


2018

Predictors of Readmission to Youth Counseling Services Among Adolescents in Saskatoon Canada

Felicia Lawal
Walden University

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Walden University

College of Health Sciences

This is to certify that the doctoral study by

Felicia Lawal

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Richard Jimenez, Committee Chairperson, Public Health Faculty

Dr. Chinaro Kennedy, Committee Member, Public Health Faculty

Dr. Kai Stewart, University Reviewer, Public Health Faculty

Chief Academic Officer

Eric Riedel, Ph.D.

Walden University

2018

Abstract

Predictors of Readmission to Youth Counseling Services Among Adolescents in

Saskatoon Canada

by

Felicia Lawal

MPH, Grand Canyon University, 2014

BSN, Grand Canyon University, 2011

ASN, Prince George's Community College, 2009

LPN, Metropolitan Community College, 2005

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Public Health

Walden University

May 2018

Abstract

Anxiety, depression, and substance use disorders are some of the frequently occurring mental illnesses among Canadian children and adolescents that can result in debilitating short and long term outcomes. The rise in readmission rates for recipients of mental illness in Saskatchewan, coupled with the high incidences of suicide-related deaths, necessitates a patient outcome evaluation for predictors of readmission to youth counseling services among adolescents. The purpose of this secondary data analysis study was to explore the associations between anxiety, depression, substance use disorder, individual counseling, family counseling, group counseling, and the outcome of readmission within 1 year following discharge from youth counseling programs. Age, gender, and socioeconomic status were tested for interactions between the independent and dependent variables. The social ecological model of health behavior was used in understanding the study findings. Data from the Saskatoon Health Region Addiction and Mental Health Information System database were used for chi-square and multiple binary logistic regression analyses. Findings showed a statistically significant association between anxiety and readmission ($p = 0.046$, odds ratio = .707). The association for anxiety was modified by age ($p = 0.038$). Depression showed a strong association with readmission ($p = 0.001$, odds ratio = 1.722) even after examining for effect modification. Additional prospective cohort studies over a long period of time are needed for at risk youth. The potential positive social change impact of this study is better outcome and overall quality of life of program participants; both of which can be achieved through investments in resources to reduce readmission to youth community counseling program.

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Dedication

I dedicate this study to my late father, “The Atmosphere”, who believed in me, and whose charisma and love taught me to always challenge myself to be better, I miss him and wish he was here to celebrate this achievement; to my loving mother, “O.K. Babe”, for instilling in me the value of education; to my wonderful and loving husband, Ola “Stonebridge”, for always supporting my dreams and holding down the fort whenever I needed to focus on the work in front of me; to my beautiful boys, Gbolahan, Wale, and Ola Jr., thank you for not throwing tantrums whenever I said no to taking you to the park or signing you up for soccer and basketball because of school work.

I also dedicate this study to my family, especially to my loving sister Julie Egwumba, whose wisdom, fearlessness, and handwork has helped in molding me to becoming the person that I am today; to my fierce aunty and role model, Professor Florence Obi, for the encouragement and celebrating each milestone with me; to my handsome cousin, Hon. Hilary Bisong, for believing in my abilities to achieve a doctoral degree.

Lastly, I dedicate this study to all my amazing friends, and my Walden colleagues who have provided a listening ear when I needed one, and for the support and encouragement; my sister from another mother, Dr. Adaobi Enyioma, you are godsent to me, thank you for your support and encouragement, and for understanding when I needed to be left alone to focus on the tasks ahead of me.

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Section 1: Foundation of the Study and Literature Review

The field of public health has made great advances in reducing infectious and chronic diseases associated with morbidity and mortality through emphasis in areas such as vaccinations, infectious diseases, maternal and child health, motor vehicle safety, cardiovascular health, and efforts to control the use and exposure to tobacco (Tulchinsky, & Varavikova, 2014). However, the same cannot be said about the field of mental health illness as there continues to be an increasing prevalence in mental illnesses worldwide (Furber et al., 2015). Mental illness can indiscriminately affect all ages, and the presence of mental illness in adolescence has been found to be a predictor of mental illness and dysfunction in adulthood (Furber et al., 2015; Costello & Maughan, 2015; Klasen, & Crombag, 2013).

Adolescence is a period of an individual's growth and development that is characterized by physical and behavioral changes. Physical changes such as the development of secondary sex characteristics and risk taking behaviors occur as a result of increases in the adrenal and gonadal hormones (Jaworska & MacQueen, 2015). This stage of development has been described as a period of opportunity and great susceptibility to mental illness as evidenced by the dramatic increase in the incidence of mental illness in both males and females (Jaworska & MacQueen, 2015; Klasen, & Crombag, 2013; Mclaughlin & King, 2015). Major depression and anxiety disorders, both of which increase the risks of suicidal ideation, ineffective psychosocial functioning, and increased risk of reoccurrence in adulthood are some of the mental illnesses that either begin or double in incidences in adolescence (Klasen, & Crombag, 2013; Mclaughlin & King, 2015). In addition to depression and anxiety, eating

disorders, disruptive behaviors disorders, and substance use disorder (SUD) are some of the other mental illnesses that are prevalent in adolescence (Erskine et al., 2016; Snyder, 2015).

Cognitive behavioral therapy (CBT) has been shown to be effective in adolescents with anxiety, depression, and SUD (Reichenberg & Seligman, 2016). Nonetheless, due to the fact that CBT for the aforementioned presenting problems can be provided at the individual, group or family level (Higa-McMillan, Francis, Rith-Najarian, & Chorpita, 2016; Hogue, Henderson, Ozechowski, & Robbins, 2014; Reichenberg & Seligman, 2016; Maller, Langsam, & Fritchle, 2013), it is imperative to identify the treatment that produces optimum outcome for the individual. Hence, using readmission as a predictor outcome in this study, I explored the relationship between presenting problems, types of counseling services and the rate of readmission within one year following discharge for participants of youth community counseling program in Saskatoon, Canada.

The presence of mental illness during the period of adolescence negatively impacts youth's abilities to achieve their full potential by affecting their social and academic performance (Mental Health Commission of Canada, 2015; United Nations Children's Fund [UNICEF] 2011). The potential social change impact for participants of youth community counseling program in Saskatoon is that the insights that were gained from this study may guide program placements and optimum outcome for participants. In turn, this would enable the youth population to achieve better health, become productive members of the society both as youths and adults, and overall reduction in disability-adjusted life years (DALYs) and years of life lost (YLLs) that are attributed to mental illnesses in adolescence.

This section of the study includes a discussion of the problem statement and the purpose of my study, my research questions and hypotheses, theoretical foundation, nature of my study, and literature review. In the literature review section, I reveal the literature search strategy including the key search terms that I used to identify peer-reviewed literature and information from organizations that were deemed pertinent to my study. This section also includes a synthesis of peer-reviewed articles from the last 11 years pertaining to mental health in Saskatoon, Saskatchewan, direct and indirect impact of mental illness and readmission, the use of quantitative methodology for outcome evaluation, and gaps in literature on outcome evaluation. With the exception of articles specific to the state of mental health in Saskatoon, I placed emphasis on the synthesis of earlier literature that identified the successful use of my study methodology, the impact of readmission to psychiatric services, and a gap in literature that justifies the need for my current study.

A definition of my key research terms, scope and delimitations, significance of my study, and implication for social change are also included in this section. Lastly, a summary and conclusion of this section, as well as transitional information on what to expect on section 2 of my study are presented at the end of the section 1.

Problem Statement

Mental illness has been described as the leading health problem in Canadian children and adolescents (Waddell, Shepherd, Schwartz, & Barican, 2014). An estimated 12.6% of Canadian children and youth between the ages of 4-17 suffer from mental illness at any given time (Waddell et al., 2016). A breakdown of this estimation shows 3.8% or 204,400 individuals suffer from anxiety; 1.6% or 86,100 individuals suffer from a major depressive

disorder; and 2.4% or 66,400 individuals suffer from a SUD (Waddell et al., 2014). It is estimated that by the year 2041, 1.2 million Canadian children and youth between the ages of 9-19 will have a mental illness (Smetanin et al., 2011). A significant consequence of mental illness is the risk for suicide, and as of 2008, 3705 Canadians died as a result of suicide (Statistics Canada, 2011). Of the 3705 suicide related deaths in 2008, 233 were children and adolescents between the ages of 10-19. 131 of the 3705 suicide related deaths that were recorded in Canada in 2008 occurred in Saskatchewan, (Statistics Canada, 2011).

Statistics on the prevalence of mental illness in children and adolescents at the global level are equally alarming as a reported 20% of children and adolescents suffer from disabling mental illness (Klasen, & Crombag, 2013). Even more disconcerting is that fact that suicide has been identified as the leading cause of death for adolescents globally; and the presence of mental illnesses is known to be a precursor for suicide (Klasen, & Crombag, 2013; McLaughlin & King, 2015).

Erskine et al. (2016) states that approximately half of the diagnosis of mental illness among youth presents at age 14, and treatment for mental disorders such as anxiety, depression, and SUD continue to pose a challenge. Current data reveals that up to 50% of patients that are being treated for depression do not respond to treatment (Furber et al., 2015). The presence of mental illness in youth has both short-term and long-term effects on their health and wellbeing, and is considered the leading cause of disability in high income countries (HICs), as well as the 7th leading cause of disability in low and middle income countries (LMICs) (Erskine et al., 2016). Erskine et al. (2016)' investigation of the total burden of disease from mental illness for HICs reveals 20.8% of DALYs in children and youth is

attributed to mental illness. Furthermore, Erskine et al. (2016) states that 6.3 million YLLs from suicide in children and youth is as a result of mental illness and substance use. Of these mental illnesses, major depressive disorders (MDD) were identified as a significant leading cause of years lived with disability (YLDs) and DALYs. Anxiety and SUD were also identified as major causes of burden of disease in both male and female children and youth by Erskine et al. (2016).

As previously indicated, the presence of mental illness in youth not only has an impact on their health and wellbeing as youth, but also impacts their health outcomes as adults (Erskine et al.; Furber et al., 2015; Costello & Maughan, 2015). However, despite the devastating effects that mental health can have on children and adolescents, with effective interventions, mental illnesses in children and adolescents are treatable (Klasen, & Crombag, 2013). However, the challenge for mental health professionals lies in determining which intervention is most effective and for whom. One of the ways of determining the effectiveness of mental health interventions is to perform a patient outcome evaluation using a quantitative correlation approach. The outcome of such an evaluation can then be used to guide clinical decision making (Droter, 2014). For this reason, I analyzed the association between presenting problems, types of counseling services, and readmission within one year following discharge from program to identify the most effective service for youth who present with anxiety, depression, and substance use at a community-based counseling program in Saskatoon. Furthermore, given the fact that mental illness readmission is one of the established routine outcome measures in Canada (Kisely, Adair, Lin, & Marriott, 2015), it is necessary to define a timeframe for measuring readmission as an outcome for youth community counseling program

participants. Hence, for this study, my defined time frame was readmission within one year following discharge from youth community counseling program.

There is an undeniable wealth of literature on the patient outcome evaluation for patients with one or more of the presenting problems who have received either individual, family, or group counseling services. However, no study has been carried out in the community setting that has included all of the study variables I include in this study, specifically on youth ages 13-18. Therefore, with my study, I intended to address this gap by exploring the association between variables that result in greater readmission for the study population.

Purpose of the Study

The purpose of this study was to identify the association between presenting problems defined as anxiety, depression, and SUD; types of counseling services defined as individual, family; and group counseling, and readmission within one year following discharge from youth community counseling program in Saskatoon. The independent variables for this study were presenting problems and types of counseling services. The dependent variable was readmission within one year following discharge. The covariates for this study were age, gender, and socioeconomic status (SES). I used a quantitative research approach to explore the relationship between presenting problems, types of counseling services and the outcome of readmission within one year following discharge.

Research Questions and Hypotheses

Table 1

Research Questions and Hypotheses

Research Questions	Covariate research questions	Null hypothesis	Alternate hypothesis
RQ1: Is there an association between presenting problems defined as anxiety, depression, and SUD and readmission within one year following discharge for youth between the ages of 13-18?	CRQ1: Is the association between presenting problems defined as anxiety, depression and SUD, and readmission within one year following discharge for youth between the ages of 13-18 confounded by age, gender, and SES?	H_{01} : There is no association between presenting problems defined as anxiety, depression and SUD and readmission within one year following discharge for youth between the ages of 13-18?	H_{a1} : There is an association between presenting problems defined as anxiety, depression, and SUD and readmission within one year following discharge for youth between the ages of 13-18?
RQ2: Is there an association between types of counseling services defined as individual, family, and group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD?	CRQ2: Is the association between types of counseling services defined as individual, family and group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD, confounded by age, gender, and SES?	H_{02} : There is no association between types of counseling services defined as individual, family, and group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	H_{a2} : There is an association between types of counseling services defined as individual, family, and group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.

Theoretical Foundation for the Study

Due to the complex nature of humans, the health issues and challenges that they endure are often multifaceted and required a multiprong approach to understanding and addressing these health issues. However, it is imperative that the approach be grounded in theory as public health interventions that are built on theory are more likely to succeed (Fertman & Allensworth, 2010). Moreover, the use of theory in public health enables practitioners to understand factors that influence health behaviors to facilitate the design, implementation, and evaluation of effective interventions (National Cancer Institute [NCI], 2005). The Social ecological model of health behavior (SEM), developed by Bronfenbrenner (1979), is a health promotion framework that acknowledges the complexities of health issues, and the interplay of health determinants on health behaviors and outcomes (Andresen & Bouldin, 2010). SEM suggests that several factors influence health seeking behaviors and health outcomes, and these factors occur at the individual or intrapersonal level, interpersonal level, community level, organizational level, and public policy level (Glanz, Rimer, & Viswanath, 2008). SEM also emphasizes the influence of an individual's environment and policies on health behaviors, and at the same time incorporates the influences of social and psychological factors (Glanz, Rimer, & Viswanath, 2008). The ensuing sections will provide further insights on the key constructs of SEM.

Intrapersonal Level

The intrapersonal level describes the individual's biological and social characteristics that influences health behavior and health outcomes such as age, gender, knowledge, attitudes, and beliefs (Centers for Disease Control and Prevention [CDC], 2015; NCI, 2005). Biological

factors such as age and gender are nonmodifiable and may place an individual at an increased susceptibility to poor health outcomes. However, a person's knowledge of their health condition, and their attitudes towards a health behavior and intervention can greatly impact their health outcome.

Interpersonal Level

Interpersonal level influences on health behavior include an individual's family, friends, SES, and the amount of support that are provided to support a health behavior (Andresen & Bouldin, 2010; Barry & Honore, 2009; Glanz et al., 2008; NCI, 2005). The interpersonal level of influence comes into play when there is a need for ongoing support from family and friends to maintain a newly acquired behavior or set of skills that is necessary to optimize health outcomes. In addition to support, modeling of desired behavior by family and friends is especially important for children and teenagers who look up to family and peers, and a lack of thereof greatly influences the behavior of this population.

Community Level

Community level influences are apparent in the form of culture, norms, crime, safety, social networks, programs, and neighborhoods (Andresen & Bouldin, 2010; Glanz et al., 2008; NCI, 2005). These community level factors can individually or collectively influence a person's health behavior, and are thus worth taking into consideration during public health program developments, implementation, and evaluation.

Organizational Level

An organization's policies and regulations, types of health education and health promotion program and services can interact with the other factors to influence health behaviors (Andresen & Bouldin, 2010; Glanz et al., 2008; NCI, 2005).

Public Policy

Lastly, policies that are made at the local, provincial, or national level can have a trickle down effect on an individual's behavior (Glanz et al., 2008; NCI, 2005). Such an influence can be apparent in the amount of resources that are required to create a physical, social, and psychological environment that promotes health and health seeking behaviors.

SEM Link to Study

The multi-level influences that have been described above as they pertain to SEM are to some extent present in this study; making SEM an appropriate and relevant theory in understanding the complex challenges that participants face and can potentially contribute to readmission outcomes. My research questions aim to identify the association between the presenting problems and types of services on readmission outcome while adjusting for factors such as age, gender, and SES. In addition to analyzing the association between the key variables, I adjusted for the confounding variables in recognition of the multilevel influence on health outcome as stipulated by SEM.

Age, gender, knowledge, attitudes and beliefs, and most importantly, the individual's presenting problems, can affect the effectiveness of the counseling services that an individual receives and ultimately impacts their treatment outcomes. The interpersonal influence comes into play for youth community counseling program participants in the form of social support in

reinforcing treatment and accompanying coping skills in the community, as well as parental modeling of desired behaviors (Dabkowska & Dabkowska-Mika, 2015).

Biological factors such as genetics and temperament, environmental factors such as age and gender, and low SES predisposes children and youth to mental illnesses such as anxiety (Dabkowska & Dabkowska-Mika, 2015). Low SES can have a significant negative impact on child's mental health as a majority of children presenting with anxiety disorders come from low SES (Dabkowska & Dabkowska-Mika, 2015), which can greatly influence full participation in community CBT program. For instance, the family's SES may impact the participants' ability to commute to and attend all recommended treatment sessions given that the participants are minors and solely rely on their family or friends to get them to the treatment center. Hence, a lack of reliable transportation system, be it by family car or public transportation, can impact attendance.

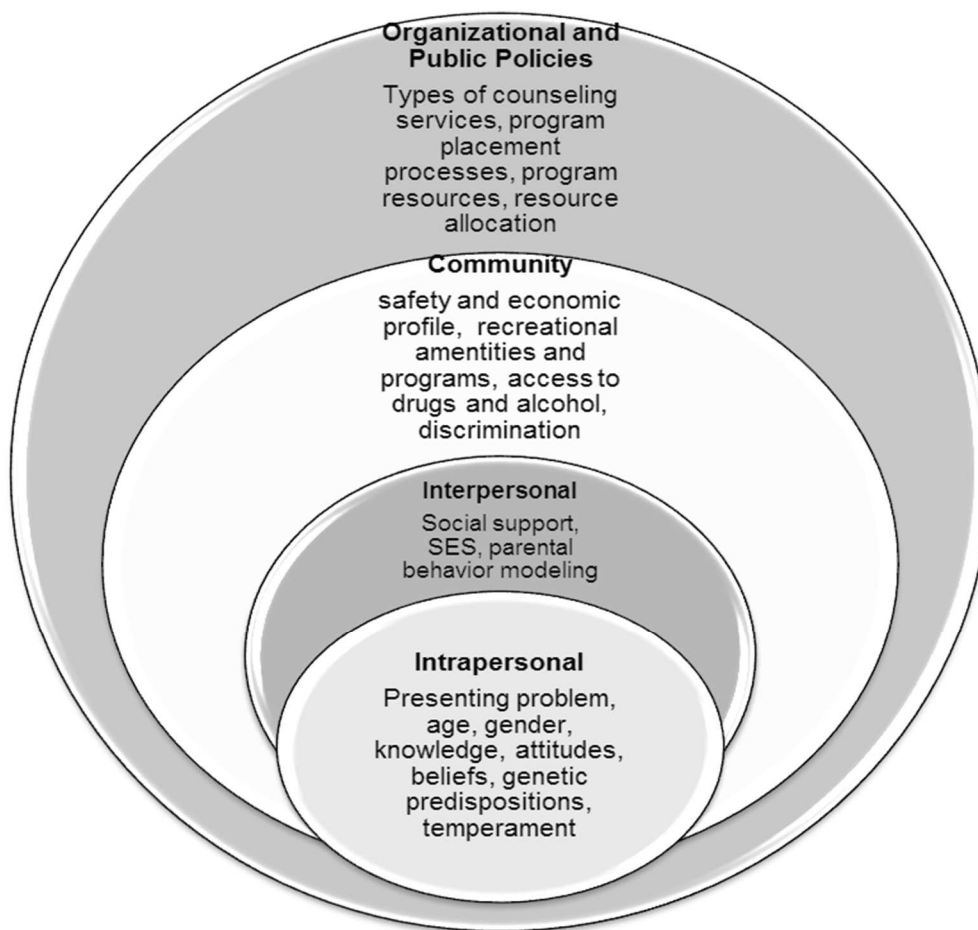
The safety and economic profile of the neighborhood, and accessibility and availability to illegal substance for adolescents, such as alcohol and marijuana, speaks to the community level influences for my study population. This is due to the fact children residing in a low SES neighborhood are prone to depression, anxiety, and substance drug use due to the lack of access to high quality recreational amenities and programs; exposure to violence, crime, and illicit drugs; and discrimination and injustice (Dabkowska & Dabkowska-Mika, 2015; World Health Organization [WHO], 2012).

The organizational and public policy level influences that pertain to this study include (a) the type of counseling services that are provided to youth community counseling program participants; (b) the policies and procedures for placement into counseling services; (c) the

availability of resources, which in turn could determine the number of sessions that are offered per counseling service; and (d) decisions at the provincial level on resource allocation to the youth community counseling program. Each of these elements impacts treatment outcomes including readmission.

Despite the presence of these multilevel influences, SEM has successfully been used to guide interventions that have led to an improvement in public health outcomes in community health agency settings, as well as a number of health-related conditions such as diabetes management (Barry & Honore, 2009; Glanz et al, 2008). SEM has been successfully employed in the school settings to deliver family-centered approach interventions that have resulted in a decrease in antisocial behavior and substance use among adolescents (Stormshak et al., 2011). This accomplishment was possible because the approach that takes into consideration the family social support system and financial status to guide interventions (Stormshak et al., 2011).

The importance of using a theoretical framework that recognizes and addresses multilevel influences on health behaviors and outcomes have also been demonstrated by the CDC (2015) through their use of SEM to guide the development of violence prevention initiatives. Therefore, the use of SEM for this study, as depicted in Figure 1, can aid in the interpretations of the study outcomes by providing insight on the influence of individual, interpersonal, and community level factors on readmission for program participants who present with anxiety, depression, and SUD; and who are receiving individual, family or group counseling services.



*Figure 1: Social ecological model of predictors of readmission. Adapted from “Comparing 2 National Organization-Level Workplace Health Promotion and Improvement Tools, 2013–2015,” by A. Meador et al., 2016, *Preventing Chronic Disease*, 13,160164.*

doi:10.5888/pcd13.160164

Nature of the Study

A quantitative correlational research methodology was utilized, and the study design was a cross sectional study that included anxiety, depression, SUD, individual counseling, family counseling, and group counseling as independent variables; readmission as the

dependent variable; and age, gender, and SES as confounding variables. The study population includes 772 youth between the ages of 13-18 who were admitted to the youth counseling program with a presenting problem and counseling services that meets the study's independent variable criteria. The goal was to sample individual level cross sectional data from 2012 to 2015 to determine readmission within one year following discharge. The use of a cross-sectional design would help in describing the association between the independent and dependent variables (Frankfort-Nachmias, Nachmias, & DeWaard, 2015).

Saskatoon Health Region (SHR) Addiction and Mental Health Information System (AMIS) was the source of secondary data for the independent variables, dependent variables, and confounding variables. AMIS is a client registration system that is used by Mental Health and Addictions Services (MHAS) to collect, process, and analyze data that can then be used to improve the quality of services that are provided to clients (Accreditation Canada, 2017). A deprivation index was retrieved from SHR public health observatory database to code first 3 digits of postal code from AMIS in order to determine SES.

The association between the independent variable and dependent variables were analyzed using SPSS statistical software. I used descriptive statistics to describe the study population. Inferential statistics, namely bivariate and multivariate analyses, were used to test for a predictive model. The effects of the confounding variables were controlled using multivariate analysis.

Literature Review

Literature Search Strategy

The primary focus of the literature search was to (a) identify the burden of readmission and the prevalence of anxiety, depression, and SUD among youth in Canada; (b) consider the efficacy of community counseling services that are targeted at youth; (c) identify information on current practices regarding services being offered to youth in community counseling services; and (d) assess the efficacy of these services using readmission as an outcome measure for youth receiving counseling services in the community. Several key terms were used in literature search efforts with the main key terms being *mental illness and youth; individual, family and group counseling for youth with depression, anxiety, and substance use disorder; preventing mental illness; child and youth mental disorders: prevalence and evidence-based interventions; mental illness in Canadian adolescents; determinants of mental illness in adolescence; youth substance use disorder; burden of disease from mental illness for adolescents; types of counseling services for mental health in youth; effectiveness of cognitive behavioral therapy in youth; substance use disorder; community counseling evaluation, family counseling services evaluation; individual therapy community mental health services treatment outcome; and cost of readmission for mental illness in Canada .*

The primary databases that were used consisted of Cumulative Index of Nursing and Allied Health Literature (CINAHL), MEDLINE, and ProQuest. Google scholar was also used to search for open access journals, and articles that were found via Google scholar were verified to ensure that they were published in peer-reviewed journals using CINAHL Plus. Internet searches were also conducted and information pertinent to the study was retrieved

from organization websites namely SHR, Statistics Canada, Accreditation Canada, Canadian Institute for Health Information (CIHI), CDC, WHO, and UNICEF, as well as textbooks. I selected literature from 2006 to present that contained information pertinent to my study for analysis. The literature searches on cross-sectional design yielded few results. However, literature results on quantitative methodology yielded several results with a majority of them being on randomized controlled trials. I was able to utilize some of these articles as literature evidence for my study as they were pertinent to my study variables and study methodology.

Epidemiology of Mental Illness in Adolescents in Canada, the United States, and Globally

Adolescence, as defined by the World Health Organization (WHO) is a developmental stage that occurs between the ages 10-19 (Sawyer et al., 2012) that is characterized as a period of great excitement and risk-taking behaviors, and accompanied by physical and physiological changes. While most of the growth and development that occurs in this population is expected, an unexpected and concerning trend that is becoming increasingly common is the increase in the prevalence of mental illness. Mental illnesses, particularly in children and adolescents are occurring at an alarming rate in Canada, and globally. As a matter of fact, a reported 12.6% of Canadian children and adolescents, 13-20% of children in the United States, and 20% of children and adolescents worldwide suffer from mental illness (Klasen, & Crombag, 2013; Waddell et al., 2016; Perou et al., 2013). Furthermore, it is projected that by the year 2041, 1.2 million Canadian children between the ages of 9-19 will have a mental illness (Smetanin et al., 2011).

A review of literature for prevalence in terms of types of mental illnesses reveals that mood and anxiety disorders occur at a greater percentage in female youth compared to male

youth, while addictive conditions are higher in males (Centre for Addition and Mental Health [CAMH], 2012). Anxiety disorders have shown to be the most common mental illness in children and adolescents, and the presence of anxiety disorder is a predisposing factor for SUD (Canadian Mental Health Association [CMHA] 2014; Higa-McMillan et al., 2016). The prevalence of depression in children is also well documented as data by Thapar, Collishaw, Pine, & Thapar (2012) reveals a global one-year prevalence rate of greater than 4 %. Overall, individuals with a mental illness are twice as likely to have SUD than those without a mental illness (CAMH, 2012).

Determinants of Mental Health in Adolescents

Stress has been identified as a significant determinant of mental illness in youth between the ages of 15-24, with school, work, personal relationships, and finance being a major source of stress for this age group (Government of Canada, 2011). Similarly, Canadians ages 15 and older in low income situations, who did not graduate from secondary school, and are either a teenage mother or live in single parent households were more likely to report poor mental health than those at the opposite end of the spectrum (Government of Canada, 2011). Other determinants of health for Canadian adolescents include a history of childhood abuse, the presence of a chronic illness, genetic and familial dispositions, poor performance in school, peer isolation and bullying, and racism and cultural discrimination (Government of Canada, 2011). These determinants of health that are present in Canadian youth also affects youth globally, and poverty was identified as playing a key role in creating environments that do not support optimum mental health for adolescents (Pinot, 2014; Thapar et al., 2012; WHO, 2014).

Impact of Mental Health Associated Stigma on Adolescents

Individuals with mental illness endure significant stigmatization from family and friends, as well as the larger society. The stigmatization that occurs with mental illness leads to isolation in adolescents that in turn has a significant impact on relationship building and interactions in and outside the home, and at work and school settings (CAMH, 2012; Corrigan, Druss, & Perlick, 2014). The quality of care that is provided to individuals with mental illness is also negatively impacted by stigmatization (CAMH, 2012; Corrigan, Druss, & Perlick, 2014). Perhaps the greatest impact of mental illness associated stigma is its negative influence on care seeking behaviors as these individuals avoid seeking care to avoid being labeled (Corrigan et al., 2014). For those that do seek treatment, approximately 20% of the treatment dropout rate is attributed to stigmatization (Corrigan et al., 2014).

Overview on the State of Mental Health in Saskatchewan

As previously mentioned, the presence of mental illnesses such as anxiety, depression, and SUD in adolescents increases the risk of suicide (Klasen, & Crombag, 2013; McLaughlin & King, 2015). Suicide risk is greatest for those with a diagnosis of SUD, followed by depression and schizophrenia (Smetanin et al., 2011). Residents of Saskatchewan have not been spared from the grips of mental illness; a closer look at statistics specific to Saskatchewan showed that in 2008, there were 131 suicide related deaths in Saskatchewan (Statistics Canada, 2011).

Having previously established the influence of SES on mental health outcomes (Dabkowska & Dabkowska-Mika, 2015; WHO, 2012), I conducted a further literature review to identify if, and how SES impacts the mental health status of Saskatoon residents. A cross-

sectional ecological study by Lemstra, Nuedorf, & Opondo (2006) revealed significant differences between low-income and high-income Saskatoon neighborhoods regarding mental illness, suicide attempts, and a number of other illnesses. Residents in Saskatoon low-income neighborhoods had a relative risk of 4.27 for mental health illness and 15.58 for suicide attempts in comparison to their high-income neighborhood counterparts (Lemstra et al., 2006). Overall, SHR data shows 11.9% rate of lifetime suicide ideation (Lemstra & Neudorf, 2008). This data show that sufferers of mental illness are impacted by a double-edged sword as having a mental illness can lead to low productivity and loss of income. At the same time, low SES can lead to mental illness and suicidal ideations and attempts (Lemstra et al., 2006; OECD, 2014).

The Impacts of Mental Illness and Readmission

Treatment for mental illness is costly for the individual, their caregivers, and healthcare systems. The direct economic cost for mental illness is incurred during the detection, treatment, and prevention of mental illness that occur at acute care facilities, community centers, and pharmaceutical environments (OECD, 2014). Over \$22 billion was estimated as the direct expense on mental illness and SUD in Canada for the year 2011, and future spending is projected at \$105.6 billion in 2041 (CIHI, 2017). Of the 10 Canadian provinces that provided expense data for 2011, approximately \$6.1 billion was spent on community and social services (CIHI, 2017).

Indirect cost of mental illness is apparent in the terms of missed unemployment, absenteeism, loss of productivity, premature death, and the lack of reimbursement for direct care that is provided by informal caregivers (OECD, 2014). A reduced quality of life,

emotional distress, pain and sufferings, increased risk of suicidal ideation, ineffective psychosocial functioning, and increased risk of reoccurrence in adulthood are some of the intangible costs of mental illness (Klasen, & Crombag, 2013; Mclaughlin & King, 2015) OECD, 2014). The impact of mental illness as it pertains to adolescents is described in Figure 2.

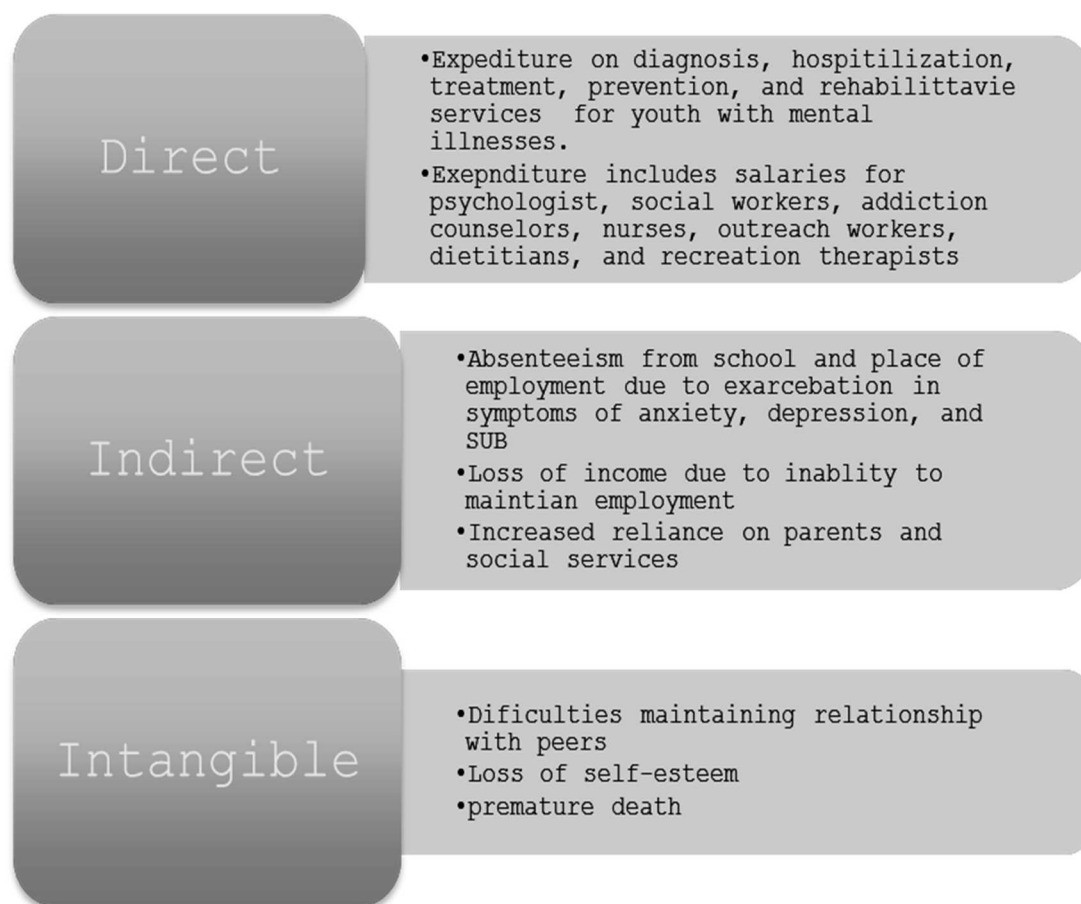


Figure 2. Direct, indirect, and tangible cost of mental illness in adolescents. Adapted from “Making mental health count: the social and economic cost of neglecting mental health care, OECD health policy studies,” by OECD, 2014, OECD Publishing. doi: 10.1787/9789264208445-en

Readmission to psychiatric services is considered an unfavorable and costly outcome for patients with mental illnesses (James et al., 2010). Readmission to hospitals for substance-related disorders, anxiety disorders, and mood/affective disorders is used as an indirect measure of the appropriateness of care and support that is provided to clients in the community (Statistics Canada, 2016). Hence, readmission can serve as an effective indicator for

understanding the population that is most affected, and for using this information to develop appropriate interventions that enhances programs for recipients of mental health services in the community to prevent re-hospitalization (Statistics Canada, 2016).

The adverse impact of high readmission rates also adds to the direct and indirect cost for the healthcare system, and adverse health impact on patients and their families. The financial cost of admission and readmission for mental illness and SUD in a country such as the United States was estimated at \$9.7 billion in 2009 (Smith, Stocks, & Santora, 2015). Readmission into psychiatric services also evokes doubts in the effectiveness of programs that are being offered to patients (James et al., 2010). Though the prevalence of readmission to youth community counseling program in Saskatoon is unclear, the readmission rate of recipients of mental health services in Saskatchewan has been steadily increasing over the past five years (Community Care Branch [CCB], 2017).

SHR Youth Community Counseling Program

SHR is the largest, not-for profit, publicly funded health region in Saskatchewan that provides healthcare services to approximately 350,000 residents of Saskatoon and surrounding cities, town, and First Nations Communities (SHR, 2017). Youth community counseling program is one of the various programs and services that are geared towards mental health clients in the province of Saskatchewan, and delivered under the auspices of the MHAS of SHR. Youth community counseling program is an outpatient program for youth ages 12-18 and their families. Individual and family counseling, outreach management, addiction counseling, nutritional assessment and therapy, and recreation therapy are some of the services that are provided to clients presenting with anxiety, depression, addictions, suicide risk,

Lesbian, gay, bisexual, trans, and queer (LGBTQ), trauma, eating disorders, behavioral disorders etc. (SHR, 2016).

Information on skills to help regulate emotion and address depression, anger management, body image acceptance, self-regulation, and coping with family members with SUD are offered to youth in group settings that comprises of three or more clients with similar needs (SHR, 2016). Parents are also offered group session on education and support to cope with having a family member with a psychotic disorder, youth SUD, anxiety, and depression (SHR, 2016). In addition to CBT, dialectical behavior therapy (DBT) and strength-based therapy are some of the other services that are provided to clients of youth community counseling program. The above-mentioned services are provided by a multidisciplinary team of psychologists, social workers, addiction counselors, nurses, dietitians, family therapist, and recreational therapists (SHR, 2016).

Youth community counseling services are accessed via central intake by telephone or fax referral. Potential clients, parents, or other concerns individuals call the intake line to speak with assessors/or coordinators regarding their request. Third party referrals to the youth community-counseling program in Saskatoon also come physicians, schools, Ministry of Social Services, and Ministry of Justice. Following the intake interview, triage of clients is accomplished using the Western Canada Waitlist Children' Mental Health (WCWL-CMH) Priority Rating tool at intake to determine appropriateness of services for the youth (Western Canada Wait List [WCWL], 2011). Clients with presenting problems such as anxiety that requires a treatment approach that focuses on treating the issue are placed in the individual counseling sessions with the clinician. Clients with similar skills acquisition needs are placed

in sessions comprising of 3 or more clients with a clinician. Lastly, clients that would benefit from addressing conflicts or other factors that may be contributing to the primary presenting within the family system are placed in family sessions that consist of two or more members of the same family (SHR, 2017).

Discharge from youth community counseling program is client driven based on a self-rating score that is administered to client at each session using a standardized patient centered outcome measures (PCOMs). The use of PCOMs serves as objective feedback on the progress of the client, and also provides a means of comparing expected empirical versus theoretical change in client based of the services provided (Swift, Callahan, Rousmaniere, Whipple, Dexter, & Wrape, 2015).

Literature Related to Study Methodology

The nature of this study entails conducting a patient outcome evaluation of the current services that are provided by youth community counseling program in Saskatoon. Hence, after establishing that retrospective quantitative study will be undertaken, the decision was made to utilize a cross-sectional design to capture and describe the relationship between the independent and dependent variables within the identified time period. There are a number of benefits to conducting a quantitative study that utilizes a cross-sectional design. Besides describing the association between the independent and dependent variables (Frankfort-Nachmias et al., 2015), results obtained from cross-sectional studies can provide the most needed information to aide in the planning and delivery of health services (Friis & Sellers, 2009).

Use of Quantitative Approach to Evaluate Community Health Services

A review of literature shows that researchers have been able to successfully utilize retrospective quantitative research methodology as well as cross-sectional designs to conduct a patient outcome evaluation for predictors of readmission in acute care settings, as well as program effectiveness in the community for mental health services. I also found a number of published articles demonstrating the successful use of quantitative research methodology in the evaluation of CBT in adolescents with anxiety, depression, and SUD.

In order to determine the predictors of 12-month hospital readmission and emergency visits for patients with mental health and substance abuse disorder, Smith et al. (2015) carried out a retrospective analysis of data of community hospital stays in 12 states in the U.S. from 2008-2009. Variables such as diagnosis, patient demographics, insurance type, and the number of prior hospitalization were analyzed for predictors of readmission. Smith et al. (2015) were able to conclude that substance abuse disorder and other mental health disorders such as depression and anxiety disorders were strongly associated with readmission and emergency room visits within 12 months following initial encounter as readmission and emergency room visits for patient with mental health and substance abuse disorders were 30% and 16.4% respectively.

For instance, Da Silva, Baitelo, & Fracolli (2015) conducted a quantitative cross-sectional evaluation of primary health care services with an emphasis on attributes such as access to care, comprehensiveness, coordination, family counseling, community counseling, and triangulating the views of the professionals to see if they matched those of the clients. With the use of this research design, Da Silva et al. (2015) were able to establish that the views

of the health care professionals did not match the needs of the clients. This was evident in their findings that revealed that the knowledge of healthcare providers did not translate into their practice regarding the recognition of the role of the family in the health care delivery process.

Green et al. (2015) were also able to establish the successful use of a retrospective observational study to identify treatment-related outcome predictors in patients with anxiety and depression that were receiving psychotherapy in 2 London community mental programs. Green et al. (2015) argued that despite the success of the community mental health program, there was little evidence on which particular therapy resulted in the best outcome, and for whom. Hence, using a predictive model, quantitative data was analyzed with a 69.4% and 79.3% accuracy of predicting a positive or negative clinical outcome respectively. Green et al. (2015) postulates that being able to predict whether a patient will have positive or negative outcomes at point of entry allows for interventions that are best suited for the individual, thereby resulted in better patient outcomes.

De Souza et al. (2013) carried out an open clinical trial was conducted as part of a community cross-sectional study to assess the efficacy of group CBT for anxiety and depression. 28 participant in the open clinical trial were recruited from the initial sample size of 2457 subjects ages 10 to 17 with a diagnosis of anxiety disorder. The sub-sample participants were ages 10-13 years, who after participating in a 14 weeks of 90 minutes weekly session group CBT with an additional two concurrent sessions with parents, were evaluated to determine the successful acquisition of necessary coping skills to deal with anxiety provoking situations. At the end of the study, researchers were able to arrive at conclusion of an improvement in anxiety symptoms and not in depressive symptoms.

Gaps in Literature

To ensure and/or reaffirm the effectiveness of CBT for patients with anxiety, depression, and SUD, several researchers have carried out program and patient outcome evaluation studies. The benefit of conducting these kinds of studies is that it enables mental health practitioners to continue to deliver high quality, evidenced-based interventions to patients. However, my literature review revealed the lack of a comprehensive retrospective quantitative study demonstrating the effectiveness of individual, group, and family counseling on adolescents with anxiety, depression or SUD. The trends that I observed in studies that I reviewed was a focus on one or two of my independent and dependent variable, exclusion of my study population, or patient outcome evaluation in the in-patient hospital setting rather than services that are delivered in the community setting. What I find particularly interesting is that even though the CBT is a standard practice for individuals with anxiety, depression, and SUD (Higa-McMillan et al., 2016; Hogue, Henderson, Ozechowski, & Robbins, 2014; Reichenberg & Seligman, 2016; Maller, Langsam, & Fritchle, 2013), there is the lack of a single study that offers a comprehensive evaluation of the three most common CBT that are recommended for patients with these mental illnesses. Furthermore, most of these studies have primarily used a decrease in symptoms rather than readmission as a measure of effectiveness of CBT, and readmission as we now know is a poor and undesired outcome for patients with mental illness.

James et al. (2010) explored the risks and determinants of re-hospitalization to psychiatric facilities in children and youth between the ages of 8 to 18 years. The role of Post-discharge services following psychiatric hospitalization in relation to readmission was examined, and the outcome showed that the risk of readmission to psychiatric facilities was

reduced by 75-76% for youth who received post-discharge services. However, there was no in-depth study of the role of the different types of post-discharge services regarding readmission.

The Canadian Institute for Health Information (CIHI) (2010) analyzed data from the Ontario Mental Health Reporting System (OMHRS) and found that approximately 19% of patients with an admitting diagnosis of mental illness were readmitted within one year following hospitalization. Though the analysis by CIHI (2010) showed a greater readmission rate for those treated in general hospitals in comparisons to those treated in psychiatric hospitals, there was no comparison of outcomes for individuals receiving treatments in the community

Oruche, Downs, Holloway, Draucker, & Aalsma (2014) discussed the link between program satisfaction among adolescents and their parents participating in community mental health programs and the dropout rate. Unlike group counseling, family counseling was identified as resulting in a lower dropout rate by the study participants (Oruche et al., 2014). However, the study did not examine a specific mental illness or the effects of individual counseling on overall mental health outcome.

Desplenter, Laekeman, Simoens, & GIPPOZ Research Group (2011) conducted a mixed method study of 99 Dutch speaking adult patients with a diagnosis of depression that showed that 39% of study participants were readmitted to a psychiatric hospital with one year of discharge despite receiving outpatient treatments. However, what remain unknown is the correlation between the identified risk factors such as type of outpatient treatments and participants' outcomes.

Wergeland et al. (2014) conducted a first of its kind comparative study on the effectiveness of individual versus group CBT on children and adolescents ages 8-15 with anxiety disorders that received treatment at seven community clinics. The results of this study showed a 25.3% recovery rate for individual CBT versus 20.5% in the group CBT recovery rate. This study, as with other studies that I found was missing an assessment of the effectiveness of family CBT for adolescents with anxiety, as well as assess readmission as a measure of CBT effectiveness.

The study by De Souza et al. (2013) on the effectiveness of group therapy was conducted on 28 participants ages 10-13 with anxiety disorders to determine if group CBT aided in the acquisition of the necessary coping skills to deal with anxiety inducing situations. Study participants received 14 weeks of weekly 90 minutes group sessions with an additional two sessions that included two concurrent parents sessions on strategies to cope with anxiety inducing situations. It was therefore no surprise to see that the final study outcome showed an improvement in anxiety symptoms with no improvement in depressive symptoms (de Souza et al., 2013). Albeit well intended, this study excluded subjects between the ages of 14-17 years despite having access to these subjects. Furthermore, de Souza et al., (2013) only included subjects with anxiety disorder diagnosis yet The *Children's Depression Inventory* (CDI) was administered to participants, and results reported on both anxiety and depressive symptoms (de Souza et al., 2013). Notably, the important elements that were missing from this study that necessitates further research include the lack of inclusion of youth ages 14-17; the very small sample size of 28, which makes generalizability of results to the questionable; the exclusion of

participants with other mental health conditions such as depression and substance drug use; and the lack of using readmission as a measure of effectiveness of CBT.

Definitions

Mental illness: conditions that negatively affects an individual's thought processes, emotions, perceptions, and ability to function in social and occupational context (American Psychiatric Association [APA], 2013; WHO, 2017a.).

Anxiety: mental health conditions that are characterized by excessive fear and panic attacks (APA, 2013, WHO, 2017b).

Depression: recurrent or long lasting mental health conditions that present with symptoms of sadness, loss of interest, low-self worth, disturbed sleeps pattern, inability to concentrate, and suicide ideation (WHO, 2017b.)

Substance Use Disorder: the continual use of substance despite significant cognitive, behavioral, and psychological substance-related complications (APA, 2013).

Socioeconomic Status: the social class of an individual that is measured based on education, income, and employment (APA, 2017).

Cognitive-Behavioral Therapy: a structured, goal-oriented psycho-education that teaches practical skills to deal with behavior and thought processes (Martin, 2016).

Individual counseling. CBT that is provided on a one-to one basis (Martin, 2016)

Group counseling: CBT that is provided to a group of individuals with similar problems and needs (Martin, 2016).

Family counseling: A form of CBT that is offered to children, youth, and their families (Herkov, 2016).

Readmission: the return of a patient to CBT program following discharge (Farlex Medical Dictionary, 2009).

Assumptions

The first assumption that I have made pertaining to my study is that I can reliably use a quantitative cross-sectional design to establish an association between my dependent and independent variables, as this is the focus of my study. Secondly, I assume that the data that was used for this study is reliable and will produce valid results that can be generalized to similar population outside of SHR. This assumption is based on the fact that AMIS is an established data collection process that is being used by a reputable health care organization to administer MHAS to its clients.

Scope and Delimitations

Readmission to psychiatric services is an undesired outcome that affects the patients, families, and health systems (James et al., 2010). Readmission can also be an indicator for the appropriateness of services that are being delivered to patients with anxiety, depression, and SUD (Statistics Canada, 2016). Several researchers have carried out studies on the effectiveness of one or more of the CBT approaches for patients with anxiety depression and SUD. However, I was unable to find a comprehensive study that looked at the effectiveness of individual, family, and group therapy in reducing readmission for adolescents with anxiety, depression, and SUD.

Hence, using readmission as an outcome measure, I analyzed secondary quantitative data to determine association between presenting problems, types of counseling services, and readmission within one year following discharge for participants of youth community

counseling program in Saskatoon. Youth community counseling program participants present with a range of mental health concerns, however, only those with a presenting problem of anxiety, depression, and SUD will be included in the study. Some of the other inclusion criteria are recipients of individual, family, and group counseling, admission between 2012-2015, and readmission within one year in the defined time period. My anticipations are that results of my study can be generalized to youth across the globe to enhance patient outcome for youth with the same presenting problems who need individual, family, or group counseling.

The first delimitation of my study is that I looked at each presenting problem independently and did not consider co-occurring psychiatric disorders, and which intervention was more effective. The second delimitation is given that I analyzed quantitative data; the patient voice and/or perspective on which services resulted in a greater satisfaction level were not captured. Thirdly, in this study, I did not analyze the number of missed appointments in relation to readmission outcome.

Significance

Given the focus of identifying the associations between presenting problems, types of counseling services, and readmission, I'm hoping that the results will help in better alignment of patients to the right counseling services to reduce readmission in youth community counseling program in Saskatoon and in other youth community program around the globe. Readmission as we know it is an undesirable outcome in mental health services (James et al., 2010), and the ability to reduce readmission in youth community counseling services through

strategic placements of clients to the service that has the most potential for a better outcome is necessary in improving the overall mental health and wellbeing of program participants.

Furthermore, even though the prevalence of readmission to youth community counseling program in Saskatoon is unclear, provincial trends show a steady increase in readmission for mental health services (CCB, 2017). Hence, service providers need to be able to determine if the youth community counseling program in Saskatoon is actually meeting the goal of promoting wellbeing and recovery for program participants and their families (SHR, 2016). Therefore, the identification of the relationship between the independent and dependent variables will facilitate clinical placement decisions that will result in optimum patient outcome and reduce readmissions.

Implications for Social Change

Adolescence has been described as an age of opportunity and vulnerability, and the presence of mental illness impacts their ability to achieve their full potential (United Nations Children's Fund [UNICEF] 2011). Anxiety and mood disorders have shown to negatively affect performance in youths in social and academic settings (Mental Health Commission of Canada, 2015). Hence, the availability of information to guide program placements and optimum outcome for participants will enable the youth population to achieve better health, become productive members of the society both as youths and adults, and in the overall reduction in DALYs and YLLs that are attributed to mental illnesses in adolescence.

Above all, perhaps the most compelling reason to conduct a patient outcome evaluation of the youth community counseling program in Saskatoon is due to the current state of youth mental health in Saskatchewan as data reveal the pervasiveness of mental illness and suicide

ideation in Saskatchewan. In addition, reported data shows a steady increase in the readmission rates of recipients of mental health services in Saskatchewan (CCD, 2017; Lemstra et al., 2006; Lemstra & Neudorf, 2008). Saskatchewan youth deserve to live long and fulfilling lives, and this can be achieved by ensuring a balanced state of mental health of our youth through the mental health services that are delivered in agencies that provide youth community counseling services in Saskatoon.

Summary and Conclusion

In summary, section 1 of my study presents a background on the impact of mental health on the growth and development of adolescents, and on CBTs that have proven effective in addressing mental illnesses such as anxiety, depression, and SUD. I also presented information on the state of mental health and its impact on Canadian children and youth, as well as the rest of the world's children. I presented information on the short-term and long-term consequences of mental illness, and the need for practitioners to ensure services that optimizes outcome.

Readmission as an outcome of the appropriateness of CBT was identified for youth community counseling program in Saskatoon, and a cross-sectional design was to be utilized to analyze secondary quantitative data for association between presenting problems, types of counseling services, and readmission. SEM provides insight on the multi-level influences of health behavior and health outcome for adolescents with mental illness, and can help practitioners to understand and apply this knowledge to CBT program to optimize outcomes both in youth community counseling program in Saskatoon, as well as other similar programs across the globe.

As with other illnesses that affects humans, the presence of mental illness can have devastating short term and long-term impacts on the functionality and productivity of those that are affected. Though CBTs have been proven effective for those with anxiety, depression, and SUD, it is imperative to ensure that the right person is receiving the right therapy that improves their health outcome. Such personalized care can be achieved through patient outcome evaluation; which several researchers have been able to demonstrate that it is indeed possible to use retrospective quantitative approaches for patient outcome evaluation but have not demonstrated readmission as a measure of outcome for all study variables.

I presented a number of published articles that consisted of evaluations of CBT for both adolescents and adults with mental illnesses. Interestingly, there was the lack of a comprehensive study that looks at all the presenting problems and types of counseling services identified in my study to measure readmission as an outcome. The common theme that was identified in the literature was a focus on reduction of symptoms as an indicator for effectiveness of CBT. While reduction in symptoms is desired, the ultimate goal of mental health practitioners should be on reducing readmission by ensuring that not only are the symptoms reduced, but clients have acquired the necessary skills to effectively manage challenging situations and symptoms on their own or with the support of their families without needing to be readmitted to the program

In conclusion, readmission is an indication of poor mental health outcome that can be improved through the delivery of appropriate services to the appropriate patients. In order to achieve this, it is necessary to conduct a patient outcome evaluation of presenting problems and type of counseling services for the study population to determine association between the

independent and dependent variable. In section 2, I presented detailed information on my study research design, methodology, data collection, data analysis plan, and threats to validity with associated ethical considerations.

Section 2: Research Design and Data Collection

Mental illness indiscriminately affects people of all ages, races, and SES, and the consequences of poorly managed mental illness can lead to undesired outcomes that can range from readmission to hospitals and other community mental health services to premature death due to suicide (Statistics Canada, 2011). Klasen & Crombag (2013) and Waddell et al. (2016) revealed the concerning prevalence of mental illnesses in children and youth in Canada and around the world. While treatment approaches such as CBT for mental illnesses have been proven effective (Reichenberg & Seligman, 2016), treatment for adolescents with anxiety, depression, and SUD continue to pose a challenge as approximately 50% of this population does not respond to treatment (Erskine et al., 2016; Furber et al., 2015).

Readmission is an established routine outcome measure in Canada that is used to identify the effectiveness and appropriateness of healthcare services (Kisely et al., 2015), and readmission data for recipients of mental health services in Saskatchewan continues to be on the rise (CCB, 2017). Hence, using readmission within one year following admission as an outcome measure, I conducted a patient outcome evaluation of a youth community counseling program in Saskatoon to identify the association between presenting problems defined as anxiety, depression, and SUD; types of counseling services defined as individual, family; and group counseling and readmission

Section 2 contains information on the research design and rationale, methodology, threats to validity, and a summary. In the methodology section, I include a description of the study population, sampling strategy, data access, sample size and the justification for the chosen alpha and power level. I discuss the inclusion criteria, data access procedures,

operationalization of my study variables, and data analysis plan, and issues concerning validity.

Research Design and Rationale

My study is a quantitative correlational study, and I conducted a secondary analysis of archived quantitative data to investigate if there is an association between the independent and dependent variables while controlling for confounding variables. Primary archived data was retrieved from AMIS database for analysis. An individual level cross-sectional design was utilized to explore and describe the relationship between the independent and dependent variables. My independent variables were anxiety, depression, SUD, individual counseling, family counseling, and group counseling. My dependent variable was readmission within one year following discharge. Potential confounding variables for my study are age, gender, and SES.

The use of nonexperimental quantitative research designs in the field of social sciences, as in the case of my study, has gained popularity and credibility due to the fact that naturally occurring variables such as medical diagnosis, age and gender cannot be manipulated (Belli, 2008). Moreover, the randomization of treatment such as CBT for patients with mental illnesses such as anxiety or depression would be considered unethical. Utilizing a quantitative research approach to analyze secondary data in order to determine treatment outcome is an appropriate approach (Belli, 2008). Additionally, with the advancements in technology that allow for the collection, archiving, and easy retrieval of data, secondary analysis of quantitative data has proven to be a viable approach for research both in social sciences and other fields of study as it is a fast and effective way to access data needed for empirical studies

(Johnston, 2014). Quantitative methodology is also considered the most appropriate for identifying correlations amongst variables and for making predictions (Ragin & Amoros, 2011). Lastly, in situations where there is a gap between an exposure and outcome as in the case of mental illness and CBT, the use of a cross-sectional design in social science research is advantageous for retrospective analysis of exposures and outcomes of patients (Hudson, Pope, & Glynn, 2005).

Methodology

Population

My study participants consisted of male and female adolescents between the ages 13-18 years who were admitted to youth community counseling program in Saskatoon between 2012-2015 for anxiety, depression, or SUD, received individual, family, or group counseling, and were readmitted within one year following discharge from the program. The study population was chosen from a larger population size as participants of a youth community counseling program do present with mental health needs and receive CBTs that are beyond my study's independent variables. Hence, inclusion criteria were based on admission date, age, presenting problem, type of counseling services, first three digits of postal code, and readmission within one year following discharge. Being that the youth community counseling program in Saskatoon is an established and active community-counseling program of Saskatoon Health Region (SHR), it was impossible to determine the exact number of participants without having access to the actual dataset. Hence, given the current trends in mental illness in adolescents, and a 7-month snapshot of patient enrollment, I anticipated a sample size of approximately 6062 cases that would meet inclusion criteria.

Sampling Strategy

As with other accredited health care organization, SHR maintains a data collection and data management system on the services that are provided to its clients. These hospital administrative databases can serve as a reliable source of information to identify trends in resource utilization, budgeting, and in performance monitoring and quality improvement initiatives (Aylin, Bottle, & Majeed, 2007). In the case of SHR Mental Health and Addiction Services (MHAS), AMIS is the database that collects administrative data pertaining to the youth community counseling program, and was the source of secondary data set for my study. AMIS data is collected and inputted into the system by assessors and/ or coordinators at intake, during treatment, and at discharge from program.

Data from AMIS database is collected via a convenience sampling strategy as only the people requiring services from one or more of the addiction and mental health services under MHAS are captured in the database. Subsequently, I utilized a convenience sample strategy for participant selection based on my study's inclusion criteria, and the data that I used for my study was pulled from AMIS database. Convenience sample strategy is best used in circumstances whereby attributes cannot be manipulated, as in the case of my research variables (Creswell, 2009). Tables 2 and 3 show the respective master list and data collection tool that were utilized to pull participants from the database. Study participants were drawn from the database based on the inclusion criteria outlined in the data collection tool, and these criteria included all of the study dependent, independent, and covariate variables. The data collection tool also included additional information that captured admissions, discharges, and readmissions to a youth community counseling program. I planned to use all cases within the

AMIS database that met my inclusion criteria between 2012-2015, and statistical analysis for readmission were conducted to determine the percentage of participants that were readmitted with the presenting problems and received CBTs of interest to my study. In order to protect the identify of youth community counseling program participants (IRB # 10-19-17-0619686), the AMIS coordinator used the master list to create study IDs for all participants that met the inclusion criteria, and the master list was only accessible to the AMIS coordinator.

Table 2

Master List

Study ID	AMIS Number
1	
2	

Data Access

SHR has clearly outlined procedures that must be followed prior to accessing administrative data sets. These steps include gaining approval from the University of Saskatchewan Research Ethic Board (REB), followed by operational approval from the service line director. As required, I submitted an application to access existing health data to the University of Saskatchewan, and I received the sought after approval from the University of Saskatchewan REB. A certificate of approval (Bio # 17-50) was issued for my research. This certificate of approval was then presented to SHR directors for MHAS and Interprofessional Practice, Education, and Research, along with the application for operational approval to conduct research study for their review and approval. Following the review, operational approval was granted by SHR, and both the REB certificate and SHR letter of operational approval can be found in appendix B and C respectively.

Sample Size

In order to obtain research results that are reliable and can be generalized to the population outside of the study setting, the researcher needs to ensure that a minimum sample size that is statistically significant is utilized (Charan & Biswas, 2013). This same logic applies to all research regardless of the study approach (Charan & Biswas, 2013). However, the researcher must keep in mind that different research methodology calls for different sample size calculations approach (Charan & Biswas, 2013). In regards to my study, even though I did not collect primary data, there was still a need to ensure that I had a minimum sample size for my statistical analysis. With this in mind, I reviewed a 2016 7-months snapshot of count of enrolment documents that were shared with me by the program manager for my independent

variables and arrived at approximation of 6062 for my study timeframe. My plan was to analyze all cases within the dataset that met my study's inclusion criteria.

Justification for the effect size, alpha level, and power level chosen

Because I anticipated using a sample size of 6062, such a large sample size would be sufficient in detecting an effect size. Hence, an alpha level of 0.5 and a power level of 0.95 would be used to control for type 1 and type 2 errors respectively. However, if I found no statistical significance after analyzing my data, I would consult with my research committee to determine the need for a post hoc power analysis.

Operationalization of Variables

Admission into program was defined as the first MHAS episode of care. Readmission was my study's dependent variable and was defined as next episode intake date that occurs within one year following episode inactivation date and assigned the number 1. Discharge was defined as inactivation date that occurs after first MHAS episode of care. The main independent variables were presenting problems and types of counseling services. These variables were dichotomized accordingly for bivariate and multivariate analysis for whether or not readmission occurred within one year following discharge. Primary presenting problem of program participants were identified as anxiety, depression, or SUB and assigned number 2, 3, and 4, respectively. Number of visits for individual services, group services, and family services were recoded as individual, group, and family CBT and assigned number 5, 6, and 7 respectively. First three digits of postal code were to be recoded for SES, and the deprivation index would serve as the indicator for SES. The deprivation index would range from Q1 = most affluent quintile to Q5=least affluent quintile.

Data Analysis Plan

Data Cleaning and Screening Procedures

As with other elements of empirical research, data cleaning and screening is an important and necessary step that needs to occur prior to the analysis of the dataset to ensure valid conclusions (Frankfort-Nachmias et al., 2015; Verma, 2013). Data cleaning involves proofreading the data for errors and inconsistencies; which can be achieved using statistical software such as SPSS (Frankfort-Nachmias et al., 2015).

Descriptive Statistical Analysis Plan

In the case of the dataset for my study, I performed descriptive analysis of the dataset by computing frequency statistics for quantitative variables in SPSS. The output result of the frequency statistics included the mean, median, range, and standard deviation (Green & Salkind, 2014). I also computed a histogram to graphically display the distribution of the frequency statistics; doing so showed if the data was normally distributed or if there was a need to check for errors in my dataset (Verma, 2013). A standard deviation that is greater than the mean is an indication of the presence of an outlier, which might affect the result of my analysis (Verma, 2013). Should there be outliers in my dataset, the next step would be to review the values of the mean and the 5% trimmed mean to determine the degree of difference between the two. Outliers and missing data were to either be recoded or deleted to mitigate their impact on inferential analysis.

Inferential Statistical Analysis Plan

Bivariate Analysis. I conducted bivariate analysis of my variables by computing a chi-square analysis of my hypotheses using cross tabulation. The use of Chi-square test is an

appropriate statistical test for significance for dichotomous variables (McHugh, 2013), thereby making it an appropriate test for my analysis, as my outcome variable is dichotomous in nature.

Multivariate Analysis. Confounding variables such as age, gender, and SES are examples of variable besides the ones being studied that can impact the true relationship, and have a significant impact on the study result (Pourhoseingholi, Baghestani, & Vahedi, 2012). To address the effect of confounding variables, I conducted a multiple logistic regression. Multiple logistic regression not only have the ability to control for confounding variables, but can also be used simultaneously to control for numerous confounders (Pourhoseingholi et al., 2012).

The general data analysis matrix and mock tables for descriptive and inferential analysis can be found in appendix A.

Research Questions and Hypotheses

The following are the research questions and hypotheses that guided my study:

Table 4

Research Questions and Hypotheses

Research Questions	Covariate research questions	Null hypothesis	Alternate hypothesis
RQ1: Is there an association between anxiety and readmission within one year following discharge for youth between ages of 13-18.	CRQ 1: Is the association between anxiety and readmission within one year following discharge for youth between the ages of 13-18 confounded by age, gender, and SES?	Ho ₁ : There is no association between anxiety and readmission within one year following discharge for youth between the ages of 13-18.	Ha ₁ : There is an association between anxiety and readmission within one year following discharge for youth between the ages of 13-18.
RQ 2: Is there an association between depression and readmission within one year following discharge for youth between ages of 13-18?	CRQ 2: Is the association between depression and readmission within one year following discharge for youth between the ages of 13-18 confounded by age, gender, and SES?	Ho ₂ : There is no association between depression and readmission within one year following discharge for youth between the ages of 13-18.	Ha ₂ : There is an association between depression and readmission within one year following discharge for youth between the ages of 13-18.
RQ 3: Is there an association between SUD and readmission within one year following discharge for youth between ages of 13-18?	CRQ 3: Is the association between SUD and readmission within one year following discharge for youth between the ages of 13-18 confounded by age, gender, and SES?	Ho ₃ : There is no association between SUD and readmission within one year following discharge for youth between the ages of 13-18.	Ha ₃ : There is an association between SUD and readmission within one year following discharge for youth between the ages of 13-18.
RQ 4: Is there an association between individual counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	CRQ 4: Is the association between individual counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD, confounded by age, gender, and SES?	Ho ₄ : There is no association between individual counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	Ha ₄ : There is an association between individual counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.
RQ 5: Is there an association between family counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	CRQ 5: Is the association between family counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD, confounded by age, gender, and SES?	Ho ₅ : There is no association between family counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	Ha ₅ : There is an association between family counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.
RQ 6: Is there an association between group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	CRQ 6: Is the association between group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD, confounded by age, gender, and SES?	Ho ₆ : There is no association between group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	Ha ₆ : There is an association between group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.

Threats to Validity

The concept of validity in research is one that cannot be ignored given the many circumstances that could arise during the course of research that could potentially result in errors in the research outcome, and ultimately rendering the research invalid. Such a research outcome in the field of social sciences can have far reaching consequences as scores of individuals and/or population groups might receive unnecessary and ineffective interventions that are based on unfounded inferences. It is therefore imperative for the researcher to identify potential threats to validity, and take measures to control these threats. As described by Frankfort-Nachmias et al. (2015), validity refers to the certainty that a researcher is measuring the intended variable. Internal validity, external validity, and statistical conclusion validity are types of validity that can be threatened by intrinsic and extrinsic factors (Creswell, 2009; Frankfort-Nachmias et al., 2015).

Threats to Internal Validity

Threats to internal validity refer to procedures or treatments that could result in wrong inferences (Creswell, 2009; Polit & Beck, 2010). Several threats to internal validity exist. However, in the case of my study, a threat that could significantly impact internal validity is selection bias given that I used secondary data for my analysis. Control for selection bias was carried out through homogeneity and matching. Selection bias control through homogeneity involved limiting the participants' age to 13-18 years, and admission timeframe to youth community counseling program between 2012-2015. Selection bias control for matching involved using information on presenting problems and type of counseling received to create comparison groups (Polit & Beck, 2010).

Threats to External Validity

External validity deals with the ability to generalize study outcomes beyond the study population and setting (Polit & Beck, 2010). With the current emphasis on evidenced-based practice, researchers ought to ensure that control measures are taken to eliminate threats that could result in wrong inferences so as to facilitate the dissemination of new insight from research settings to clinical settings (Polit & Beck, 2010). Because mental illness can affect people of all ages, one may be easily tempted to claim that the results of a particular study of individuals with select mental illness can be generalized to individuals who do not have the same characteristics as that of the study population. Threats to external validity that may impact the generalizability of my study outcomes included interaction of selection and treatment, and multiple treatment interferences as clients in different settings may concurrently be receiving more than one form of CBT (Creswell, 2009, University of Wisconsin, 2017).). To address the above identified threats to external validity, I ensured the interpreted results and inferences that I presented were restricted to adolescents with similar presenting problem who receive similar CBTs as tested in my study. This approach was necessary given that primary and secondary data were collected via convenience sampling approach of youth community counseling program participants.

Statistical Conclusion Validity

A key step in establishing empirical relationships between the independent and dependent variables is the identification of appropriate statistical tests for hypothesis testing, and with the abundance of powerful statistical tests and software, researchers could inadvertently conduct statistical analysis using inadequate statistical power (Creswell, 2009;

Polit & Beck, 2010). To address this threat, researchers can use a larger sample size to achieve statistical power (Polit & Beck, 2010).

Ethical Considerations

Data for my research was archival data from SHR youth community counseling program, and the data was pulled from the AMIS database. As a healthcare organization, SHR has its own strict policies surrounding the use and disclosure of patient information, including research. All SHR employees including youth community counseling program assessors and coordinators are obligated to abide by SHR policy number 7311-75-003 titled privacy and confidentiality that addresses the handling and disclosure of personal health information (SHR, 2017). The use of SHR data for research purposes requires both REB approval from SHR designated academic institution and operational approval from SHR; both of which have been obtained and can be found in appendix B and C respectively.

Significant ethical concerns that may arise when working with secondary data is in the amount and type of identifying information, data security, and data storage. Although informed consent was not necessary in the case of my study as the data that I analyzed was de-identified, the privacy and confidentiality of the program participants must be ensured (Government of Canada Panel on Research Ethics, 2010; Tripathy, 2013). Therefore, I applied to the Walden IRB for permission to analyze data prior to requesting for de-identified data, and before proceeding with my data analysis. Once I received Walden IRB approval, I requested for the data set to be de-identified and assigned a study ID by the AMIS database coordinator to ensure privacy of youth community counseling program participants. The master list was

created based on the inclusion criteria and was only accessible to the AMIS coordinator. Data abstraction took place within SHR.

De-identified data was stored in SHR secured internal information network and accessed using a password-protected encrypted laptop that was provided to me by SHR. Following the completion of my study, research data in the laptop was removed and transferred to a password protected USB and handed over to SHR local supervisor designate. Research data will be retained for five years following the completion of the study and identified SHR's designate will be ultimately responsible for the data storage during the period of research and the retention period. Analyzed results were shared with Walden University, and will be subsequently shared with SHR per their expressed request in the letter of operational approval. There are no conflicts of interest with the use of youth community counseling program data for my research.

Summary

In summary, mental illness is considered to be a leading health problem in Canadian children, and the prevalence of mental illness in adolescents ages 9-19 is projected to grow exponentially by the year 2041. The use of cognitive-behavioral therapy (CBT) has been shown to be an effective treatment approach for individuals with mental illness. However, the use of CBT in adolescents to improve health outcome continues to pose significant challenges in the form of poor response to treatment (Furber et al., 2015) Furthermore, readmission to mental health services is considered an unfavorable outcome, and data shows a rise in readmission for recipients of mental health services in Saskatchewan (James et al., 2010; CCB, 2017). An approach that can be used to ensure that the right patient is receiving the right

services to optimize outcomes is by conducting a patient outcome evaluation. For this reason, I conducted a quantitative correlational study to identify association between presenting problems, types of counseling services, and readmission for participants of youth community counseling program in Saskatoon for predictors of readmission. The need for evaluating the presenting problems and counseling services as a predictor of readmission is further substantiated by literature evidence that shows the lack of a comprehensive retrospective quantitative study for adolescents ages 13-18 who are enrolled in a community program.

My data analysis plan involved the use of SPSS statistical software to compute descriptive and inferential statistics, and post hoc analysis of my study variables for statistical significance if necessary. Descriptive statistics included frequencies, percentages, and cumulative percentages. Inferential statistics included bivariate (chi-square) analysis. Multivariate regression test was used for multivariate inferential analysis. The plan was to conduct a post hoc (Bonferonni adjustment) in the event that there was no statistical significant from the descriptive and inferential analysis.

I presented the results and findings of my data analysis in section 3 of my study.

Section 3: Presentation of Results and Findings

The purpose of this study was to identify the association between the presenting problems, types of counseling services, and readmission within one year following discharge from a youth community-counseling program in Saskatoon while controlling for confounding variables namely age, gender, and SES. Program participants presenting problems included anxiety, depression, and SUD. Types of counseling services included individual, group, and family counseling. The dependent variable was readmission within one year following discharge

The main research questions that were answered were: (a) what is the association between presenting problems defined as anxiety, depression, and SUD and readmission within one year following discharge for youth between the ages of 13-18, and (b) what is the association between types of counseling services defined as individual, family, and group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD?

The main covariate questions were: (a) is the association between presenting problems defined as anxiety, depression and SUD, and readmission within one year following discharge for youth between the ages of 13-18 confounded by age, gender, and SES, and (b) is the association between types of counseling services defined as individual, family and group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD, confounded by age, gender, and SES?.

Table 5 is a list of the null and alternate hypotheses that were tested for an association between the independent and dependent variables:

Table 5

Null and Alternate Hypotheses

Null hypothesis	Alternate hypothesis
<i>H</i> ₀₁ : There is no association between anxiety and readmission within one year following discharge for youth between the ages of 13-18.	<i>H</i> _{a1} : There is an association between anxiety and readmission within one year following discharge for youth between the ages of 13-18.
<i>H</i> ₀₂ : There is no association between depression and readmission within one year following discharge for youth between the ages of 13-18.	<i>H</i> _{a2} : There is an association between depression and readmission within one year following discharge for youth between the ages of 13-18.
<i>H</i> ₀₃ : There is no association between SUD and readmission within one year following discharge for youth between the ages of 13-18.	<i>H</i> _{a3} : There is an association between SUD and readmission within one year following discharge for youth between the ages of 13-18.
<i>H</i> ₀₄ : There is no association between individual counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	<i>H</i> _{a4} : There is an association between individual counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.
<i>H</i> ₀₅ : There is no association between family counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	<i>H</i> _{a5} : There is an association between family counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.
<i>H</i> ₀₆ : There is no association between group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	<i>H</i> _{a6} : There is an association between group counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.

In this section, I present a description of the data collection process and time frame of the secondary dataset that was retrieved from AMIS. I conducted descriptive, bivariate, and multivariate analysis of data using SPSS version 24 and the results are reported in this section. I summarize the answers to my research questions and provide transitional information for Section 4.

Data Collection of Secondary Data Set

AMIS was the source of secondary data for my study. AMIS is a client registration system that is used by Saskatoon Health Region MHAS to collect, process, and analyze data on services that are provided to clients (Accreditation Canada, 2017). AMIS data is collected using a convenience sampling strategy as only participants requiring services MHAS are captured in the database. This data is collected and inputted into the system by assessors and/or coordinators at intake, during treatment, and at discharge from the program.

Using the data collection tool that was identified in Section 2, a total of 2584 cases that met one or more of my inclusion criteria from January 2010- December 2015 were pulled from the database by the AMIS coordinator; this sample size was less than the anticipated 6000 cases but sufficient to conduct my statistical analysis. In addition to my independent and dependent variables, the dataset included information on intake program area as MHAS provides a variety of services to youths. The number of visits for each CBT, and the readmit intake area were also included in my dataset. There were no discrepancies in the use of secondary dataset from the plan presented in Section 2.

Data Sampling and Preparation

After gaining approval from the University of Saskatchewan Research Ethic Board (Bio # 17-50) and Walden Institution Review Board (10-19-17-0619686) to access and analyze my data, the de-identified data was made available to me in Microsoft Excel format by the AMIS coordinator on November 21, 2017. Using a convenience sampling strategy, I excluded all cases between 2010-2011 and those that were admitted to other program areas besides Child & Youth namely Calder Center, Outreach, Emergency, and acute care.

In order to obtain SES information, the first three digits of postal code were changed to median total income of households in 2015 based on Statistics Canada 2016 census profile (Statistics Canada, 2017). Postal codes in the data set that yielded no results from the Statistics Canada 2016 census profile and those that were blank from the dataset were deleted because this information was necessary to code for the confounding variable SES. Furthermore, the initial plan to obtain SES information from the deprivation index was not possible, as all six digits of the postal code were needed for the deprivation index. Hence, given that I only had access to the first three digits of program participants, I had to use data from Statistics Canada to determine SES. Other outliers that were removed from the original data set were transgendered participants as there were only three participants who were admitted to youth community counseling program between 2012-2015.

After applying the sampling strategy and sorting as described above, I had 772 cases that were admitted between 2012-2015 to the youth community counseling program with a presenting problem of anxiety, depression, and SUD; and received individual, group, family, or no CBT. Notably, there were individual cases with more than one presenting problem and

those who received more than one CBT (see Table 6 below). Of the 772 participants, 186 did not receive CBT either because there were no shows, declined services, unable to contact, withdrew, or passed away. Confounding variables that were included in my study sample were age, gender, and SES, and my study dependent variable was readmission to youth community counseling program.

Table 6

Descriptive Statistics of Independent and Dependent Variables

Variable	Frequency	Percentage
Anxiety	340	44.0
Depression	322	41.7
SUD	304	39.4
Individual CBT	532	68.9
Family CBT	82	10.6
Group CBT	98	12.7
Readmission	190	24.6
Total	1868	

Univariate Analysis

Descriptive Characteristics of Sample

A total of 772 cases that met my study inclusion criteria from the data set were analyzed using SPSS version 24 statistical software. To prepare my data for univariate and inferential statistical analysis, cases that were coded a yes for meeting the criteria were

changed to a 1, and those with no attributes were coded as a 0. I conducted a frequency analysis of participants (see Table 7), and the frequencies and percentages of the highest and lowest participants' ages were as follows: participants age 18 were the lowest ($n = 13$, 1.7%), and age 16 were the highest participants of youth community counseling program ($n = 185$, 24%).

Table 7

Ages at Intake of Participants of Youth Community Counseling Program (N=772)

Age	Frequency	Percent	Cumulative Percent
13	108	14.0	14.0
14	147	19.0	33.0
15	170	22.0	55.1
16	185	24.0	79.0
17	149	19.3	98.3
18	13	1.7	100.0
Total	772	100.0	

More than half of the study sample was female ($n = 456$, 59.1%), and the remainder was male ($n = 316$, 40.9%) as shown in Table 7.

Table 8

Genders of Participants of Youth Community Counseling Program (N=772)

Gender	Frequency	Percent	Cumulative Percent
Male	316	40.9	40.9
Female	456	59.1	100.0
Total	772	100.0	

Participants' SES was ranked and group into three groups based on household income as \$50, 000 - \$69, 999 as *low income* (1); \$70, 000-\$89,999 as *middle income* (2); and > \$90,000 as *high income* (3) (See Table 9 and Figure 3). The middle-income group had the most participants ($n = 322$, 41.7%), and the lowest income group had the lowest participants ($n = 213$, 27.6%).

Table 9

SES of Participant of Youth Community Counseling Program (N =772)

	Frequency	Percent	Cumulative Percent
<i>Low Income</i>	213	27.6	27.6
<i>Middle Income</i>	322	41.7	69.3
<i>High Income</i>	237	30.7	100.0
Total	772	100.0	

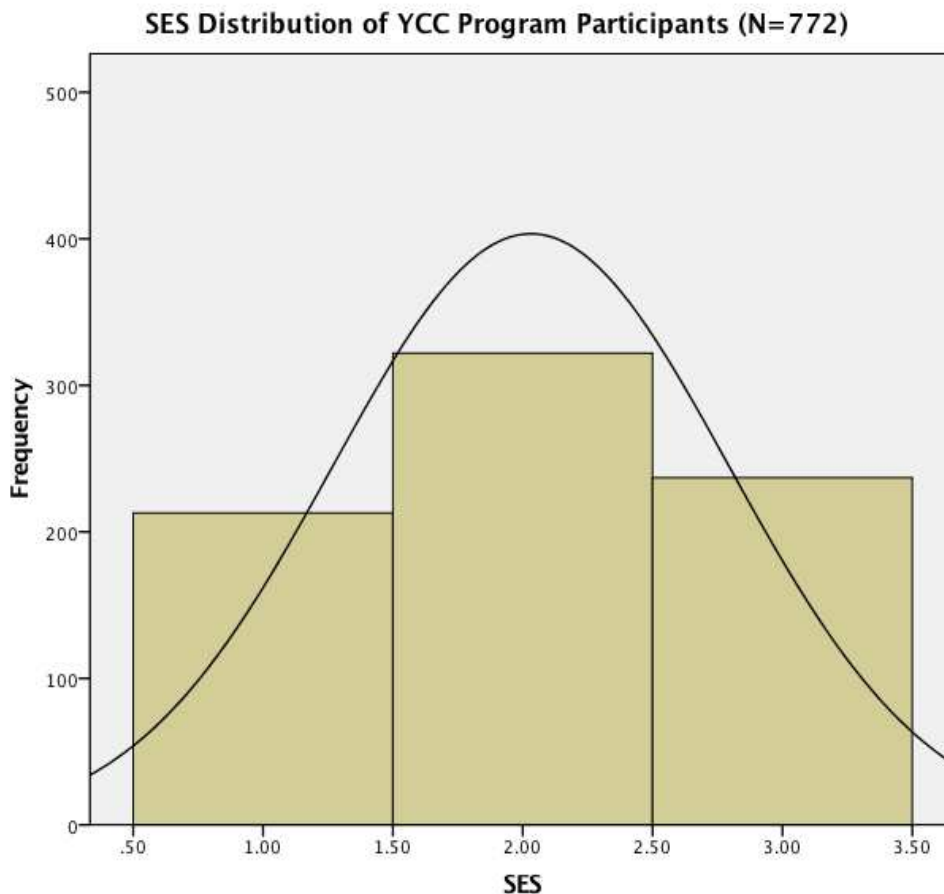


Figure 3. SES distribution of youth community counseling program participants.

My study independent and dependent variable were categorically coded as 1 indicating yes, and 0 indicating no attributes. Prior to computing descriptive analysis of these variables, all the zeros were identified as missing variables in the SPSS missing column under variable view and results summarized in Table 6. Table 10 and 11 shows the result for presenting problems, and counseling services. The combined distribution for participants with co-occurring presenting problems and CBT are displayed in Table 12.

Table 10

Descriptive Statistics for number of participants by presenting problem

Presenting Problem	Frequency	Percentage
Anxiety	340	44
Depression	322	41.7
SUD	304	39.4
Total	966	

Table 11

Descriptive Statistics for number of participants by types of counseling services

Types of Counseling Services	Frequency	Percentage
Individual CBT	532	68.9
Group CBT	98	12.7
Family CBT	82	10.6
Total	712	

Table 12

Distributions of Participants with Combined Independent Variables

Combined Variables	Frequency	Percent
Anxiety and Depression	127	16.5
Anxiety and SUD	27	3.5
Depression and SUD	53	6.9
All Presenting Problems	13	1.7
Individual and Group CBT	77	10
Individual and Family CBT	46	6
Group and Family CBT	19	2.5
All Counseling Services	15	1.9
Total	377	45.8

Inferential Analysis

Bivariate Analysis

Given that both my independent and outcome variables were categorical and dichotomous, I considered a Chi-square analysis to be appropriate for my bivariate analysis. In order to compute binary logistic regression in SPSS, I used a binary system to code both the independent and dependent variables. The dependent variable readmission was coded as 1 = yes (*readmitted*), and 0 = no (*not readmitted*). All six independent variables were coded as 1 = yes and 0 = no to indicated not applicable.

Chi-Square Analysis of Variables

I used a contingency table to analyze the association between the dependent variable (readmission within one year following discharge) and independent variables (anxiety, depression, SUD, individual CBT, group CBT, and Family CBT). The results of the Pearson Chi-Square tests revealed significant but marginal findings for anxiety at $P = .049$, and depression at $P = .001$. Given that my alpha level was set at $\alpha = 0.05$, SUD, individual CBT, group CBT, and family CBT were interpreted as not significant and results displayed in Table 13. Hence, null hypotheses H_{01} and H_{02} were rejected, and the alternate hypotheses H_{a1} and H_{a2} were accepted given the results of the statistical analysis. Subsequently, H_{03} , H_{04} , H_{05} , and H_{06} were accepted.

Table 13

Presenting Problems and Counseling Services Influence on Readmission Within One Year Following Discharge

Pearson Chi-Square Tests			
	Value	df	Sig (2-sided)
Anxiety	3.864	1	.049*
Depression	11.202	1	.001*
Substance Use Disorder	1.508	1	.219
Individual CBT	.139	1	.709
Family CBT	.744	1	.388
Group CBT	.283	1	.595

Notes. * Statistically significant at alpha = .05*

Multiple Binary Logistic Regressions with Covariates and Readmission Within One Year Following Discharge

Having established the presence of an association between anxiety and readmission, and depression and readmission, I then needed to test CRQ1 and CRQ2 to determine if age, gender, and SES confounded the association between the significant independent variables and the dependent variable. I conducted binary logistic regression analysis using SPSS. Variables were analyzed using p value of 0.05, and confidence interval of 0.95. Binary logistic regression was calculated using 1= success (*readmitted*), and 0= no success (*not readmitted*).

Firstly, I computed a test of model fitness for binary regression for anxiety, age, gender, and SES to predict readmission. Results of the omnibus test of model coefficient was statistically significant for anxiety, age, gender, and SES as predictors of readmission at $\chi^2=13.971$, p value = .016 (see Table 14). Furthermore, the model summary analysis showed

the -2 log likelihood of 847.621, and adjusted R square (Nagelkerke R square) of .027 (see Table 15). The adjusted R square for anxiety of .027 suggests the predictive capacity of this model to produce significant results in 2.7% of cases even after adjusting for age, gender, and SES.

Table 14

Block 1: Method = Enter: Omnibus Test of Model Coefficients for Anxiety, Age, Gender, SES to Predict Readmission

		Chi-Square	df	Sig
Step 1	Step	13.971	5	.016
	Block	13.971	5	.016
	Model	13.971	5	.016

Table 15

Model Summary for Anxiety, Age, Gender, and SES to Predict Readmission

Step	-2 Log Likelihood	Cox & Snell R Square	Nagelkerke R Square
1	847.621	.018	.027

Notes. Estimation terminated at iteration number 4 because parameter estimates because parameter estimate changed by less than .001.

Secondly, I computed similar adjusted logistic regression that included depression, age, gender, and SES to predict readmission given the previously established significant association between depression and readmission within 1 year following discharge. The results of the omnibus test of model coefficient was statistically significant for depression, age, gender, and SES as predictors of readmission at $\chi^2=18.097$, p value = .003 (see Table 16). Likewise, the model summary analysis showed the -2 log likelihood of 843.494, and Nagelkerke R square of

.034 (see Table 17). The adjusted R square for depression of .034 suggests the predictive capacity of this model to produce significant results in 3.4% of cases even after adjusting for age, gender, and SES.

Table 16

Block 1: Method = Enter: Omnibus Test of Model Coefficients for Depression, Age, Gender, SES to Predict Readmission

		Chi-Square	df	Sig
Step 1	Step	18.097	5	.003
	Block	18.097	5	.003
	Model	18.097	5	.003

Table 17

Model Summary for Depression, Age, Gender, and SES to Predict Readmission

Step	-2 Log Likelihood	Cox & Snell R Square	Nagelkerke R Square
1	843.494	.023	.034

Notes. Estimation terminated at iteration number 4 because parameter estimates because parameter estimate changed by less than .001.

I also computed analyses to determine the adjusted model coefficients for anxiety and depression while adjusting for age, gender and SES. After adjusting for age, gender, and SES, there was a significant change in the regression coefficient for anxiety (p value= .016, $\text{Exp}(B)$ = .653), and depression (p value= .002, $\text{Exp}(B)$ =1.723) (see Table 18 and 19). Gender and SES were not significant in both adjusted models (p -value > 0.05). However, age showed statistical significance for anxiety (p value = .005) and depression (p value = .012) (see Table 18 and 19).

Given the significant findings for age in the adjusted model (see Table 18 and 19), I computed logistic regression model for effect modification using the mean centered values for anxiety, age, gender, SES, anxiety*age, anxiety*gender, and anxiety*SES. The result of the effect modification showed that the association between anxiety and readmission was modified by age (anxiety: p value = .046, OR= .707; anxiety*age: p value= .038) (see Table 20), thereby suggesting that age is a confounder in respect to CRQ1 that states “is the association between anxiety and readmission within 1 year following discharge for youth between the ages of 13-18 confounded by age, gender, and SES?” Gender and SES had no modifying effect on the association between anxiety and readmission (p value = .536, p value= .474). The final model for research question 1 was:

$$\text{Logit}(Y) = \beta_0 + \text{anxiety} + \text{age} + \text{anxiety} * \text{age}$$

Table 18

Variables in the Equation for Anxiety, Age, Gender, and SES as Predictor of Readmission Model

		B	SE	Wald	df	Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B)	
								Lower	Upper
Step 1	Anxiety	-.426	.177	5.841	1	.016*	.653	.462	.923
	Age	-.176	.063	7.787	1	.005*	.839	.742	.949
	Gender(1)	-.128	.177	.522	1	.470	.880	.623	1.244
	SES			.844	2	.656			
	SES(1)	-.045	.226	.039	1	.843	.956	.614	1.490
	SES(2)	.132	.201	.428	1	.513	1.141	.769	1.693

Constant	1.724	.975	3.125	1	.077	5.604
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Notes. * Significance level ($\alpha = .05$)*.

Table 19

Variables in the Equation for Depression, Age, Gender, and SES as Predictor of Readmission Model

		B	SE	Wald	df	Sig.	Exp(B)	95% Wald Confidence Interval for Exp(B)	
								Lower	Upper
Step 1 ^a	Depression	.544	.172	10.026	1	.002*	1.723	1.230	2.414
	Age	-.158	.063	6.346	1	.012*	.854	.756	.966
	Gender(1)	.035	.177	.039	1	.843	1.036	.732	1.465
	SES			.422	2	.810			
	SES(1)	-.021	.226	.009	1	.925	.970	.628	1.525
	SES(2)	.100	.202	.243	1	.622	1.105	.743	1.642
	Constant	.968	.960	1.016	1	.313	2.631		

Notes. * Significance level ($\alpha = .05$)

a. Variable(s) entered on step 1: Depression Recoded, Age at Intake, Gender, and SES.

Table 20

Variables Included in the Equation for Effect Modification for Anxiety and Age

		B	S.E	Wald	df	Sig	Exp(B)
Step 1	Anxiety_centered	-.347	.174	3.991	1	.046*	.707
	Age_centered	-.173	.063	7.656	1	.006*	.841
	Anxiety_age_centered	.264	.127	4.301	1	.038*	1.302
	Constant	-1.125	.085	173.807	1	.000	.325

Notes. * Significance level ($\alpha = .05$)

I conducted similar effect modification tests using the mean centered values for depression, age, gender, SES, depression*age, depression*gender, and depression*SES for the association between depression and readmission. Results of the effect modification tests showed that the association between depression and readmission was not modified by age (see Table 21), gender, or SES (p -value= .977; .079; .640). Hence, the final model for research question 2 was:

$$\text{Logit}(Y) = \beta_0 + \beta \text{depression} \times \text{depression}$$

Table 21

Variables Included in the Equation for Effect Modification for Depression and Age

		B	S.E	Wald	df	Sig	Exp(B)
Step 1	Depression_centered	.544	.170	10.187	1	.001*	1.722
	Age_centered	-.157	.063	6.319	1	.012*	.854
	Depression_age_centered	-.004	.124	.001	1	.977	.996
	Constant	-1.149	.086	179.631	1	.000	.317

Notes. * Significance level ($\alpha = .05$)

As reported in Table 13, SUD, individual, family CBT, and group CBT were not significant and hence there were no needs to test for covariate research questions 3, 4, 5, and 6 as the null hypotheses were accepted, and the alternate hypotheses were rejected.

Summary

In this section, I presented the results of my analysis of association for participants of youth community counseling program ages 13-18 who present with anxiety, depression, and SUD; receive individual, family or group CBT, and readmission within one year following discharge. Sample size consisted of 772 who met inclusion criteria. The association between presenting problems and counseling services were analyzed while controlling for confounding

variables namely age, gender, and SES. Descriptive, Chi-Square, and binary logistic regression were computed using SPSS version 24, and results showed an association between anxiety, depression and readmission. Results of the effect modification model showed that the association between anxiety and readmission was modified by age. Age, gender, or SES did not modify the association between depression and readmission. All other independent variables showed no association with the dependent variable.

In the next section, I discussed the interpretations of the findings, limitations of the study, recommendations, and implications for professional practice and social change.

Section 4: Application to Professional Practice and Implications for Social Change

Introduction

Mental illness is considered a leading health problem in Canadian children and adolescents and occurs in 12.6% of Canadian children at any given time (Waddell, et al., 2016). Other high-income countries (HIC) such as the United States have also noted that 13-20% of children suffer from mental illness (Perou et al., 2013). Anxiety, depression, and SUD are some of the common mental illnesses that occur in children and adolescents and treatment for these illnesses continue to be challenging (Erskine et al., 2016). One of the ways of identifying the effectiveness of CBT is by performing a patient outcome evaluation. Therefore, readmission, which is an established routine outcome measures in Canada (Kisely et al., 2015) was used to analyze for predictors of readmission to youth counseling program among adolescents in Saskatoon, Canada

The purpose of this study was to identify the association between presenting problems defined as anxiety, depression, SUD; counseling services defined as individual counseling, family counseling, and group counseling; and readmission within one year following discharge for youth between the ages of 13-18 in a youth community counseling program in Saskatoon, Canada.

The de-identified data set that was retrieved from AMIS had 772 participant admitted between 2012-2015 who met the study's inclusion criteria. Of the 772, 190 (24.6%) were readmitted within 1 year following discharge. I used a Chi-Square and binary logistic regression to identify the association between presenting problems (anxiety, depression, SUD), counseling services (Individual CBT, family CBT, and group CBT), and readmission while

controlling for confounding variables age, gender, and SES. Results of the inferential analysis showed a statistical significance between anxiety and readmission, and depression and readmission. The significance of the association between anxiety and readmission based on the results of my chi-square statistical tests implies that there is an obvious, albeit marginal association between anxiety and readmission ($\chi^2 = 3.864$; p value= .049). This association, which was further tested for effect modification in logistic regression model, and showed statistical significance for anxiety (p value= .046, $\text{Exp}(B)= .707$) even after adjusting for age, gender and SES; and was modified by age (p value = .038, $\text{Exp}(B)= 1.302$). This means that participants between the ages of 13-18 who present with anxiety are less likely to be readmitted within 1 year following discharge from the youth community counseling program compared to patients without anxiety ($OR= 0.707$). However, this association depends on the effect of anxiety and age; this is because anxiety alone does not predict a less likelihood of readmission.

Similarly, there was an association between depression and readmission ($\chi^2= 11.202$; p value= 0.001) in the Chi-square analysis, and for depression and age in the adjusted logistic model. Therefore, I conducted effect modification testing that included age, gender, and SES and the results of the logistic regression analysis showed a strong association between depression and readmission ($p = 0.001$, $OR= 1.722$) even after examining for effect modification. This means that participants between the ages of 13-18 who present with depression are 1.722 times more likely to be readmitted within 1 year following discharge from the youth community counseling program compared to participants without depression irrespective of their age, gender, or SES.

Interpretation of the Findings

The findings of this inferential analysis confirms previous research on the risks of readmission for patients with mental illness, and the ability to use retrospective quantitative methodology for patient outcome evaluations in both acute care and community settings. The findings of my research also extended knowledge in the literature and in the field of mental health in the context of adolescent participants in community counseling services programs and their risks of readmission to program base on their presenting problems of anxiety and depression. The main research question that states: “is there an association between presenting problems defined as anxiety, depression, and SUD and readmission within 1 year following discharge for youth between the ages of 13-18?” was tested while controlling for age, gender, and SES. There was a marginal statistically significant association for anxiety (p value= .046). Notably, the association between anxiety and readmission was modified by age. An odd ratio of 0.707 suggests that patients with anxiety are less likely to be readmitted within 1 year following discharge in comparison to those without anxiety. There was a strong statistically significant association between depression and readmission within 1 year following discharge (p value= 0.001, OR=1.722) irrespective of age, gender, or readmission. There was no association for SUD (p value = .219).

The findings from this study support previous studies by CIHI (2010) that showed that 19% of patients with an admitting diagnosis of mental illness were readmitted within 1 year following discharge; and by Desplenter et al. (2011) that showed that 39% of patients with a diagnosis of depression were readmitted to psychiatric hospitals within 1 year of discharge despite receiving outpatient treatments. However, the above-mentioned studies were conducted

in a general hospital and psychiatric hospitals respectively, and lacked insight on patient outcomes in community counseling programs. Furthermore, the populations that were studied by the above authors were not solely adolescents ages 13-18. This study confirms previous research in the field of mental health by showing that anxiety and depression were also predictors of readmission in adolescents in a community counseling setting and not just for patients in the hospital settings.

I also tested the main Research Question 2 that states: “is there an association between types of counseling services defined as individual, family, and group counseling and readmission within 1 year following discharge for youth ages 13-18 years presenting with anxiety, depression, and SUD?” The result of this analysis showed no association for individual counseling (p value = .709), family counseling (p value = .388), and group (p value = .595).

Interpretation of Findings in the Context of the Theoretical Framework

I used SEM of health behavior by Bronfenbrenner (1979) to help me understand and interpret the study findings. SEM postulates that several factors at the intrapersonal, interpersonal, community organizational, and public policy level influence health seeking behavior and health outcome. With this in mind, I used SEM as an aid in the interpretation of the study outcome. Hence, for participants of a youth community-counseling program, intrapersonal factors namely anxiety, depression, and age; all played a role in predicting readmission. Notable, age, a non-modifiable factor, had a modifying effect on predicting readmission for participants who presented with anxiety. The types of counseling services that

are offered at the organizational and public policy level to participants of youth community counseling program did not play a role in predicting readmission.

Limitations of the Study

The use of quantitative secondary archived data can significantly impact internal validity due to selection bias and missing data. Regarding this study, the de-identified secondary data set that was provided by AMIS was collected via convenience sampling as only participants who needed services from youth community counseling program were captured. Therefore, the results of my study may not be generalized to an entire population of patients with mental illness, but rather to a subgroup of adolescent patients with similar presenting problems who are participating in similar youth community counseling programs in communities around the world, as the sample size was adequate in detecting an effect.

Recommendations

I recommend future research in areas of prospective cohort studies that would follow at risk youth for readmission over a long period of time. Such an approach would provide in-depth details of these associations at the granular level and would capture the clinicians and participants' perceptions.

Furthermore, since my analysis did not result in statistically significant association between individual, family, and group CBT and readmission, I recommend further research to determine if the number of CBT visits might be associated with readmission within 1 year following discharge. Lastly, I recommended that further studies look at co-occurring presenting problems and combined CBT to determine predictors of readmission for individuals with mental illnesses.

Implications for Professional Practice and Social Change

Patient outcome evaluation is a reliable approach to determining the effectiveness of interventions; and the need to determine the effectiveness of such interventions is particularly important for patients with mental illness given the short and long-term impact that mental illnesses can have on the individual, their family, and the society. Interestingly, a review of evidenced-based literature revealed the lack of studies on patient outcome evaluations that demonstrates predictors of readmission for adolescent with anxiety, depression, and SUD who are receiving individual, family, and group CBT in the community. Therefore, this study, to the best of my knowledge, is the first of its kind that not only evaluated the effectiveness of CBT in adolescents in a community program, but also identified the presenting problems that are most likely to result in readmission for participants of youth community counseling program in Saskatoon.

Professional Practice

The outcome of this study showed that intrapersonal level characteristics, presenting problem of anxiety and depression, and age, a non-modifiable confounding factor, are predictors of readmission for adolescents in youth community counseling program. Perhaps most notably, is the finding that depression was a strong predictor of readmission within 1 year following discharge irrespective of the patient's age, gender, or SES. This knowledge could be beneficial for mental health practitioners for identifying those patients at risk for readmission and for preventing or reducing readmissions and improving health outcomes through intensive educational and therapeutic interventions

Regarding the youth community counseling program of Saskatoon, Canada, the outcome of this study reaffirms that the types of counseling services and program placement principles that are currently being utilized do not play a significant role in readmission; thereby indirectly meeting the program's goals of promoting wellbeing and recovery for program participants and their families. However, given the provincial trend of increases in readmission for patients with mental illnesses, as well as results of this study that showed an association between anxiety, depression, and readmission, provincial and organizational policies on the resources that are allocated to youth community counseling program in Saskatoon and similar program ought to be taken into consideration to ensure that the needs of program participants are met.

Positive Social Change

Anxiety, mood disorders, and other forms of mental illnesses have been shown to have a negative impact on the academic and social performance of youths, which can have a significant impact on their ability to form healthy relationships, graduate from school, and establish careers that can economically sustain them in adulthood. The outcomes of this study indicate that adolescents with depression are at a higher risk for readmission; and readmission for program participants can be interpreted as a sign of adverse health outcomes. However, in order to achieve optimum health outcome, which will in turn translate to a reduction in disability-adjusted life years (DALYs) and years of life lost (YLLs), intrapersonal level characteristics and program resources need to be taken into consideration for this population.

Conclusion

Readmission to services is an undesirable outcome for recipients of mental health services and can also be interpreted as a sign of adverse health outcome. Readmission can also be used as an indirect measure of the effectiveness of interventions for recipients of mental health services; keeping in mind that patients with different characteristics do not respond to every CBT in the same way. Notwithstanding, an effective way of identifying those with higher risk of readmission is through a patient outcome evaluation that is aided by statistical analysis to identify associations between predictor variables and outcome variables. The result of this study revealed that anxiety and depression were associated with readmission within 1 year following discharge for youth ages 13-18 who were participants of youth community counseling program in Saskatoon Canada. Depending on the age, adolescents with anxiety were less likely to be readmitted within 1 year following discharge in comparison to those without anxiety. Adolescents with depression were 1.722 times more likely to be readmitted within 1 year following discharge irrespective of their age, gender, or SES. These findings corroborate some of the previous literature on readmission for patients with mental illness, and expand the context to include adolescents in community counseling services.

The good news for patients, families, and clinicians at youth community counseling program of Saskatoon is that the types of counseling services provided by the program, and patient placement principles that are being utilized by the program do not directly play a role in readmission as there was no association between individual, family, and group CBT and readmission within 1 year following discharge for individuals presenting with anxiety, depression, and substance use disorder. Furthermore, by applying the principles of the SEM,

an evaluation of the program resources and provincial resource allocation principles might be a necessary step to ensure the adequacy of resources that are invested in improving the health outcomes of adolescents in youth community counseling program in Saskatoon Canada.

References

- Accreditation Canada. (2017). *Addiction and mental health information system*. Retrieved from <https://accreditation.ca/addiction-and-mental-health-information-system>
- American Psychiatric Association. (Ed). (2013). *American Psychiatric Association: Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
- American Psychological Association. (2017). Socioeconomic status. Retrieved from <http://www.apa.org/index.aspx>
- Andresen, E., & Bouldin, E. D. (Eds). (2010). *Public health foundations: concepts and practices*. San Francisco, CA: John Wiley & Sons, Inc.
- Aylin, P., Bottle, A., & Majeed, A. (2007). Use of administrative data or clinical databases as predictors of risk of death in hospital: Comparison of models. *BMJ : British Medical Journal*, 334(7602), 1044. doi:10.1136/bmj.39168.496366.55
- Barry, A., & Honore, H. (2009). Everyday theory: A practical application of the ecological perspective. *American Journal Of Health Education*, 40(6), 368-372.
- Belli, G. (2008). Nonexperimental quantitative research. Retrieved from <https://www.k4health.org/toolkits>
- Bronfenbrenner, U. (1979). *The Ecology of Human Development*. Cambridge, Mass: Harvard University Press.

- Canadian Institute for Health Information. (2010). *Depression in Ontario: What predicts a first mental health rehospitalisation?* Retrieved from https://secure.cihi.ca/free_products/depression_in_ontario_aib_2010_e.pdf
- Canadian Institute for Health Information. (2017). *Community Mental Health and Addiction Information: A Snapshot of Data Collection and Reporting in Canada*. Ottawa, ON: CIHI. Retrieved from https://secure.cihi.ca/free_products/CIHI-comm-mental-health-en-web.pdf
- Canadian Mental Health Association BC Division. (2014). *Mental illnesses in children and youth*. Retrieved from <http://www.heretohelp.bc.ca/sites/default/files/mental-illnesses-in-children-and-youth.pdf>
- Centre for Addiction and Mental Health. (2012). *Mental illness and addictions: facts and statistics*. Retrieved from <http://www.camh.ca/en/hospital/Pages/home.aspx>
- Centers for Disease Control and Prevention. (2015). *The Social-Ecological Model: a framework for prevention*. Retrieved from <https://www.cdc.gov>
- Charan, J., & Biswas, T. (2013). How to Calculate Sample Size for Different Study Designs in Medical Research? *Indian Journal of Psychological Medicine*, 35(2), 121–126. doi:10.4103/0253-7176.116232
- Community Care Branch. (2017, February 21). *2015-16 Community program Profile*. Unpublished manuscript, Government of Saskatchewan.
- Corrigan, P., Druss, B., & Perlick, D. (2014). The Impact of Mental Illness Stigma on Seeking and Participating in Mental Health Care. *Psychological Science In The Public Interest*, 15(2), 37-70. doi:10.1177/1529100614531398

- Costello, E. J., & Maughan, B. (2015). Annual research review: Optimal outcomes of child and adolescent mental illness. *Journal Of Child Psychology And Psychiatry, And Allied Disciplines*, 56(3), 324-341. doi:10.1111/jcpp.12371
- Creswell, J. W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Dabkowska, M., & Dabkowska-Mika, A. (2015). Risk Factors of Anxiety Disorders in Children. In Durbano, F. (Ed.), *A Fresh Look at Anxiety Disorders*. Rijeka, Croatia: InTech. doi:10.5772/61169
- Da Silva, S. A., Baitelo, T. C., & Fracolli, L. A. (2015). Primary health care evaluation: the view of clients and professionals about the Family Health Strategy. *Revista Latino-Americana De Enfermagem*, 23(5), 979-987. doi:10.1590/0104-1169.0489.2639
- De Souza, M. A. M, Salum, G. A., Jarros, R. B., Isolan, L., Davis, R., Knijnik, D., . . . Heldt, E. (2013). Cognitive-behavioral group therapy for youths with anxiety disorders in the community: Effectiveness in low and middle income countries. *Behavioural and Cognitive Psychotherapy*, 41(3), 255-64. doi:10.1017/S1352465813000015
- Desplenter, F. A., Laekeman, G. J., Simoens, S. R., & GIPPOZ Research Group. (2011). Following up patients with depression after hospital discharge: a mixed methods approach. *International Journal of Mental Health Systems*, 5(1), 28. doi:10.1186/1752-4458-5-28
- Droter, D. (Ed.). (2014). *Measuring health-related quality of life in children and adolescents: implications for research and practice*. Ney York, NY: Psychology Press.

Erskine, H. E., Moffitt, T. E., Copeland, W. E., Costello, E. J., Ferrari, A. J., Patton, G., . . .

Scott, J. G. (2015). A heavy burden on young minds: The global burden of mental and substance use disorders in children and youth. *Psychological Medicine, 45*(7), 1551-1563. doi: 10.1017/S0033291714002888

Farlex Medical Dictionary. (2009). *Readmission*. Retrieved May 16 2017 from <http://medical-dictionary.thefreedictionary.com/readmission>

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods, 41*, 1149-1160. doi:10.3758/BRM.41.4.1149

Fertman, C. I., & Allensworth, D. D. (Eds.). (2010). *Health promotion programs: From theory to practice*. San Francisco, CA: Jossey-Bass.

Frankfort-Nachmias, C., Nachmias, D., & DeWaard, J. (2015). *Research methods in the social sciences* (8th ed.). New York, NY: Worth Publishers.

Friis, R. H. & Sellers, T. A. (2009). *Epidemiology for Public Health Practice* (4th ed.). Sudbury, MA: Jones & Bartlett Publishers, Inc.

Furber, G., Segal, L., Leach, M., Turnbull, C., Procter, N., Diamond, M., & ... McGorry, P. (2015). Preventing mental illness: closing the evidence-practice gap through workforce and services planning. *BMC Health Services Research, 15*(1), 283. doi:10.1186/s12913-015-0954-5

Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2008). *Health behavior: Theory, research, and practice* (4th ed.). San Francisco, CA: Jossey-Bass.

Government of Canada Panel on Research Ethics. (2010). Tri-Council Policy Statement:

Ethical Conduct for Research Involving Humans. Retrieved from

<http://www.pre.ethics.gc.ca/eng/index/>

Government of Canada. (2011). The human face of mental health and mental illness in Canada 2006. Retrieved from <https://www.canada.ca/en/public-health/services/reports-publications/human-face-mental-health-mental-illness-canada-2006.html>

Green, S. A., Honeybourne, E., Chalkley, S. R., Poots, A. J., Woodcock, T., Price, G., . . .

Green, J. (2015). A retrospective observational analysis to identify patient and treatment-related predictors of outcomes in a community mental health programme.

BMJ Open, 5(5) doi:10.1136/bmjopen-2014-006103

Green, S. B. & Salkind, N. J. (2014). *Using SPSS for Windows and Macintosh: analyzing and understanding data* (7th ed.). Saddle River, NJ: Pearson.

Herkov, M. (2016). About Family Therapy. *Psych Central*. Retrieved from

<https://psychcentral.com/lib/about-family-therapy/>

Higa-McMillan, C. K., Francis, S. E., Rith-Najarian, L., & Chorpita, B. F. (2016). Evidence base update: 50 years of research on treatment for child and adolescent anxiety.

Journal of Clinical Child & Adolescent Psychology, 45(2), 91-113.

Hudson, J. I., Pope, H. G., & Glynn, R. J. (2005). The cross-sectional cohort study: an underutilized design. *Epidemiology*, 16(3) 355–359.

doi:10.1097/01.ede.0000158224.50593.e3

Hogue, A., Henderson, C. E., Ozechowski, T. J., & Robbins, M. S. (2014). Evidence base on outpatient behavioral treatments for adolescent substance use: updates and recommendations 2007-2013. *Journal Of Clinical Child And Adolescent Psychology*:

The Official Journal For The Society Of Clinical Child And Adolescent Psychology, American Psychological Association, Division 53, 43(5), 695-720.

doi:10.1080/15374416.2014.915550

James, S., Charlemagne, S. J., Gilman, A. B., Alemi, Q., Smith, R. L., Tharayil, P. R., & Freeman, K. (2010). Post-Discharge Services and Psychiatric Rehospitalization Among Children and Youth. *Administration and Policy in Mental Health, 37(5), 433–445.*

doi:10.1007/s10488-009-0263-6

Jaworska, N., & MacQueen, G. (2015). Adolescence as a unique developmental period.

Journal Of Psychiatry & Neuroscience: JPN, 40(5), 291-293. doi:10.1503/jpn.150268

Johnston, M. O. (2014). Secondary data analysis: a method of which the time has come.

Qualitative and Quantitative Methods in Libraries (QQML) 3:619 –626. Retrieved from <http://www.qqml.net>

Kisely, S., Adair, C. E., Lin, E., & Marriott, B. (2015). Routine outcome measures in Canada. *International Review Of Psychiatry (Abingdon, England), 27(4), 286-295.*

doi:10.3109/09540261.2014.994594

Klasen, H., & Crombag, A. (2013). What works where? A systematic review of child and adolescent mental health interventions for low and middle income countries. *Social Psychiatry And Psychiatric Epidemiology, 48(4), 595-611.* doi:10.1007/s00127-012-0566-x

Lee, P. H., & Burstyn, I. (2016). Identification of confounder in epidemiologic data contaminated by measurement error in covariates. *BMC Medical Research Methodology, 16, 54.* doi:10.1186/s12874-016-0159-6

- Lemstra M, & Neudorf, C. (2008). *Health disparity in Saskatoon: analysis to intervention*.
Saskatoon: Saskatoon Health Region. Retrieved from
<http://www.caledoninst.org/Special%20Projects/CG-COP/Docs/HealthDisparityRept-complete.pdf>
- Lemstra, M., Neudorf, C., & Opondo, J. (2006). Health disparity by neighbourhood income. *Canadian Journal Of Public Health-Revue Canadienne De Sante Publique*, 97(6), 435-439.
- Maller, D., Langsam, K., & Fritchle, M. J. (Eds.) (2013). *The Praeger handbook of community mental health practice*. Santa Barbara, CA: Praeger
- Martin, B. (2016). In-Depth: Cognitive Behavioral Therapy. *Psych Central*. Retrieved from
<https://psychcentral.com/lib/in-depth-cognitive-behavioral-therapy/>
- McHugh, M. L. (2013). Lessons in biostatistics: the Chi-square test of independence. *Biochemia Medica*, 23(2), 143-149. doi:10.11613/BM.2013.018
- Mclaughlin, K. A., & King, K. (2015). Developmental trajectories of anxiety and depression in early adolescence. *Journal of Abnormal Child Psychology*, 43(2), 311-323.
doi:10.1007/s10802-014-9898-1
- Meador, A., Lang, J.E., Davis, W.D., Jones-Jack, N.H., Mukhtar, Q., Lu, H. et al. (2016). Comparing 2 National Organization-Level Workplace Health Promotion and Improvement Tools, 2013–2015. *Preventing Chronic Disease*, 13,160164.
doi:10.5888/pcd13.160164

Mental Health Commission of Canada. (2015). *Mental health indicators for Canada*.

Retrieved from <http://www.mentalhealthcommission.ca/English/focus-areas/mental-health-indicators-canada>

National Cancer Institute. (2005). *Theory at a glance: a guide for health promotion practice* (2nd ed.). NIH Publication No. 05-3896

OECD. (2014). *Making mental health count: the social and economic cost of neglecting mental health care, OECD health policy studies*. OECD Publishing. doi: 10.1787/9789264208445-en.

Oruche, U. M., Downs, S., Holloway, E., Draucker, C., & Aalsma, M. (2014). Barriers and facilitators to treatment participation by adolescents in a community mental health clinic. *Journal Of Psychiatric & Mental Health Nursing*, 21(3), 241-248. doi:10.1111/jpm.12076

Perou, R., Bitsko, R. H., Blumberg, S. J., Pastor P., Ghandour, R. M., Gfroere, J. C., ...Huang, L. N. (2013). Mental Health Surveillance Among Children — United States, 2005–2011. *MMWR* 62(02), 1-35

Pinto, A., Luna, I., Silva, A., Pinheiro, P., Braga, V., & Souza, A. (2014). Risk factors associated with mental health issues in adolescents: a integrative review. *Revista Da Escola De Enfermagem Da Usp*, 48(3), 552-561. doi.:10.1590/S0080-623420140000300022

Polit, D. F. & Beck, C. T. (2010). *Essentials of nursing: appraising evidence for nursing practice* (7th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Pourhoseingholi, M. A., Baghestani, A. R., & Vahedi, M. (2012). How to control confounding

- effects by statistical analysis. *Gastroenterology and Hepatology From Bed to Bench*, 5(2), 79–83. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4017459/>
- Ragin, C. C. & Amoroso, L. M. (2011). *Constructing social research: the unity and diversity of method* (2nd ed.). Thousand Oaks, CA: Sage
- Reichenberg L. & Seligman, L. (2016). *Selecting Effective Treatments: A Comprehensive, Systematic Guide to treating mental disorders* (5th ed.). Hoboken New Jersey: John Wiley & Sons, Inc.
- Saskatoon Health Region. (2017). *About the region: quick facts*. Retrieved from <https://www.saskatoonhealthregion.ca>
- Saskatoon Health Region. (2016). *Mental Health & Addiction Services: youth services (12-18 years)*. Retrieved from https://www.saskatoonhealthregion.ca/locations_services/Services/mhas/Pages/YouthServices-12-18years.aspx
- Sawyer, S., Afifi, R., Bearinger, L., Blakemore, S., Dick, B., Ezeh, A., & Patton, G. (2012). Adolescent Health 1 Adolescence: a foundation for future health. *Lancet*, 379(9826), 1630-1640. doi:10.1016/S0140-6736(12)60072-5
- Statistics Canada. (2017). *Census profile, 2016 census*. Retrieved from <http://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E>
- Statistics Canada. (2016). *Health system performance*. Retrieved from <http://www.statcan.gc.ca/eng/start>
- Statistics Canada. (2011). *Mortality, Summary List of Causes, 2008* (Catalogue no.

84F0209X). Retrieved from

<http://www.statcan.gc.ca/pub/84f0209x/84f0209x2008000-eng.pdf>

Smetanin, P., Stiff, D., Briante, C., Adair, C.E., Ahmad, S. and Khan, M. (2011). *The Life and Economic Impact of Major Mental Illnesses in Canada: 2011 to 2041*. RiskAnalytica, on behalf of the Mental Health Commission of Canada.

Smith, M., Stocks, C., & Santora, P. (2015). Hospital Readmission Rates and Emergency Department Visits for Mental Health and Substance Abuse Conditions. *Community Mental Health Journal*, 51(2), 190-197. doi:10.1007/s10597-014-9784-x

Snyder, M. (2015). Changing the tide: Stigma, school youth, and mental illness. *NASN School Nurse*, 30(2), 130-132. doi:10.1177/1942602X14553307

Stormshak, E. A., Connell, A. M., Véronneau, M.-H., Myers, M. W., Dishion, T. J., Kavanagh, K., & Caruthers, A. S. (2011). An Ecological Approach to Promoting Early Adolescent Mental Health and Social Adaptation: Family-Centered Intervention in Public Middle Schools. *Child Development*, 82(1), 209–225. doi:10.1111/j.1467-8624.2010.01551.x

Swift, J., Callahan, J., Rousmaniere, T., Whipple, J., Dexter, K., & Wrape, E. (2015). Using Client Outcome Monitoring as a Tool for Supervision. *Psychotherapy*, 52(2), 180-184. doi:10.1037/a0037659

Thapar, A., Collishaw, S., Pine, D. S., & Thapar, A. K. (2012). Depression in adolescence. *Lancet*, 379(9820), 1056–1067. doi:10.1016/S0140-6736(11)60871-4

Triola, M. M. & Triola, M. F. (2006). *Biostatistics for the biological and health sciences*. Boston, MA: Pearson Education, Inc.

- Tripathy, J. P. (2013). Secondary Data Analysis: Ethical Issues and Challenges. *Iranian Journal of Public Health*, 42(12), 1478–1479. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4441947/>
- Tulchinsky, T. H., & Varavikova, E. A. (2014). *The new public health* (3rd ed.). San Diego, CA: Academic Press.
- United Nations Children’s Fund. (2011). *The state of the world’s children 2011*. Retrieved from https://www.unicef.org/pacificislands/SOWC_2011_Report.pdf
- University of Wisconsin. (2017). Nursing resources: validity threats. Retrieved from <http://ebling.library.wisc.edu>
- Verna, J.P. (2013). *Data analysis in management with SPSS software*. New Delhi, India: Springer.
- Waddell, C., Shepherd, C., Schwartz, C., & Barican, J. (2014). Child and youth mental disorders: prevalence and evidence-based interventions. *Children’s Health Policy Centre*. Retrieved from <http://childhealthpolicy.ca/wp-content/uploads/2015/12/2015-10-05-Waddell-et-al-Report-2014.06.16-w-errata.pdf>
- Wergeland, G. H., Fjermestad, K. W., Marin, C. E., Haugland, B. S., Bjaastad, J. F., Oeding, K., & ... Heiervang, E. R. (2014). An effectiveness study of individual vs. group cognitive behavioral therapy for anxiety disorders in youth. *Behaviour Research And Therapy*, 571-12. doi:10.1016/j.brat.2014.03.007
- Western Canada Wait List. (2011). *Western Canada Wait List project: Child Mental Health Priority Rating tool user manual*. Retrieved from <http://www.wcwl.ca>
- World Health Organization. (2017a). *Mental disorders*. Retrieved from

<http://www.who.int/mediacentre/factsheets/fs396/en/>

World Health Organization. (2017b). *Depression and Other Common Mental Disorders: Global Health Estimates*. Geneva: World Health Organization. Licence: CC BY-NC-SA 3.0 IGO. Retrieved from <http://apps.who.int/iris/bitstream/10665/254610/1/WHO-MSD-MER-2017.2-eng.pdf?ua=1>

World Health Organization. (2012). *Risks to mental health: an overview of vulnerabilities and risk factors*. Retrieved from

http://www.who.int/mental_health/mhgap/risks_to_mental_health_EN_27_08_12.pdf

World Health Organization. (2014). *Social determinants of mental health*. Retrieved from http://apps.who.int/iris/bitstream/10665/112828/1/9789241506809_eng.pdf

Appendix A: Data Analysis Tables

Table 22

General Data Analysis Matrix

Concept: Null Hypotheses	Independent Variable	Dependent Variable	Level of measurement	Statistical Test
Ho1: there is no association between anxiety and readmission within 1 year following discharge for youth between the ages of 13-18, controlling for age, gender, and SES.	Anxiety	Readmission	Nominal	Descriptive statistics; bivariate statistics (Chi Square,); multivariate (multiple regression)
Ho2: there is no association between depression and readmission within 1 year following discharge for youth between the ages of 13-18, controlling for age, gender, and SES.	Depression	Readmission	Nominal	Descriptive statistics; bivariate statistics (Chi Square); multivariate (multiple regression)
Ho3: there is no association between SUD and readmission within 1 year following discharge for youth between the ages of 13-18, controlling for age, gender, and SES.	SUD	Readmission	Nominal	Descriptive statistics; bivariate statistics (Chi Square); multivariate (multiple regression)
Ho4: there is no association between individual counseling and readmission within 1 year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	Individual counseling	Readmission	Nominal	Descriptive statistics; bivariate statistics (Chi Square); multivariate (multiple regression)
Ho5: there is no association between family counseling and readmission within one year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD.	Family counseling	Readmission	Nominal	Descriptive statistics; bivariate statistics (Chi Square); multivariate (multiple regression)
Ho6: there is no association between group counseling and readmission within 1 year following discharge for youth ages 13-18 presenting with anxiety, depression, and SUD	Group counseling	Readmission	Nominal	Descriptive statistics; bivariate statistics (Chi Square); multivariate (multiple regression)

Table 23

Mock Table: Description Statistics for number of participants by presenting problem

Presenting Problem	Frequency	Percentage
Anxiety		
Depression		
SUD		
Total		

Table 24

Mock Table: Descriptive Statistics for number of participants by types of counseling services



Types of counseling services	Frequency	Percentage
Individual counseling		
Family counseling		
Group counseling		
Total		

Table 25

Mock Table: Inferential Statistics to explain association between predictor variables and dependent variable

Predictors	Readmission within 1 year following discharge			
	Bivariate analysis: Chi square		Multivariate Logistic Regression	
	Pearson Chi-square	Confidence interval	P Value	Exp(B)
Anxiety				
Depression				
SUD				
Individual counseling				
Family counseling				
Group counseling				

Appendix B: University of Saskatchewan Certificate of Approval

 UNIVERSITY OF SASKATCHEWAN		Biomedical Research Ethics Board (Bio-REB)	
Certificate of Approval			
PRINCIPAL INVESTIGATOR Felicia Lawal	DEPARTMENT Off-campus	Bio # 17-50	
INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT Saskatoon Health Region Saskatoon SK			
FUNDER(S) UNFUNDED			
TITLE Protocol: Predictors of Readmission to Youth Counselling Services Among Adolescents in Saskatoon Canada			
ORIGINAL REVIEW DATE 05-Mar-2017	APPROVED ON 29-Mar-2017	APPROVAL OF Application to Access Existing Health Data for Research, rec'd 25-Mar-2017 Master List, rec'd 23-Mar-2017 Data Collection Tool, rec'd 23-Mar-2017	EXPIRY DATE 28-Mar-2018
Delegated Review <input checked="" type="checkbox"/> Full Board Meeting <input type="checkbox"/>			
IRB 1 Registration #00001471 <input type="checkbox"/> IRB 2 Registration #00008358 <input type="checkbox"/> Not Applicable <input checked="" type="checkbox"/>			
CERTIFICATION The University of Saskatchewan Biomedical Research Ethics Board (Bio-REB) has reviewed the above-named research study. The study was found to be acceptable on scientific and ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research study, and for ensuring that the authorized research is carried out according to governing law. This approval is valid for the specified period provided there is no change to the approved protocol or consent process.			
FIRST TIME REVIEW AND CONTINUING APPROVAL The University of Saskatchewan Biomedical Research Ethics Board reviews above minimal studies at a full-board (face-to-face) meeting. If a protocol has been reviewed at a full board meeting, a subsequent study of the same protocol may be reviewed through the delegated review process. Any research classified as minimal risk is reviewed through the delegated (subcommittee) review process. The initial Certificate of Approval includes the approval period the REB has assigned to a study. The Status Report form must be submitted within one month prior to the assigned expiry date. The researcher shall indicate to the REB any specific requirements of the sponsoring organizations (e.g. requirement for full-board review and approval) for the continuing review process deemed necessary for that project. For more information visit http://research.usask.ca/for-researchers/ethics/index.php .			
REB ATTESTATION In respect to clinical trials, the University of Saskatchewan Research Ethics Board complies with the membership requirements for Research Ethics Boards defined in Part 4 of the Natural Health Products Regulations and Part C Division 5 of the Food and Drug Regulations and carries out its functions in a manner consistent with Good Clinical Practices. Members of the Bio-REB who are named as investigators, do not participate in the discussion related to, nor vote on such studies when presented to the Bio-REB. This approval and the views of this REB have been documented in writing. The University of Saskatchewan Biomedical Research Ethics Board is constituted and operates in accordance with the current version of the <i>Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans</i> (TCPS 2 2014).			
			
Ildiko Badea, Vice-Chair University of Saskatchewan Biomedical Research Ethics Board			
Please send all correspondence to:		Research Services and Ethics Office Room 223 Thorvaldson Building 110 Science Place Saskatoon, SK Canada S7N 5C9	

Appendix C: Letter of Operational Approval



Director
Interprofessional Practice Education and Research
 Royal University Hospital
 103 Hospital Drive
 Saskatoon, SK, S7N 0W8

DATE: April 21, 2017

TO: Felicia Lawal (DrPH Candidate)
 School of Health Sciences
 Walden University

FROM: M. Suzanne Sheppard
 Director, Interprofessional Practice, Education & Research
 Saskatoon Health Region

RE: **RESEARCH ETHICS BOARD (REB) #: BIO-17-50**
PROJECT NAME: Predictors of Readmission to Youth Counseling Services Among Adolescents in Saskatoon Canada
PROTOCOL #:

Saskatoon Health Region is pleased to provide you with operational approval of the above-mentioned research project.

Kindly inform us when the data collection phase of the research project is completed. We would also appreciate receiving a copy of any publications related to this research. As well, any publications or presentations that result from this research should include a statement acknowledging the assistance of Saskatoon Health Region.

We wish you every success with your project. If you have any questions, please feel welcome to contact Shawna Weeks at 655-1442 or email shawna.weeks@saskatoonhealthregion.ca

Yours truly,

A handwritten signature in blue ink that reads "M. Suzanne Sheppard".

M. Suzanne Sheppard, Ph.D.
 Director, Interprofessional Practice, Education & Research
 Saskatoon Health Region

cc: Karyn Kawula, Director, Mental Health & Addictions Services
 Tracy Muggli, Director, Mental Health & Addictions Services

Catalyzing Health Research and Innovation Together