% on other approaches to therapy. These results correspond with how the majority of participants in the present study categorized their theoretical framework (i.e., CBT, Mindfulness, DBT, and ACT). In a future study, it would be interesting to identify whether this finding could be generalized through research using a large quantitative study examining the mainstream psychotherapies currently being employed to treat anxiety using mobile apps.

In relation to app characteristics that are helpful in counselling, participants stated a clear preference for evidence-based apps developed by reputable institutions. Participants valued apps that have been researched, demonstrate effectiveness, and that align with evidence-based practices in the field. However, the lack of research on apps is abysmal compared to the number of apps available in the market. Marshall et al. (2019) state that two of the biggest concerns practicing psychologists have about using apps are the lack of both safety and efficacy. The

authors conducted a review and found that of all the apps (N=293) on the market available in 2018 for treating anxiety and/or depression, only 3.41% had research to justify their claims of effectiveness. In addition, the majority of that research was conducted by those involved in the development of the apps, creating possible conflicts of interest, because they could financially benefit when the apps were sold. Only 1.02% of the 293 apps had support shown in independent research. Lastly, 30.38% claimed to have expert development input, and 20.48% had an affiliation with a government body, academic institution, or medical facility. Sunyaev and colleagues (2015) estimated that nearly 70% of health apps do not have a privacy policy available to users from within the app.

According to Alyami and colleagues (2017), this could partly explain the skepticism and apprehension individuals feel about using apps, and it could be argued that clinicians may have a similar experience when thinking about using apps in their clinical work. As a result, participants expressed their preference for using apps that are developed by trusted institutions. However, it is essential that therapists and clients have clear and easy access to information on the efficacy, effectiveness, and limitations of apps. Using apps developed by a reputable institution is not enough to determine these factors, and therefore, more independent testing and regulation are needed.

Some governments are starting to take steps to better regulate apps. For example, Canada, New Zealand, Australia, and the United Kingdom are focusing their efforts on eradicating potentially unsafe health apps that may place an individual at risk of harm (Marshall et al., 2020b). Even though this is a very important step, there is much more to be done. Marshall and colleagues (2019) emphasized that new regulation needs to demand from app developers, the app store, and Google Play, a transparent and easy way to understand privacy of information policies

for users when they download apps. These authors are advocating for a new way of categorizing mental health apps that clearly distinguishes between apps that have acceptable scientific research and those that do not. They suggested that if a particular app became certified by an independent clinician researcher, it would give that app a marketing credential over all the others without such certification. The cost of this testing process would be the responsibility of the app developer and would have to be marketed to the app store and Google Play as offering greater financial returns for having undergone certification.

The main contributions of the present study include a detail description of the processes of how and when to integrate apps in therapy, and client factors to consider when making that decision, all of which will be discussed in more detail in the implications for counselling practice section below.

Implications for Counselling Practice

Since the start of the Covid-19 pandemic, the use of technology has become increasingly prevalent throughout psychological practice. This study describes several uses of mental health mobile apps in the context of therapy. Disseminating this information is important because it is possible that clinicians may not be aware of the use of mental health apps in these contexts. Mobile apps can be integrated at different points in the therapeutic process. Apps, such as Mindshift, can be offered or suggested to individuals who are waiting for services as a tool to better understand their anxiety, to develop awareness of their thinking patterns, and to learn and practice strategies to better respond to their experiences. In addition, apps are also suggested to people who cannot access services due to financial limitations or distance to services challenges.

Therapists can integrate apps into their work with clients when they are doing psychoeducation, when they want clients to practice skills between sessions (e.g., tracking mood,

catching unhelpful thinking patterns, being present, etc.), and when they are working on exposure response prevention (ERP) or conducting behavioural experiments to test their assumptions. Apps allow clients to play an active role in supporting their mental health and well-being between sessions.

A very valuable feature of some apps is allowing users to share information with their clinician. This is helpful in several ways. First, clients can potentially increase their engagement and accountability in the therapeutic process; second, the relationship with their therapist may strengthen because clients feel connected with their therapist when they share their experiences using mobile apps; and third, the therapist can have a window into the client's experience during the week that can help in planning or organizing future sessions, if it is relevant to the therapeutic process.

Another use of apps in counselling is for relapse prevention or aftercare. Aftercare refers to the ongoing psychological care of patients following discharge from inpatient or intensive outpatient treatment programmes (Lash & Blosser, 1999). The purpose of aftercare is to maintain psychological gains made during therapy. One of the most critical predictors of relapse is the individual's ability to utilize effective coping strategies in dealing with high-risk situations (Menon & Kandasamy, 2018). Most mental health mobile apps aim to support users with coping strategies to help them manage the internal and external demands of situations that are appraised as stressful.

Having integrated apps during the course of therapy can make these tools more likely to be effective after therapy ends. Not only would the client be familiar with them, but also the client may already be in the habit of using them. Some apps can help clients remember important components of therapy, and therefore, could help them maintain their gains.

Another important use of apps in therapy is to help clients learn and practice emotional regulation using guided meditation exercises. There is a significant number of apps focusing on these skills. Some participants in this study shared that they rely on apps to encourage and support clients to practice mindfulness between sessions. The findings support Fazia and colleagues' (2020) reporting that the benefits of using meditation and mindfulness are more tangible when individuals practice it regularly.

Previous studies have shown that clinicians hold positive attitudes toward the use of technology (Schuster et al., 2018), while other studies suggest that psychotherapists are less enthusiastic than clients in light of concerns about apps effectiveness and clinicians' lack of familiarity with some forms of technology (Newton & Sundin, 2016). Nevertheless, since the COVID-19 pandemic began, a great number of therapists have had to adapt to the use of telehealth. Providing guidance and support to therapists on how to integrate apps into their work with clients struggling with anxiety is useful and important.

Previous research has shown that when individuals receive coaching on how to use mental health apps, they tend to use them more effectively (Mohr et al., 2011). This could be true for clinicians as well. If clinicians received training on how to incorporate apps into psychotherapy, and if they received more guidance about how it can be helpful for certain clients, they would probably integrate these tools more often into their clinical work (Bush et al., 2019; Lipschitz et al., 2019). This is one of the main contributions of this study, since most mental health apps do not include instructions and have not been specifically designed for use in therapy; hence, clinicians are left to assess and to determine how to best use these tools in a clinical setting without support.

Delineating ways in which technology can be incorporated into clinical work can help to bridge some of these gaps. According to this study's findings, it is essential to walk clients through the experience of using apps. There are important factors to consider in order to successfully integrate apps into therapy which include: (a) researching/learning about apps; (b) using the app before suggesting it to a client; (c) determining if it is consistent with therapeutic goals; (d) using the app in session with the client; (e) downloading the app in session on the client's device, when possible; (f) creating implementation intentions to use the app between sessions; and (g) following up with clients about their experience with the app and identifying obstacles that may have come in the way.

Participants identified as helpful in determining whether to integrate apps in their clinical work the following client factors: (a) age; (b) comfort with technology; (c) access to internet and devices; (d) readiness for change; and (e) learning style. In regards to age, it is helpful to keep in mind that most mental health apps on the market are developed for adults. The language and features are designed with that population in mind. However, some apps, such as Smiling Mind, include a developmental lens that allows users to select their age group, and offers alternative meditations that use age-appropriate language for age ranges from three-year-olds all the way to adults. Other questions that may be helpful in determining whether an app is an appropriate tool for a client are: (a) Is the particular app perceived as useful by the client? (b) Is it seen as easy to use? (c) Is there an intention or curiosity to use technology? (d) Are the clients' social norms or environment (e.g., family members) supportive of the person's use of apps? (e) Does the client have sufficient knowledge about how this app fits the therapeutic goals? (f) Is the potential benefit of using the app clear to the client? and (g) Is the client motivated to use it? (Bartz & Hardiker, 2017). When clients have a better understanding of what

they are being asked to do, why they are being asked to do it, and which outcomes are likely if they do (or do not) carry out an action, they may be more motivated and willing to comply with their treatment recommendations (Martin et al., 2010).

In terms of readiness for change, participants indicated that it is important to assess clients' readiness for change before suggesting an app. Similar to other types of interventions that require that clients complete work between sessions, use of apps is based on the assumption that the user is ready to engage in behaviour change. One of the models that clinicians can use to determine this is the Transtheoretical Model (TTM), also known as the Stages of Change Model proposed by Di Clemente and Prochaska (1982). Initially targeting addiction and more specifically smoking behaviour, it has been applied to understanding change in other human behaviours (Velicer et al., 1995). The model suggests that change occurs continuously through a cyclical process that moves through six stages of change: (a) pre-contemplation, (b) contemplation, (c) preparation, (d) action, and (e) maintenance. The authors suggested that different intervention strategies are most effective at moving the person to the next stage of change and subsequently through the model to maintenance, the ideal stage of behaviour. It is important to assess what kind of apps would be beneficial in different stages of change.

Apps that offer a psychoeducation component could be introduced during the contemplation stage, when clients are thinking about changing their behaviour in the near future, and show interest in learning more about their anxiety. However, most apps require a certain level of commitment and motivation to engage with them. Therefore, clients who are in either the preparation stage or the action stage would be potentially the most benefited from integrating apps into therapy. The preparation stage refers to clients wanting to change and having tried to change but not having been successful, whereas in the action stage individuals have been

successful in putting into practice new and helpful ways of doing things. However, in this stage, clients often feel ready to end therapy and the risk of relapsing can be high. Participants considered apps to be great tools for relapse prevention. In summary, some apps are very good tools for assisting clients in practicing skills and reminding them of what they have learned in therapy (Prochaska & Velicer, 1997; Redding et al., 2000).

Participants identified clients' learning styles as an important factor which helped them determine whether or not to suggest and integrate apps into their clinical work with clients. The concept of learning styles was popularized in the 1970s and 1980s (Claxton & Ralston, 1978). The main idea is that learners can be categorized into one or more styles of learning (i.e., visual/spatial, aural/auditory, verbal/linguistic, physical/kinesthetic, logical/mathematical, social/interpersonal, solitary/intrapersonal) and that teaching students according to their style will result in improved learning. There are over 70 proposed taxonomies of learning styles described in the literature (Coffield et al., 2004).

Numerous research studies have shown that changing presentation or modifying teaching strategies to correspond or align with student learning styles does not improve outcomes (Coffield et al., 2004; Newton & Miah, 2017; Papanagnou et al., 2016; Pashler et al., 2009). However, it is possible that individuals may have preferences for learning material in particular formats, even though the presentation of the material in different formats does not impair learning (Husmann & O'Loughlin, 2019). From this perspective, if clients show or express a preference for reading and writing versus for auditory material, it is important for therapists to note this and to help them decide the kind of intervention that the client may engage in more easily (e.g., journaling vs. guided meditation).

It is necessary to remember that therapy is a personal journey and what helps one client may not be helpful to another. In the context of this study, apps are thought of as tools that can be integrated into therapy with clients who struggle with anxiety. It is necessary for therapists to become familiar with apps, understand their potential uses and applications in clinical work, and consider client characteristics to determine whether or not apps would be a good fit for the client (e.g., access to internet and devices, comfort with technology, age, readiness for change, learning style, and congruence with therapeutic goals).

In addition, clinicians would benefit from taking the necessary steps to introduce the app of their choosing, after determining that it aligns with therapeutic goals, using it together with the client in session, downloading it in the office on the client's device if possible, making explicit how the use of the app will help the client reach their goals, developing implementation intentions to use it in between sessions, and following up with the client. Moreover, regulation policies should demand that app developers conduct research demonstrating evidence for the efficacy of their apps. The App Store and Google Play should be required to present easy ways to understand the terms and conditions of privacy of information for users when they download apps. In addition to categorizing mental health apps in a way that helps users distinguish between apps that have acceptable scientific research and those that do not, as suggested by Marshall and colleagues (2019). Finally, it would be helpful if app developers offered guidelines and support for therapists on the potential uses of their mental health apps in clinical practice.

Participants expressed the wish to have a centralized place to learn about helpful and evidence-based apps for mental health. Marshall et al. (2020) presented a list of reputable websites, worldwide, that provide advice about mental health apps and often have expert and consumer reviews. These include PsyberGuide (<https://psyberguide.org/>), HeadtoHealth

(<https://headtohealth.gov.au/>), reachout.com (<https://au.reachout.com/tools-and-apps>), Beacon (<https://beacon.anu.edu.au/>), and Health Navigator (<https://www.healthnavigator.org.nz/apps/m/mental-health-and-wellbeing-apps/>). Mindtools is also helpful for this purpose (<http://www.MindTools.io>).

The previous sections are presented as general ideas about how to determine whether an app would be helpful with a particular client in therapy and how to integrate the app into the therapeutic process when working with clients experiencing anxiety. Practitioners interested in using mobile apps clinically with clients may find this study provides valuable insight that can be incorporated into their own therapeutic style and counselling practice.

Limitations of the Research

Participants represented a wide range in age, years of clinical experience, training in both clinical counselling and clinical psychology, scope of practice, and workplace. Limitations of the study are: (a) the inclusion of only one male therapist's experiences, (b) not collecting information on participants' ethnicity and their clients', and (c) not collecting information on the age of the clients who participants worked with using apps.

This study only included one male participant perspective. It would have been beneficial to include more to minimize gender bias. In addition, including participant's and client's ethnicities could have offered important information about diversity and multiculturalism. Finally, looking at the findings from a developmental perspective could have shed light on how to best integrate apps in the work done with children, youth, and adults.

Given the limited number of participants (N=15) and the qualitative nature of the study, the findings don't aim to be generalizable and only reflect the experiences of these particular participants. However, their descriptions of their experiences may resonate with counselling

practitioners who read the results of this study and it is hoped that readers will find the results of this study useful in their own practice.

Implications for Future Research

The purpose of this study was to explore the factors that helped and hindered the decisions of therapists to integrate mobile apps into counselling with clients who experience anxiety. The qualitative method selected, the ECIT, is well known for its application in exploring new areas of knowledge. The use of in-depth interviews allowed participants to reflect on and identify information that they felt was relevant to share related to the topic. However, it is possible that important content did not surface and was not discussed.

Further exploration of clients' experiences using apps in the context of therapy would be helpful, as well as finding out from therapists who do not use apps in therapy what possible obstacles they experience. In addition, future research on discovering whether therapists would feel more comfortable integrating apps specifically designed for therapeutic use is warranted. This type of research is important because future research could flesh out the specifics of therapy that aligns with particular apps which in turn would make these apps more useful in therapy. For example, if there was an app that explained the fight/flight response and what happens in the body as a result, and offered strategies to regulate the sympathetic nervous system that users could practice and record between sessions, it would be very helpful to use as part of the psychoeducation component of therapy, rather than having to piece together meditation with one app and mood tracking with another for example.

Using other methodologies, such as Interpersonal Process Recall (IPR) (Elliott, 1986; Larsen et al., 2008; Martin & Stelmaczek, 1988; Rennie, 1990), which focuses on accessing

in-the-moment experience, could be helpful to deepen the understanding of what makes a therapist or a client engage or not engage in the use of mental health apps.

Even though there are some studies that have found that when apps are integrated into group treatment there is greater reduction of symptoms (Newman et al., 2014), it would be important to conduct more studies that include follow-up data to determine if there is a difference between treatments that integrated apps that clients can continue to use after treatment, compared to treatments that did not integrate apps in follow-up studies. In this regard, treatment efficacy could be measured at three months, six months, and one year.

Findings from this study suggest that the lack of mHealth policy and regulation also affects clinicians' confidence and ability to choose and integrate apps in their clinical work with clients because learning about apps is a significant time-consuming task that could be simplified by good regulation policies. It would be a great contribution to write a policy brief explaining how the lack of policy and regulation of apps impacts clinicians and users who don't know how to find empirically supported apps.

Significance of the Study

This research provides a practical and meaningful contribution to ongoing scholarly conversation. It expands our understanding of the factors that help and hinder therapists in integrating mobile apps into the clinical work that they do with clients struggling with anxiety. The results highlight the multiple uses of apps in the therapeutic process, relevant client factors to consider before suggesting an app to a client, important steps to take into consideration when integrating apps into clinical work with clients, the need to have a centralized place to learn about effective evidence-based apps, and the imperative need for regulation of mental health apps and the safety of client information. Even though the data obtained was from a small

sample, the findings may be relevant to clinicians who are interested in using apps in their work with clients and those who have tried to and have not been able to do it successfully.

Conclusion

Mental health apps are relatively new in our field, and even though research on them is limited, the integration of apps as tools in psychological treatments continues to be an area of growing interest in mHealth. The research conducted in this dissertation describes practical aspects of the process of integrating apps to counselling and provides important ideas of how to do it, in hopes of assisting practitioners who are interested in using these tools more effectively with clients, and therefore, facilitating their use with clients to assist in managing their mental health needs.

References

- Alyami, M., Giri, B., Alyami, H., & Sundram, F. (2017). Social anxiety apps: A systematic review and assessment of app descriptors across mobile store platforms. *Evidence-Based Mental Health, 20*(3), 65–70. <https://doi.org/10.1136/eb-2017-102664>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).
- Andersson, B., & Nilsson, S. (1964). Studies in the reliability and validity of the critical incident technique. *Journal of Applied Psychology, 48*(6), 398–403. <https://doi.org/10.1037/h0042025>
- Anthes E. (2016). Mental health: There's an app for that. *Nature, 532*(7597), 20–23. <https://doi.org/10.1038/532020a>
- Arch, J. J., Eifert, G. H., Davies, C., Vilardaga, J. C. P., Rose, R. D., & Craske, M. G. (2012). Randomized clinical trial of cognitive behavioral therapy (CBT) versus acceptance and commitment therapy (ACT) for mixed anxiety disorders. *Journal of Consulting and Clinical Psychology, 80*(5), 750–765. doi:10.1037/a0028310
- Bandelow, B., & Michaelis, S. (2015). Epidemiology of anxiety disorders in the 21st century. *Dialogues in Clinical Neuroscience, 17*(3), 327-335. <https://doi.org/10.31887/DCNS.2015.17.3/bbandelow>
- Bar-Haim, Y., Lamy, D., Pergamin, L., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (2007). Threat-related attentional bias in anxious and nonanxious individuals: A meta-analytic study. *Psychological Bulletin, 133*(1), 1–24. <https://doi.org/10.1037/0033-2909.133.1.1>
- Barlow, D. H. (2014). *Clinical handbook of psychological disorders: A step-by-step*

- treatment manual* (5th ed.). The Guilford Press.
- Barrio, P., Ortega, L., López, H., & Gual, A. (2017). Self-management and shared decision-making in alcohol dependence via a mobile app: A pilot study. *International Journal of Behavioral Medicine, 24*(5), 722–727. <https://doi.org/10.1007/s12529-017-9643-6>
- Bartz, C., & Hardiker, N. (2017). Promoting engagement in health maintenance and health care in a telehealth-enabled environment. In W. T. O’Donohue, L. James, C. Snipes, & Springer Behavioral Science and Psychology eBooks (Eds.). *Practical strategies and tools to promote treatment engagement* (pp. 91–104). Springer.
- Bashshur, R., Doarn, C. R., Frenk, J. M., Kvedar, J. C., & Woolliscroft, J. O. (2020). Telemedicine and the COVID-19 pandemic, lessons for the future. *Telemedicine Journal and e-Health, 26*(5), 571-573. <https://doi.org/10.1089/tmj.2020.29040.rb>
- Beck, A. T. (1976). *Cognitive therapy of depression*. Guilford Press.
- Beck, A. T., & Clark, D. A. (1997). An information processing model of anxiety: Automatic and strategic processes. *Behaviour Research and Therapy, 35*(1), 49–58. [https://doi.org/10.1016/s0005-7967\(96\)00069-1](https://doi.org/10.1016/s0005-7967(96)00069-1)
- Beck, A. T., Emery, G., & Greenberg, R. L. (1985). *Anxiety disorders and phobias: A cognitive perspective*. Basic Books.
- Beck, J. S. (2011). *Cognitive behaviour therapy: Basics and beyond* (2nd ed.). Guilford Press.
- Berry, R. R., & Lai, B. (2014). The emerging role of technology in cognitive–behavioral therapy for anxious youth: A review. *Journal of Rational-Emotive and Cognitive-Behavior Therapy, 32*(1), 57–66. <https://doi.org/10.1007/s10942-014-0184-5>
- Bienvenu, O. J., & Ginsburg, G. S. (2007). Prevention of anxiety disorders. *International Review of Psychiatry, 19*(6), 647–654. <https://doi.org/10.1080/09540260701797837>

- Boddez, Y., Haesen, K., Baeyens, F., & Beckers, T. (2014). Selectivity in associative learning: A cognitive stage framework for blocking and cue competition phenomena. *Frontiers in Psychology, 5*, 1305–1305. <https://doi.org/10.3389/fpsyg.2014.01305>
- Boydell, K. M., Hodgins, M., Pignatiello, A., Teshima, J., Edwards, H., & Willis, D. (2014). Using technology to deliver mental health services to children and youth: A scoping review. *Journal of the Canadian Academy of Child and Adolescent Psychiatry = Journal de l'Académie canadienne de psychiatrie de l'enfant et de l'adolescent, 23*(2), 87–99.
- Bush, N. E., Armstrong, C. M., & Hoyt, T. V. (2019). Smartphone apps for psychological health: A brief state of the science review. *Psychological Services, 16*(2), 188–195. <https://doi.org/10.1037/ser0000286>
- Butterfield, L. D., Borgen, W. A., Amundson, N. E., & Maglio, A. T. (2005). Fifty years of the critical incident technique: 1954–2004 and beyond. *Qualitative Research: QR, 5*(4), 475–497. <https://doi.org/10.1177/1468794105056924>
- Butterfield, L. D., Borgen, W. A., Maglio, A. T., & Amundson, N. E. (2009). Using the enhanced critical incident technique in counselling psychology research. *Canadian Journal of Counselling Psychology, 43*(4), 265.
- Canadian Counselling and Psychotherapy Association. (2020, December 12). 2020 Code of Ethics. <https://www.ccpa-accp.ca/2020-code-of-ethics/>
- Canadian Medical Association. (2020, September 29). *Psychiatry Profile 2018*. <https://cma.ca/sites/default/files/2019-01/psychiatry-e.pdf>
- Canadian Mental Health Association. (2020, October 1). *Fast Facts about Mental Illness*. <https://cmha.ca/fast-facts-about-mental-illness>.
- Carrà, G., Crocamo, C., Bartoli, F., Carretta, D., Schivalocchi, A., Bebbington, P. E., & Clerici,

- M. (2016). Impact of a mobile e-health intervention on binge drinking in young people: The digital-alcohol risk alertness notifying network for adolescents and young adults project. *Journal of Adolescent Health, 58*(5), 520–526.
- Caxaj, C. S. (2016). A review of mental health approaches for rural communities: Complexities and opportunities in the Canadian context. *Canadian Journal of Community Mental Health, 35*(1), 29–45. <https://doi.org/10.7870/cjcmh-2015-023>
- Clark, D. M. (2011). Implementing NICE guidelines for the psychological treatment of depression and anxiety disorders: The IAPT experience. *International Review of Psychiatry, 23*(4), 318–327. <https://doi.org/10.3109/09540261.2011.606803>
- Claxton, C. S., & Ralston, Y. (1978). *Learning styles: Their impact on teaching and administration*. American Association for Higher Education.
- Clement, S., Schauman, O., Graham, T., Maggioni, F., Evans-Lacko, S., Bezborodovs, N., Morgan, C., Rüsch, N., Brown, J. S., & Thornicroft, G. (2015). What is the impact of mental health-related stigma on help-seeking? A systematic review of quantitative and qualitative studies. *Psychological Medicine, 45*(1), 11–27. <https://doi.org/10.1017/S0033291714000129>
- Clough, B. A., & Casey, L. M. (2011). Technological adjuncts to increase adherence to therapy: A review. *Clinical Psychology Review, 31*(5), 697–710. <https://doi.org/10.1016/j.cpr.2011.03.006>
- Coffield, F., Moseley, D., Hall, E. & Ecclestone, K. (2004). *Learning styles and pedagogy in post-16 learning: A systematic and critical review*. Learning and Skills Research Centre.
- Connolly, S. D., Bernstein, G. A., & Work Group on Quality Issues. (2007). Practice parameter

- for the assessment and treatment of children and adolescents with anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 46(2), 267–283. <https://doi.org/10.1097/01.chi.0000246070.23695.06>
- Cowen, E. L. (1983). Primary prevention in mental health: Past, present and future. In R. D. Felner, L. Jason, J. Moritsugu, & S. S. Farber (Eds.), *Preventive psychology: Theory, research and practice in community interventions* (pp. 11–25). Pergamon.
- Cuijpers, P. (2015). Psychotherapies for adult depression: Recent developments. *Current Opinion in Psychiatry*, 28(1), 24–29. doi:10.1097/YCO.0000000000000121
- Cuijpers, P., Berking, M., Andersson, G., Quigley, L., Kleiboer, A., & Dobson, K. S. (2013). A meta-analysis of cognitive-behavioural therapy for adult depression, alone and in comparison with other treatments. *Canadian Journal of Psychiatry*, 58(7), 376–385. <https://doi.org/10.1177/070674371305800702>
- Dehling, T., Gao, F., Schneider, S., & Sunyaev, A. (2015). Exploring the far side of mobile health: Information security and privacy of mobile health apps on iOS and Android. *JMIR mHealth and uHealth*, 3(1), Article e8. <https://doi.org/10.2196/mhealth.3672>
- DiClemente, C. C., & Prochaska, J. O. (1982). Self-change and therapy change of smoking behavior: A comparison of processes of change in cessation and maintenance. *Addictive Behaviors*, 7(2), 133–142. [https://doi.org/10.1016/0306-4603\(82\)90038-7](https://doi.org/10.1016/0306-4603(82)90038-7)
- Domschke, K., & Dannlowski, U. (2010). Imaging genetics of anxiety disorders. *NeuroImage*, 53(3), 822–831. <https://doi.org/10.1016/j.neuroimage.2009.11.042>
- Donker, T., Petrie, K., Proudfoot, J., Clarke, J., Birch, M. R., & Christensen, H. (2013).

- Smartphones for smarter delivery of mental health programs: A systematic review.
Journal of Medical Internet Research, 15(11), Article e247.
<https://doi.org/10.2196/jmir.2791>
- East, M. L., & Havard, B. C. (2015). Mental health mobile apps: From infusion to diffusion in the mental health social system. *JMIR Mental Health*, 2(1), e10-e10.
<https://doi.org/10.2196/mental.3954>
- Elliott, R. (1986). Interpersonal process recall as a psychotherapy process research method. In L.S. Greenberg & W. M. Pinsof (Eds.), *The psychotherapeutic process: A research handbook* (pp. 503–527). Guilford.
- Elliott, T. R. (2020). Opening editorial: Telepsychology: Research, training, practice, and policy. *Journal of Clinical Psychology*, 76(6), 923–924. <https://doi.org/10.1002/jclp.22958>
- Ellis, A. (1962). *Reason and emotions in psychotherapy*. Lyle Stuart.
- Emmelkamp, P. M. G., Ehring, T., & Ebooks Corporation. (2014). *The Wiley handbook of anxiety disorders* (1st ed.). Wiley Blackwell.
- Enock, P. M., Hofmann, S. G., & McNally, R. J. (2014). Attention bias modification training via smartphone to reduce social anxiety: A randomized, controlled multi-session experiment. *Cognitive Therapy and Research*, 38(2), 200–216. <https://doi.org/10.1007/s10608-014-9606-z>
- Essau, C. A., Conradt, J., & Petermann, F. (2000). Frequency, comorbidity, and psychosocial impairment of anxiety disorders in German adolescents. *Journal of Anxiety Disorders*, 14(3), 263–279. [https://doi.org/10.1016/s0887-6185\(99\)00039-0](https://doi.org/10.1016/s0887-6185(99)00039-0)
- Fazia, T., Bubbico, F., Iliakis, I., Salvato, G., Berzuini, G., Bruno, S., & Bernardinelli, L. (2020).

- Short-term meditation training fosters mindfulness and emotion regulation: A pilot study. *Frontiers in Psychology*, *11*, 558803-558803. <https://doi.org/10.3389/fpsyg.2020.558803>
- Firth, J., Torous, J., Nicholas, J., Carney, R., Rosenbaum, S., & Sarris, J. (2017). Can smartphone mental health interventions reduce symptoms of anxiety? A meta-analysis of randomized controlled trials. *Journal of Affective Disorders*, *218*, 15–22. <https://doi.org/10.1016/j.jad.2017.04.046>
- Flanagan, J. C. (1954). The critical incident technique. *Psychological Bulletin*, *51*, 327–358.
- Friesen, E. (2019). The landscape of mental health services in rural Canada. *University of Toronto Medical Journal*, *96*(2), 47–52.
- Gordon, R. S. (1983). An operational classification of disease prevention. *Public Health Reports*, *8*(2), 107–109.
- Government of Canada & Health Canada. (2018). *Opioid-related harms in Canada*. <https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/infographic-opioid-related-harms-december-2018/infographic-opioid-related-harms-december-2018.pdf>
- Grist, R., Porter, J., & Stallard, P. (2017). Mental health mobile apps for preadolescents and adolescents: A systematic review. *Journal of Medical Internet Research*, *19*(5), Article e176-e176. <https://doi.org/10.2196/jmir.7332>
- Grzybowski, S., & Kornelsen, J. (2013). Rural health services: Finding the light at the end of the tunnel. *Healthcare Policy*, *8*(3), 10–16. <https://doi.org/10.12927/hcpol.2013.23207>
- Gullotta, T. P., Bloom, M., & SpringerLINK ebooks - Medicine, & SpringerLink (Online service). (2014). *Encyclopedia of primary prevention and health promotion*. Springer US.
- Haller, H., Cramer, H., Lauche, R., Gass, F., & Dobos, G. J. (2014). The prevalence and burden

- of subthreshold generalized anxiety disorder: A systematic review. *BMC Psychiatry*, 14(1), 128–128. <https://doi.org/10.1186/1471-244X-14-128>
- Hastings, S. L., & Cohn, T. J. (2013). Challenges and opportunities associated with rural mental health practice. *Journal of Rural Mental Health*, 37(1), 37–49. <https://doi.org/10.1037/rmh0000002>
- Haverkamp, B. E., & Young, R. A. (2007). Paradigms, purpose, and the role of the literature: Formulating a rationale for qualitative investigations. *The Counseling Psychologist*, 35(2), 265–294. <https://doi.org/10.1177/0011000006292597>
- Health Resources and Services Administration Federal Office of Rural Health Policy. Available from: <https://www.hhs.gov/hipaa/for-professionals/faq/3015/what-is-telehealth/index.html#:~:text=The%20Health%20Resources%20and%20Services,professional%20health%2Drelated%20education%2C%20and>
- Heesacker, M., Perez, C., Quinn, M., & Benton, S. (2020). Computer-assisted psychological assessment and psychotherapy for collegians. *Journal of Clinical Psychology* 76(6), 952–972. <https://doi.org/10.1002/jclp.22854>
- Hempel, C., Sezier, A., & Terry, G. (2018). What helps or hinders clinicians in their decision-making processes when using or prescribing mHealth apps in practice? An exploratory study. *New Zealand Journal of Physiotherapy*, 46(2), 73–78. <https://doi.org/10.15619/NZJP/46.2.04>
- Higa-McMillan, C., Francis, S., & Chorpita, B. (2014). Anxiety Disorders. In E. J. Mash, R. A. Barkley, & Ebooks Corporation (Eds.), *Child psychopathology* (pp. 345–428). The Guilford Press.
- Hippe, J., Maddalena, V., Heath, S., Jesso, B., McCahon, M., & Olson, K. (2014). Access to

- health services in western Newfoundland, Canada: Issues, barriers and recommendations emerging from a community-engaged research project. *Gateways*, 7(1), 67–84.
<https://doi.org/10.5130/ijcre.v7i1.3390>
- Hofmann, S. G., Asnaani, A., Vonk, I. J. J., Sawyer, A. T., & Fang, A. (2012). The efficacy of cognitive behavioral therapy: A review of meta-analyses. *Cognitive Therapy and Research*, 36(5), 427–440. <http://doi.org/10.1007/s10608-012-9476-1>
- Holländare, F., Anthony, S. A., Randestad, M., Tillfors, M., Carlbring, P., Andersson, G., & Engström, I. (2013). Two-year outcome of internet-based relapse prevention for partially remitted depression. *Behaviour Research and Therapy*, 51(11), 719–722.
<https://doi.org/10.1016/j.brat.2013.08.002>
- Hollis, C., Falconer, C. J., Martin, J. L., Whittington, C., Stockton, S., Glazebrook, C., & Davies, E. B. (2017). Annual research review: Digital health interventions for children and young people with mental health problems – A systematic and meta-review. *Journal of Child Psychology and Psychiatry*, 58(4), 474–503. <https://doi.org/10.1111/jcpp.12663>
- Husmann, P. R., & O’Loughlin, V. D. (2019). Another nail in the coffin for learning styles? Disparities among undergraduate anatomy students’ study strategies, class performance, and reported VARK learning styles. *Anatomical Sciences Education*, 12(1), 6–19.
<https://doi.org/10.1002/ase.1777>
- Jorm, A. F., Patten, S. B., Brugha, T. S., & Mojtabai, R. (2017). Has increased provision of treatment reduced the prevalence of common mental disorders? Review of the evidence from four countries. *World Psychiatry*, 16(1), 90–99. <https://doi.org/10.1002/wps.20388>
- Kaczurkin, A. N., & Foa, E. B. (2015). Cognitive-behavioral therapy for anxiety disorders: An

- update on the empirical evidence. *Dialogues in Clinical Neuroscience*, 17(3), 337–346.
<https://doi.org/10.31887/DCNS.2015.17.3/akaczkurkin>
- Kashani, J. H., & Orvaschel, H. (1988). Anxiety disorders in mid-adolescence: A community sample. *American Journal of Psychiatry*, 145(8), 960–964.
<https://doi.org/10.1176/ajp.145.8.960>
- Kelty's key. (2020, September). *Self help*. <https://www.keltyskey.com/self-help/>
- Kendall, P. C., Khanna, M. S., Edson, A., Cummings, C., & Harris, M. S. (2011). Computers and psychosocial treatment for child anxiety: Recent advances and ongoing efforts. *Depression and Anxiety*, 28(1), 58–66. <https://doi.org/10.1002/da.20757>
- Kendall, P. C., & Peterman, J. S. (2015). CBT for adolescents with anxiety: Mature yet still developing. *The American Journal of Psychiatry*, 172(6), 519–530.
<https://doi.org/10.1176/appi.ajp.2015.14081061>
- Kenny, R., Dooley, B., & Fitzgerald, A. (2016). Developing mental health mobile apps: Exploring adolescents' perspectives. *Health Informatics Journal*, 22(2), 265–275.
<https://doi.org/10.1177/1460458214555041>
- Kessler, R. C., Brandenburg, N., Lane, M., Roy-Byrne, P., Stang, P., Stein, D., Wittchen, H.-U. (2005). Rethinking the duration requirement for generalized anxiety disorder: Evidence from the National Comorbidity Survey Replication. *Psychol Med* 35(7), 1073-1082.
<https://doi.org/10.1017/S0033291705004538>
- Kessler, R. C., Petukhova, M., Sampson, N., Zaslavsky, A., & Wittchen, H. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21(3), 169–184. <https://doi.org/10.1002/mpr.1359>

- Kessler R.C., Ruscio A.M., Shear K., Wittchen HU. (2009) Epidemiology of Anxiety Disorders. In: Stein M., Steckler T. (eds) *Behavioral Neurobiology of Anxiety and Its Treatment. Current Topics in Behavioral Neurosciences*, (pp. 21–35). Springer, Berlin, Heidelberg. https://doi-org.ezproxy.library.ubc.ca/10.1007/7854_2009_9
- Khanna, M. S., & Kendall, P. C. (2010). Computer-assisted cognitive behavioral therapy for child anxiety: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 78(5), 737–745. <https://doi.org/10.1037/a0019739>
- Kirmayer, L. J., & Valaskakis, G. G. (2009). *Healing traditions: The mental health of aboriginal peoples in Canada*. UBC Press.
- Kuhn, E., Greene, C., Hoffman, J., Nguyen, T., Wald, L., Schmidt, J., Ramsey, K. M., & Ruzek, J. (2014). Preliminary evaluation of PTSD coach, a smartphone app for post-traumatic stress symptoms. *Military Medicine*, 179(1), 12-18. <https://doi.org/10.7205/MILMED-D-13-00271>
- Langley, A., Bergman, R., McCracken, J., & Piacetini, J. (2004). Impairment in childhood anxiety disorders: Preliminary examination of the Child Anxiety Impact Scale-Parent Version. *Journal of Child and Adolescent Psychopharmacology*, 14(1), 105–114.
- Larsen, D., Edey, W., & Lemay, L. (2007). Understanding the role of hope in counselling: Exploring the intentional uses of hope. *Counselling Psychology Quarterly*, 20(4), 401–416. <https://doi.org/10.1080/09515070701690036>
- Lash, S. J., & Blosser, S. L. (1999). Increasing adherence to substance abuse aftercare group therapy. *Journal of Substance Abuse Treatment*, 16(1), 55–60. [https://doi.org/10.1016/S0740-5472\(98\)00015-4](https://doi.org/10.1016/S0740-5472(98)00015-4)
- Lewinsohn, P. M., Zinbarg, R. E., Seeley, J. R., Lewinsohn, M., & Sack, W. H. (1997). Lifetime

comorbidity among anxiety disorders and between anxiety disorders and other mental disorders in adolescents. *Journal of Anxiety Disorders*, 11(4), 377–394.

[https://doi.org/10.1016/S0887-6185\(97\)00017-0](https://doi.org/10.1016/S0887-6185(97)00017-0)

Lim, K., Jacobs, P., Ohinmaa, A., Schopflocher, D., & Dewa, C. S. (2008). A new population based measure of the economic burden of mental illness in Canada. *Chronic Diseases in Canada*, 28(3), 92–98.

Lingely-Pottie, P., & McGrath, P. (2006). A therapeutic alliance can exist without face-to-face contact. *Journal of Telemedicine and Telecare* 12(8), 396–399.

<https://doi.org/10.1258/135763306779378690>

Lipschitz, J., Miller, C. J., Hogan, T. P., Burdick, K. E., Lippin-Foster, R., Simon, S. R., & Burgess, J. (2019). Adoption of mobile apps for depression and anxiety: Cross-sectional survey study on patient interest and barriers to engagement. *JMIR Mental Health*, 6(1), Article e11334-e11334. <https://doi.org/10.2196/11334>

Lui, J. H. L., Marcus, D. K., & Barry, C. T. (2017). Evidence-based apps? A review of mental health mobile applications in a psychotherapy context. *Professional Psychology: Research and Practice*, 48(3), 199–210. <https://doi.org/10.1037/pro0000122>

Luxton, D. D., McCann, R. A., Bush, N. E., Mishkind, M. C., & Reger, G. M. (2011). mHealth for mental health: Integrating smartphone technology in behavioral healthcare. *Professional Psychology: Research and Practice*, 42(6), 505–512.

<https://doi.org/10.1037/a0024485>

Lyneham, H. J., & Rapee, R. M. (2011). Prevention of child and adolescent anxiety disorders. In K. Silverman, & A. Field (Eds.), *Anxiety Disorders in Children and Adolescents* (pp. 349-366). Cambridge University Press. <https://doi.org/10.1017/CBO9780511994920.017>

- March, S., Spence, S. H., & Donovan, C. L. (2009). The efficacy of an internet-based cognitive-behavioral therapy intervention for child anxiety disorders. *Journal of Pediatric Psychology, 34*(5), 474–487. <https://doi.org/10.1093/jpepsy/jsn099>
- Marshall, J. M., Dunstan, D. A., & Bartik, W. (2019). The digital psychiatrist: In search of evidence-based apps for anxiety and depression. *Frontiers in Psychiatry, 10*, 831. <https://doi.org/10.3389/fpsy.2019.00831>
- Marshall, J. M., Dunstan, D. A., & Bartik, W. (2020a). Effectiveness of using mental health mobile apps as digital antidepressants for reducing anxiety and depression: Protocol for a multiple baseline across-individuals design. *JMIR Research Protocols, 9*(7), Article e17159. <https://doi.org/10.2196/17159>
- Marshall, J. M., Dunstan, D. A., & Bartik, W. (2020b). Smartphone psychology: New approaches towards safe and efficacious mobile mental health apps. *Professional Psychology: Research and Practice, 51*(3), 214–222. <https://doi.org/10.1037/pro0000278>
- Martin, J., & Stelmaczek, K. (1988). Participants' identification and recall of important events in counseling. *Journal of Counseling Psychology, 35*(4), 385–390. <https://doi.org/10.1037/0022-0167.35.4.385>
- Martin, L. R., Haskard-Zolnierok, K. B., & DiMatteo, M. R. (2010). *Health behavior change and treatment adherence: Evidence-based guidelines for improving healthcare*. Oxford University Press.
- McDaniel, M. M., Borgen, W. A., Buchanan, M. J., Butterfield, L. D., & Amundson, N. E. (2020). The philosophical underpinnings of the enhanced Critical Incident Technique. *Canadian Journal of Counselling and Psychotherapy, 54*(4), 738–755. <https://doi.org/10.47634/cjcp.v54i4.68139>

- McLean, C. P., Asnaani, A., Litz, B. T., & Hofmann, S. G. (2011). Gender differences in anxiety disorders: Prevalence, course of illness, comorbidity and burden of illness. *Journal of Psychiatric Research*, 45(8), 1027–1035. <https://doi.org/10.1016/j.jpsychires.2011.03.006>
- Menon, J., & Kandasamy, A. (2018). Relapse prevention. *Indian Journal of Psychiatry*, 60(8), 473-478.
- Menon, V., Rajan, T. M., & Sarkar, S. (2017). Psychotherapeutic applications of mobile phone-based technologies: A systematic review of current research and trends. *Indian Journal of Psychological Medicine*, 39(1), 4–11. <https://doi.org/10.4103/0253-7176.198956>
- Mental Health Commission of Canada – Documents. (2011). Life and economic impact of major mental illnesses in Canada. https://www.mentalhealthcommission.ca/sites/default/files/MHCC_Report_Base_Case_FINAL_ENG_0_0.pdf
- Mental Health Commission of Canada - Documents. (2016). Making the case for investing in mental health in Canada: 1 in 5 people in Canada lives with a mental illness each year. https://www.mentalhealthcommission.ca/sites/default/files/2016-06/Investing_in_Mental_Health_FINAL_Version_ENG.pdf
- Mental Health Commission of Canada - Documents. (2020). *Rural and remote mental health in Canada: Evidence brief on best and promising practices*. https://www.mentalhealthcommission.ca/sites/default/files/2020-05/Rural_remote_mental_health_evidence_brief_eng.pdf
- Mental Health Commission of Canada - Documents. (2017). *RE-AIMing e-mental health: A*

rapid review of current research.

[https://www.mentalhealthcommission.ca/sites/default/files/2017-](https://www.mentalhealthcommission.ca/sites/default/files/2017-08/eMH%20Literature%20Review_FINAL%20EN.pdf)

[08/eMH%20Literature%20Review_FINAL%20EN.pdf](https://www.mentalhealthcommission.ca/sites/default/files/2017-08/eMH%20Literature%20Review_FINAL%20EN.pdf)

Merikangas, K. R., He, J., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., Benjet, C.,

Georgiades, K., & Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents: Results from the national comorbidity study-adolescent supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, *49*(10), 980-989. <https://doi.org/10.1016/j.jaac.2010.05.017>

Milev, R. V., Giacobbe, P., Kennedy, S. H., Blumberger, D. M., Daskalakis, Z. J., Downar, J.,

& the CANMAT Depression Work Group. (2016). Canadian network for mood and anxiety treatments (CANMAT) 2016 clinical guidelines for the management of adults with major depressive disorder: Section 4. Neurostimulation treatments. *Canadian Journal of Psychiatry*, *61*(9), 561–575. <https://doi.org/10.1177/0706743716660033>

Miller, K. E., Kuhn, E., Owen, J. E., Taylor, K., Yu, J. S., Weiss, B. J., Crowley, J. J., & Trockel,

M. (2019). Clinician perceptions related to the use of the CBT-I coach mobile app. *Behavioral Sleep Medicine*, *17*(4), 481–491.

<https://doi.org/10.1080/15402002.2017.1403326>

Minen, M. T., Gopal, A., Sahyoun, G., Stieglitz, E., & Torous, J. (2020). The

functionality, evidence, and privacy issues around smartphone apps for the top neuropsychiatric conditions. *The Journal of Neuropsychiatry and Clinical Neurosciences*, *33*(1), 72–79. <https://doi.org/10.1176/appi.neuropsych.19120353>

Miner, A., Kuhn, E., Hoffman, J. E., Owen, J. E., Ruzek, J. I., & Taylor, C. B. (2016).

- Feasibility, acceptability, and potential efficacy of the PTSD coach app: A pilot randomized controlled trial with community trauma survivors. *Psychological Trauma: Theory, Research, Practice and Policy*, 8(3), 384–392.
<https://doi.org/10.1037/tra0000092>
- Moberg, C., Niles, A., & Beermann, D. (2019). Guided self-help works: Randomized waitlist controlled trial of pacifica, a mobile app integrating cognitive behavioral therapy and mindfulness for stress, anxiety, and depression. *Journal of Medical Internet Research*, 21(6), Article e12556-e12556. <https://doi.org/10.2196/12556>
- Mohr, D. C., Cuijpers, P., & Lehman, K. (2011). Supportive accountability: A model for providing human support to enhance adherence to eHealth interventions. *Journal of Medical Internet Research*, 13(1), Article e30. <https://doi.org/10.2196/jmir.1602>
- Murdoch, J. W., & Connor-Greene, P. A. (2000). Enhancing therapeutic impact and therapeutic alliance through electronic mail homework assignments. *The Journal of Psychotherapy Practice and Research*, 9(4), 232–237.
- Murray, E., Hekler, E. B., Andersson, G., Collins, L. M., Doherty, A., Hollis, C., Rivera, D. E., West, R., & Wyatt, J. C. (2016). Evaluating digital health interventions: Key questions and approaches. *American Journal of Preventive Medicine*, 51(5), 843–851.
<https://doi.org/10.1016/j.amepre.2016.06.008>
- National Institute of Mental Health. *Technology and the future of mental health treatment*. Retrieved September 21, 2020, from <https://www.nimh.nih.gov/health/topics/technology-and-the-future-of-mental-health-treatment/index.shtml>
- Neary, M., & Schueller, S. M. (2018). State of the field of mental health apps. *Cognitive and*

- Behavioral Practice*, 25(4), 531–537. <https://doi.org/10.1016/j.cbpra.2018.01.002>
- Nelson, S. E., & Wilson, K. (2017). The mental health of indigenous peoples in Canada: A critical review of research. *Social Science & Medicine*, 176, 93–112. <https://doi.org/10.1016/j.socscimed.2017.01.021>
- Newman, M. G., Przeworski, A., Consoli, A. J., & Taylor, C. B. (2014). A randomized controlled trial of ecological momentary intervention plus brief group therapy for generalized anxiety disorder. *Psychotherapy*, 51(2), 198–206. <https://doi.org/10.1037/a0032519>
- Newton, J., & Sundin, E. (2016). A questionnaire-based qualitative study of therapist views on computerized CBT. *The Cognitive Behaviour Therapist*, 9, E15. <https://doi:10.1017/S1754470X16000131>
- Newton, P. M., & Miah, M. (2017). Evidence-Based Higher Education - Is the Learning Styles 'Myth' Important?. *Frontiers in psychology*, 8, 444. <https://doi.org/10.3389/fpsyg.2017.00444>
- Nicholas, J., Larsen, M. E., Proudfoot, J., & Christensen, H. (2015). Mobile apps for bipolar disorder: A systematic review of features and content quality. *Journal of Medical Internet Research*, 17(8), Article e198. <https://doi.org/10.2196/jmir.4581>
- Ogden, T., & Hagen, K.A. (2018). *Adolescent Mental Health: Prevention and Intervention* (2nd ed.). Routledge. <https://doi.org/10.4324/9781315295374>
- Owen, J. E., Jaworski, B. K., Kuhn, E., Makin-Byrd, K. N., Ramsey, K. M., & Hoffman, J. E. (2015). mHealth in the wild: Using novel data to examine the reach, use, and impact of PTSD coach. *JMIR Mental Health*, 2(1), Article e7-e7. <https://doi.org/10.2196/mental.3935>

- Papanagnou, D., Serrano, A., Barkley, K., Chandra, S., Governatori, N., Piela, N., Wanner, G. K., & Shin, R. (2016). Does tailoring instructional style to a medical student's self-perceived learning style improve performance when teaching intravenous catheter placement? A randomized controlled study. *BMC Medical Education, 16*(1), 205–205. <https://doi.org/10.1186/s12909-016-0720-3>
- Pashler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2009). Learning styles: Concepts and evidence. *Psychological Science in the Public Interest, 9*(3), 105–119. <https://doi.org/10.1111/j.1539-6053.2009.01038.x>
- Patten, S. B., Williams, J. V. A., Lavorato, D. H., Fiest, K. M., Bulloch, A. G. M., & Wang, J. (2015). The prevalence of major depression is not changing. *Canadian Journal of Psychiatry, 60*(1), 31–34. <https://doi.org/10.1177/070674371506000107>
- Pennant, M. E., Loucas, C. E., Whittington, C., Creswell, C., Fonagy, P., Fuggle, P., Kelvin, R., Naqvi, S., Stockton, S., Kendall, T., & Expert Advisory Group. (2015). Computerised therapies for anxiety and depression in children and young people: A systematic review and meta-analysis. *Behaviour research and therapy, 67*, 1–18. <https://doi.org/10.1016/j.brat.2015.01.009>
- Perrin, B., & ProQuest (Firm). (2020). *Overdose: Heartbreak and hope in Canada's opioid crisis*. Viking.
- Perrin, P. B., Rybarczyk, B. D., Pierce, B. S., Jones, H. A., Shaffer, C., & Islam, L. (2020). Rapid telepsychology deployment during the COVID-19 pandemic: A special issue commentary and lessons from primary care psychology training. *Journal of Clinical Psychology, 76*(6), 1173–1185. <https://doi.org/10.1002/jclp.22969>
- Possemato, K., Ph.D, Kuhn, E., Ph.D, Johnson, E., Ph.D, Hoffman, J. E., Psy.D, Owen, J. E.,

- Ph.D, Kanuri, N., B.A, De Stefano, L., B.A, & Brooks, E., B.A. (2016). Using PTSD coach in primary care with and without clinician support: A pilot randomized controlled trial. *General Hospital Psychiatry*, 38, 94-98.
<https://doi.org/10.1016/j.genhosppsy.2015.09.005>
- Possemato, K., Kuhn, E., Johnson, E. M., Hoffman, J. E., & Brooks, E. (2017). Development and refinement of a clinician intervention to facilitate primary care patient use of the PTSD coach app. *Translational Behavioral Medicine*, 7(1), 116–126.
<https://doi.org/10.1007/s13142-016-0393-9>
- Pramana, G., Parmanto, B., Kendall, P. C., & Silk, J. S. (2014). The SmartCAT: An m-health platform for ecological momentary intervention in child anxiety treatment. *Telemedicine Journal and e-Health*, 20(5), 419-427. <https://doi.org/10.1089/tmj.2013.0214>
- Prentice, J. L., & Dobson, K. S. (2014). A review of the risks and benefits associated with mobile phone applications for psychological interventions. *Canadian Psychology/Psychologie canadienne*, 55(4), 282–290. <https://doi.org/10.1037/a0038113>
- Price, M., Yuen, E. K., Goetter, E. M., Herbert, J. D., Forman, E. M., Acierno, R., & Ruggiero, K. J. (2014). mHealth: A mechanism to deliver more accessible, more effective mental health care. *Clinical Psychology & Psychotherapy*, 21(5), 427–436.
<https://doi.org/10.1002/cpp.1855>
- Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion*, 12(1), 38-48.
<https://doi.org/10.4278/0890-1171-12.1.38>
- Redding, C. A., Rossi, J. S., Rossi, S. R., Velicer, W. F., & Prochaska, J. O. (2000). Health Behavior Models. *International Electronic Journal of Health Education*, 3, 180–193.

- Reed, G., McLaughlin, C., & Milholland, K. (2000). Ten interdisciplinary principles for professional practice in telehealth: Implications for psychology. *Professional Psychology: Research and Practice, 31*(2), 170–178. <http://dx.doi.org/10.1037/0735-7028.31.2.170>
- Reinecke, M. A., & Freeman, A. (2003). Cognitive Therapy. In A. S. Gurman & S. B. Messer (Eds.), *Essential Psychotherapies* (2nd ed.) (pp. 234–271). Guilford Press.
- Renton, T., Tang, H., Ennis, N., Cusimano, M. D., Bhalerao, S., Schweizer, T. A., & Topolovec-Vranic, J. (2014). Web-based intervention programs for depression: A scoping review and evaluation. *Journal of Medical Internet Research, 16*(9), Article e209. <https://doi.org/10.2196/jmir.3147>
- Reyes-Portillo, J. A., Mufson, L., Greenhill, L. L., Gould, M. S., Fisher, P. W., Tarlow, N., & Rynn, M. A. (2014). Web-based interventions for youth internalizing problems: a systematic review. *Journal of the American Academy of Child and Adolescent Psychiatry, 53*(12), 1254–1270. <https://doi.org/10.1016/j.jaac.2014.09.005>
- Riener, C., & Willingham, D. (2010). The myth of learning styles. *Change 42*, 32–35.
- Rizvi, S. L., Hughes, C. D., & Thomas, M. C. (2016). The DBT coach mobile application as an adjunct to treatment for suicidal and self-injuring individuals with borderline personality disorder: A preliminary evaluation and challenges to client utilization. *Psychological Services, 13*(4), 380–388. <https://doi.org/10.1037/ser0000100>
- Romans, S., Cohen, M., & Forte, T. (2011). Rates of depression and anxiety in urban and rural Canada. *Social Psychiatry and Psychiatric Epidemiology, 46*(7), 567–575. [doi:10.1007/s00127-010-0222-2](https://doi.org/10.1007/s00127-010-0222-2)
- Rubanovich, C. K., Mohr, D. C., & Schueller, S. M. (2017). Health app use among individuals

- with symptoms of depression and anxiety: A survey study with thematic coding. *JMIR Mental Health*, 4(2), Article e22–e22. <https://doi.org/10.2196/mental.7603>
- Sawyer, M. G., Arney, F. M., Baghurst, P. A., Clark, J. J., Graetz, B. W., Kosky, R. J., Nurcombe, B., Patton, G. C., Prior, M. R., Raphael, B., Rey, J. M., Whaites, L. C., & Zubrick, S. R. (2001). The mental health of young people in Australia: Key findings from the child and adolescent component of the national survey of mental health and well-being. *The Australian and New Zealand Journal of Psychiatry*, 35(6), 806–814. <https://doi.org/10.1046/j.1440-1614.2001.00964.x>
- Schueller, S. M., Muñoz, R. F., & Mohr, D. C. (2013). Realizing the potential of behavioral intervention technologies. *Current Directions in Psychological Science: A Journal of the American Psychological Society*, 22(6), 478–483. <https://doi.org/10.1177/0963721413495872>
- Schueller, S. M., Washburn, J., & Price, M. (2016). Exploring mental health providers' interest in using web and mobile-based tools in their practices. *Internet Interventions*, 4(2), 145–151. <https://doi.org/10.1016/j.invent.2016.06.004>
- Schuster, R., Pokorny, R., Berger, T., Topooco, N., & Laireiter, A. R. (2018). The advantages and disadvantages of online and blended therapy: Survey study amongst licensed psychotherapists in Austria. *Journal of Medical Internet Research*, 20(12), Article e11007. <https://doi.org/10.2196/11007>
- Silverman M.M. (2014) Theories of Primary Prevention and Health Promotion. In: Gullotta T.P., Bloom M. (eds). *Encyclopedia of Primary Prevention and Health Promotion*. Springer, Boston, MA. https://doi.org/10.1007/978-1-4614-5999-6_335
- Simonoff, E., Pickles, A., Meyer, J. A., Silberg, J. L., Maes, H. M., Loeber, R., Rutter, M.,

- Hewitt, J. K., & Eaves, L. J. (1997). The Virginia twin study of adolescent behavioral development: Influences of age, sex, and impairment on rates of disorder. *Archives of General Psychiatry*, *54*(9), 801–808.
<https://doi.org/10.1001/archpsyc.1997.01830210039004>
- Simos, G., & Hofmann, S. (2013). *CBT for anxiety disorders a practitioner book*. Wiley-Blackwell.
- Smith, R. A., & Applegate, A. (2018). Mental health stigma and communication and their intersections with education. *Communication Education*, *67*(3), 382–393.
<https://doi.org/10.1080/03634523.2018.1465988>
- Spence, S. H., Donovan, C. L., March, S., Gamble, A., Anderson, R. E., Prosser, S., & Kenardy, J. (2011). A randomized controlled trial of online versus clinic-based CBT for adolescent anxiety. *Journal of Consulting and Clinical Psychology*, *79*(5), 629–642.
<https://doi.org/10.1037/a0024512>
- Standing Senate Committee on Social Affairs, Science and Technology, & desLibris – Documents. (2006). *Out of the shadows at last: Transforming mental health, mental illness and addiction services in Canada*. Senate Committee Reports.
<https://sencanada.ca/content/sen/committee/391/soci/rep/rep02may06-e.htm>
- Stein, D. J., Scott, K. M., de Jonge, P., & Kessler, R. C. (2017). Epidemiology of anxiety disorders: From surveys to nosology and back. *Dialogues in Clinical Neuroscience*, *19*(2), 127–136.
- Sucala, M., Cuijpers, P., Muench, F., Cardos, R., Soflau, R., Dobrea, A., Achimas-Cadariu, P., & David, D. (2017). Anxiety: There is an app for that. A systematic review of anxiety apps. *Depression and Anxiety*, *34*(6), 518–525. <https://doi.org/10.1002/da.22654>

- Torous, J., Firth, J., Huckvale, K., Larsen, M., Cosco, T., Carney, R., Chan, S., Pratap, A., Yellowlees, P., Wykes, T., Keshavan, M., & Christensen, H. (2018). The Emerging Imperative for a Consensus Approach Toward the Rating and Clinical Recommendation of Mental Health Apps. *The Journal of Nervous and Mental Disease*, 206(8), 662–666. <https://doi.org/10.1097/NMD.0000000000000864>
- Varker, T., Brand, R., Ward, J., Terhaag, S., & Phelps, A. (2019). Efficacy of synchronous telepsychology interventions for people with anxiety, depression, posttraumatic stress disorder, and adjustment disorder: A rapid evidence assessment. *Psychological Services*, 16(4), 621–35. <https://doi.org/10.1037/ser0000239>
- Velicer, W. F., Fava, J. L., Prochaska, J. O., Abrams, D. B., Emmons, K. M., & Pierce, J. P. (1995). Distribution of smokers by stage in three representative samples. *Preventive Medicine*, 24(4), 401–411. <https://doi.org/10.1006/pmed.1995.1065>
- Watts, S., Mackenzie, A., Thomas, C., Griskaitis, A., Mewton, L., Williams, A., & Andrews, G. (2013). CBT for depression: A pilot RCT comparing mobile phone vs. computer. *BMC Psychiatry*, 13(1), 49–49. <https://doi.org/10.1186/1471-244X-13-49>
- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD Checklist for DSM-5 (PCL-5)*. <https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp>
- Woolsey, L. K. (1986). The critical incident technique: An innovative qualitative method of research. *Canadian Journal of Counselling and Psychotherapy*, 20(4), 242–254.
- Zaider, T. I., Heimberg, R. G., & Iida, M. (2010). Anxiety disorders and intimate relationships: A study of daily processes in couples. *Journal of Abnormal Psychology*, 119(1), 163–173. <https://doi.org/10.1037/a0018473>

Appendices

Appendix A – Recruitment Poster



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Clinician perceptions of the integration of anxiety mobile applications to counselling: An Enhanced Critical Incident Study

The purpose of this research project is to gain greater understanding of the factors that influence the decision to integrate mobile apps as tools in counselling when working with clients struggling with anxiety and other related concerns. Participants will have the opportunity to talk about the factors that influenced their experience in integrating or not mobile applications to their work with clients, discussing what helped and/or hindered their decision to use apps, and how they were or not helpful to the therapeutic process.

The investigators and supervisors for this study are Liliana Cortes, Doctoral Student Researcher, xxxxxxxxx, Dr. Marla Buchanan, xxxxxxxxx, Dr. William Borgen, xxxxxxxxx, and Dr. Jennifer Shapka, xxxxxxxxx, from the Faculty of Educational and Counselling Psychology, and Special Education Department at the University of British Columbia.

We would be interested in hearing from you if:

- You currently practice as a therapist, psychologist, counsellor, and/or social worker and see clients who struggle with anxiety.
- You have used mobile applications as tools in your work with your clients; and if
- You are willing to talk about the factors that influenced your decision to integrate mobile applications into your work with clients in a confidential interview.

If you would like to participate, or would like further information about this study, please contact Liliana Cortes by email at _____

Appendix B – Consent Form



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CONSENT FORM

Clinician perceptions of the integration of anxiety mobile applications to counselling: An
Enhanced Critical Incident Study.

Consent Form for Research Project Participation

Principal Investigator

Marla Buchanan, PhD, Professor, University of British Columbia
Department of Educational & Counselling Psychology, and Special Education

Co-Investigators

Liliana Cortes, MA, Doctoral Student, University of British Columbia Department of
Educational & Counselling Psychology, and Special Education

William Borgen, PhD Professor, University of British Columbia
Department of Educational & Counselling Psychology, and Special Education

Jennifer Shapka, PhD, Professor, University of British Columbia
Department of Educational & Counselling Psychology, and Special Education

This consent form outlines the basic purposes and procedures of this research project. This
research is research is being done for a doctoral dissertation.

Purpose and Benefits:

You are invited to participate in this study that seeks to explore the perceptions of clinicians of
the integration of mobile application into counselling when working with clients who struggle
with anxiety and other related concerns.

Your unique and valuable personal perspective is being sought to deepen our understanding of the factors that contribute to and hinder the experience of integrating mobile applications as tools that can potentially enhance treatment adherence into counselling.

The information gained from this research may be useful to the field of Psychology as it will shed light on how best to use and integrate technology into counselling and better support clients.

For the purposes of this study you must be:

- Currently practicing as a therapist, psychologist, counsellor, and/or social worker and seeing clients who struggle with anxiety.
- Have used mobile applications as tools in your work with your clients during the last year.
- Be willing to talk about the factors that influenced your decision to integrate mobile applications into your work with clients in a confidential interview.

Procedures

You are being asked to participate in the following procedures:

1. Demographics Questionnaire – This survey will require 5 minutes. The questionnaire will request basic background information such as your age, type of practice, number of years practicing, type of clinician, and types of mobile applications used.

2. Interview – This interview will require between one to two hours. The interview will consist of the co-investigator asking some questions about what has helped or hindered your decision to integrate mobile applications into therapy. The interview will be audio recorded using a digital recorder.

3. You may be asked to participate in a follow up interview requiring up to 30 minutes of your time to review the information gathered from your interview and see if the categories coming out of the interviews fit with your experience.

Confidentiality:

Your identity will be confidential within the limits of law. You will be assigned a case number for written documents and digital files. The list that matches the code numbers with your name will be kept in a fire proof, locked filing cabinet separate from the data. Any identifying information in oral recordings will be removed from transcripts (typed records of oral interviews). The only individuals who will have access to identifiable written or recorded data will be the researcher, and the research team. A group of independent raters, under doctoral supervision, will have access to transcripts for rating purposes following the removal of any identifying information. All questionnaires, interview recordings and interview transcripts will be securely stored in a locked filing cabinet. Access to non-identifying records will be restricted to individuals directly involved in the research study. Following the completion of the study the recordings will be destroyed and only the anonymized transcripts with all identifiers removed will be kept. These anonymized transcripts will be numbered with correlating numbers to the demographic information but will not enable anyone to trace the interview back to the participant. The anonymized data will be kept indefinitely. The data collected will be used for

research and education purposes.

Risks, Stress or Discomfort:

As with any new experience, you may experience some minor anxiety or stress being involved in a research study. The co-investigator will aim to minimize any experienced anxiety or stress. Questions are welcomed and encouraged throughout your study involvement. Your well-being is of utmost importance throughout this process.

This study seeks to understand what has facilitated or hindered your decision to integrate mobile applications as tools into therapy when working with clients struggling with anxiety. In the event that you experience an uncomfortable emotional response, inform the interviewer immediately and you will be given the option to resume when you are ready, reschedule, or withdraw from the study.

Contact for Information about the Study:

If you have any questions or would like more information about this study, you may contact Dr. Marla Buchanan (Principal Investigator) at xxxxxxxxxx; or Liliana Cortes (Co-Investigator) at xxxxxxxxxx.

Who can you contact if you have complaints or concerns about the study?

If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Consent:

Your participation in this study is entirely voluntary and you may refuse to participate or withdraw from the study at any time without prejudice of any kind.

Your signature below indicates that you have received a copy of this consent form for your own records.

Your signature indicates that you consent to participate in this study.

Participant Signature

Date

Printed Name of the Participant signing above

Thank you for your willingness to participate in this study.

Appendix C: Demographic Questionnaire

Clinician perceptions of the integration of anxiety mobile applications to counselling: An Enhanced Critical Incident Study

Demographic Questionnaire

1. Age: _____

2. Gender: _____

3. Type of practice: Private _____ Agency _____ Other _____

4. Type of clinician: _____

5. Number of years of experience: _____

6. Theoretical orientation: _____

7. Names of mobile applications that you have used with clients:

8. Number of times you have integrated mobile applications into your work with clients in the last year: _____

Appendix D – Interview Protocol



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Interview Protocol

Participants will be oriented to the interview using the following script:

“Thank you for agreeing to meet with me. I am interested in learning as much as possible about your experience integrating mobile applications into counselling, more importantly what helps and hinders your decision to integrate it and what you observe in the therapeutic process as a result of it. I will be asking you to think about times when you have decided to integrate mobile applications into counselling when working with clients who struggle with anxiety and other related concerns. I will be asking you to describe these to me in detail and will ask you follow up questions to be sure I understand exactly what you are saying. Each time you finish telling me about an experience, I will ask you if there was anything you wished would have been in place for you to make your experience more positive.

I am hoping the information provided by you and all of the participants will help us learn more about how to better integrate mobile applications as tools that can potentially increase treatment adherence and lead to better clinical outcomes. The information you provide to me today will be kept in the strictest of confidence. The data as a whole will be reported on and those results will be made available to all of the participants.

If during the interview you find that you are having an uncomfortable emotional response, just let me know and I will pause the interview and give you the option of letting me know when you are ready to resume, reschedule, or withdraw from the study.

Do you have any questions?

Interview questions:

- How long have you been practicing as a therapist?
- What kind of clients (age, gender, cultural background, sexual orientation, etc.) do you work with?
- What are the most common concerns your clients struggle with?
- How do you use or blend technology in your work?
- What is your experience with mobile applications?
- Think back about a time in which you decided to present an app to a client?
- What was happening that made you decide to introduce the app as a tool?
- What specific factors helped you make this decision?
- What specific factors hindered this decision (if you didn't)?

Further open-ended questions were utilized to assist participants describe incidents in detail:

- Exactly what happened that you found helpful or hindering?
- How did you know?
- What went on before/after?
- How did it turn out?
- Can you tell me more about that?

Participants will then be asked to identify anything they wished would have been available for them. The purpose of this additional question is to identify any people, processes, or support that participants believe would have helped in the situation.

Once the participant has provided as much information about all of the helpful and hindering factors related to a particular event, key themes will be summarized back to the participant. This will serve to cue the participants' memory to determine if there is any additional information they wish to add to their responses. This process will also serve as an additional participant check; ensuring the participants experience is being heard and recorded accurately. This process will be repeated until the participant is unable to recall any further significant incidents.

Debriefing Guide

After the participant has finished, I will advise the participant by stating the following:

“This ends the formal part of the interview. Before we are finished, I wanted to give you the opportunity to ask any further questions or raise any concerns you might have about your involvement in this study.

If you would like to be informed of any of the results of this study, arrangements can be made to meet again with me, or to engage in a discussion over the phone, or e mail following completion of transcription data analysis for debriefing. I will send you a summary of the results of this study if you are interested. A formal copy of the study may be accessed through The University of British Columbia Library where all completed dissertation research is stored: <https://www.library.ubc.ca/>