

# **Adolescents, Anxiety, and Occupational Performance**

by

Michelle J. Horkoff

A Thesis submitted to the Faculty of Graduate Studies of

The University of Manitoba

In partial fulfillment of the requirement of the degree of

MASTER OF SCIENCE

School of Medical Rehabilitation

Faculty of Medicine

University of Manitoba

Winnipeg, Manitoba

Copyright © 2012 by Michelle Horkoff

### **Abstract**

Anxiety disorders are among the most prevalent mental health disorders in adolescents. This cross-sectional study examined the relationship between anxiety symptoms and occupational performance in adolescents; no prior literature on this topic has been found. Adolescents ages 13 to 17 (N = 30) referred to anxiety services in a hospital setting were assessed. The five self-reported variables investigated included: (a) perception of occupational performance, (b) satisfaction with occupational performance, (c) levels of anxiety symptoms, (d) levels of depressive symptoms, and (e) stress levels. Occupational performance issues were identified using the Canadian Occupational Performance Measure. Significant positive correlations were found between perceptions of, and satisfaction with, occupational performance and anxiety symptoms in younger adolescents (ages 13.0 to 15.3), but not older adolescents (ages 15.4 to 17.9). The relationships between anxiety symptoms and occupational performance and satisfaction are complex and may be different for younger adolescents versus older adolescents and adults.

### **Acknowledgements**

Thank you to the numerous people who helped make this study possible,

- The adolescent participants who gave their time and shared their perceptions.
- Gayle Restall, my deepest gratitude for all the guidance and encouragement throughout the years as my thesis advisor.
- My committee members Steven Feldgaier and Lori Wilkinson for their commitment to the lengthy process and their much appreciated feedback.
- Doug Staley for his statistical guidance.
- Robin Jewers for her help in conducting the research interviews and Charlotte Gagnon for all the administrative support.
- My colleagues at St. Boniface Hospital and the University of Manitoba who were so gracious in providing their feedback and support: Gary Altman, Dale Dawydiuk, Gary Shady, John Walker, and Pam Wener.
- To the management at St. Boniface Hospital for their support in my completion of this research project.

This project was supported by funding from the SMR Endowment Fund from the School of Medical Rehabilitation at the University of Manitoba.

*To my parents for their unwavering support in all my educational endeavours.*

*To Chris for his patience,  
and providing realistic thinking and humour when most needed.*

*To Michaila who epitomizes the strength and determination of the human spirit.*

## Table of Contents

List of Tables.....	vii
List of Figures.....	ix
Abbreviations.....	x
Introduction.....	1
Design Overview .....	4
Literature Review.....	6
Theoretical Models.....	6
Anxiety Disorders.....	10
Adolescents, Normal Development and Meaningful Occupations.....	22
A Comparison of Symptoms and Occupational Performance.....	24
Summary.....	27
Research Questions.....	28
Methods.....	30
Sample.....	30
Recruitment to Current Study.....	33
Sample (continued).....	35
Design and Procedures.....	41
Measures.....	42
Collection of Classification Data.....	59
Data Analyses.....	59
Ethical Considerations.....	63
Results.....	65
What Were the Meaningful Activities that Adolescents Identified.....	65
What is the Relationship between Perceptions of and Satisfaction with Occupational Performance and Other Variables.....	71
Discussion.....	78
What Were the Meaningful Activities that Adolescents Identified.....	78
Perception of Occupational Performance versus Satisfaction with Occupational Performance.....	82
Description of the Sample in Relation to Anxiety.....	82
What is the Relationship between Perceptions of Occupational <i>Performance</i> and Other Variables.....	83
What is the Relationship between <i>Satisfaction</i> of Occupational Performance and Other Variables.....	93
Interactions between Other Variables.....	96
Limitations.....	100
Summary and Implications.....	102

**Table of Contents (continued)**

Conclusions.....	108
Glossary .....	110
References.....	116
Appendices.....	145
Appendix A: List of Copyrighted Material for which Permission was Obtained and Access Information for Assessment tools.....	145
Appendix B: Classification Data Form.....	147
Appendix C: Key Points from the Symptom and Occupational Performance Literature Relevant to the Current Study.....	149
Appendix D: Letter of Support for Service1.....	151
Appendix E: Letter of Support for Service2.....	152
Appendix F: Recruitment Letter for Service1.....	153
Appendix G: Recruitment Letter for Service2.....	155
Appendix H: Follow-up Letter for Service1.....	157
Appendix I: Follow-up Letter for Service2.....	159
Appendix J: Consent Form for Service1.....	161
Appendix K: Consent Form for Service2.....	167
Appendix L: Assent Form for Service1.....	173
Appendix M: Assent Form for Service2.....	177

### List of Tables

Table 1:	Prevalence (%) and Period of Reference of Any Anxiety Disorder Based on DSM-IV Diagnostic Criteria.....	14
Table 2:	Prevalence (%) for <i>GAD and Specific Phobia</i> Based on DSM-IV Diagnostic Criteria.....	15
Table 2:	Prevalence (%) for <i>Social Phobia and SAD</i> Based on DSM-IV Diagnostic Criteria (continued).....	16
Table 2:	Prevalence (%) for <i>OCD and Panic Disorder</i> Based on DSM-IV Diagnostic Criteria (continue).....	17
Table 2:	Prevalence (%) for <i>Agoraphobia and PTSD</i> Based on DSM-IV Diagnostic Criteria (continued).....	18
Table 3:	Mean, and Median, Age of Onset for <i>GAD, Specific Phobia, Social Phobia, and SAD</i> Based on DSM-IV Diagnostic Criteria.....	19
Table 3:	Mean, and Median, Age of Onset for <i>OCD, Panic Disorder, Agoraphobia, and PTSD</i> Based on DSM-IV Diagnostic Criteria (continued).....	20
Table 4:	Power Analyses Results for All Four Measures for a Power ( $\beta$ ) of .80.....	37
Table 5:	Power Analyses Results for the COPM and SCAS for a Sample Size (N) of 45.....	38
Table 6:	Power Analyses Results for All Four Measures for a Sample Size (N) of 30.....	38
Table 7:	Age Distribution.....	39
Table 8:	Living Situation of Adolescent Participants.....	40
Table 9:	Summary of Means and Standard Deviations for the SCAS Total Scores of Adolescents in Community Settings from a Range of Different Countries.....	55
Table 10:	Summary of Means and Standard Deviations for the Total Scores SCAS using Concurrent Community and Anxiety Treatment Settings...	56

**List of Tables (continued)**

Table 11: Research Question Posed and <i>Qualitative</i> Analysis Conducted.....	61
Table 12: Research Questions Posed and <i>Quantitative</i> Analysis Conducted.....	62
Table 13: Number of OPIs Identified by Adolescents, Classified by OPI Theme and Corresponding COPM Subcategory.....	66
Table 13: Number of OPIs Identified by Adolescents, Classified by OPI Theme and Corresponding COPM Subcategory (continued).....	67
Table 14: Number of OPIs Identified by Participants in the Subcategories of the COPM and Corresponding COPM Category.....	69
Table 15: Number of All OPIs Identified by Age Group in the Three Categories of the COPM.....	71
Table 16: Descriptive Statistics of the COPM and Other Variables under Investigation.....	72
Table 17: Descriptive Statistics of the SCAS Subscales.....	73
Table 18: Distributions of Participants in Relation to the 10% Cut-Off Score for the SCAS (i.e., Total Score and Subscales).....	74
Table 19: Summary of Correlations between the COPM and Other Variables under Investigation for the Entire Sample.....	75
Table 20: Summary of Correlations between the COPM and Other Variables under Investigation for the Younger Adolescent Group.....	76
Table 21: Summary of Correlations between the COPM and Other Variables under Investigation for the Older Adolescent Group.....	77
Table 22: Comparison of OPIs Identified Most Frequently by Adolescents with Physical Impairments and Anxious Adolescents from the Current Study.....	79



**List of Figures**

Figure 1: OPIs Identified, by the Entire Sample (n = 29), in the Three Categories of the COPM..... 70

**Abbreviations**

ASQ-2	=	Adolescent Stress Questionnaire – 2
CDI	=	Children’s Depression Inventory
COPM	=	Canadian Occupational Performance Measure
COPM (P)	=	COPM (Performance)
COPM (S)	=	COPM (Satisfaction)
SCAS	=	Spence Children’s Anxiety Scale
OPI	=	Occupational Performance Issue
OPIs	=	Occupational Performance Issues

## Introduction

According to Leitch (2007) “...one in seven (15 percent) of Canadian children and...[adolescents]...under the age of 19 are likely to have a serious mental disorder that impacts their development and ability to participate in common adolescent activities” (p. 8). Anxiety disorders, in late childhood and adolescence (i.e., 11 to 18 years of age), were found to be the most prevalent of the mental health disorders in this population (Merikangas et al., 2010; Roberts, Roberts, & Xing, 2007). When functional impairments, or increasing degrees of functional impairment, are taken into consideration, however, the prevalence of anxiety disorders falls just behind disruptive disorders (Ford, Goodman, & Meltzer 2003; Merikangas et al., 2010; Roberts et al., 2007) and mood disorders (Merikangas et al., 2010). Left untreated, anxiety disorders can affect an individual in several aspects of their lives including: socially, emotionally and academically (Flannery-Schroeder & Kendall, 2000).

The inclusion of functional impairment or subjective distress into its diagnostic criteria was a pivotal point in the evolution of the Diagnostic and Statistical Manual of Mental Disorders in the fourth edition (i.e., the Diagnostic and Statistical Manual of Mental Disorders - IV [DSM-IV]) (American Psychiatric Association [APA], 1994). The current version of this manual is the Diagnostic and Statistical Manual of Mental Disorders - IV - Text Revision (DSM-IV-TR) which continued this approach and has virtually the same diagnostic criteria as the DSM-IV (APA, 2000). Therefore for the purposes of the current thesis, reference will be made to the DSM-IV (unless otherwise stated).

Functional impairments are also being used as a determining factor for service eligibility and treatment efficacy (Kramer et al., 2004). Merely determining the severity of the illness, which is typically done by calculating the number of symptoms an individual experiences, is no longer sufficient (Bird, 1999). Researchers have found that individuals may have similar symptom severities and yet their level of functioning may vary due to variables such as sex, marital status, and rural versus urban living (Kebede et al., 2006). Discussing functional impairment, unlike symptom severity, provides the clinician with a specific idea of which areas of life are problematic for the individual, what adaptations they may have made, and in what areas of their life they are still able to function (Winters, Collett, & Meyers, 2005).

It is particularly important to consider functional impairments with adolescents because 80% of mental health diagnoses become apparent during this time (Leitch, 2007). A study of children and adolescents, 7 to 17 years of age, found 12% of the sample had functional impairments that went unidentified when symptoms alone were assessed (Wille, Bettge, Wittchen, & Ravens-Sieberer, 2008). Subsequently, 5% of these functional impairments were considered severe according to self-report accounts from the child or adolescent (Wille et al., 2008). Frequently, adolescents also have exhibited comorbid psychiatric diagnoses (Esbjörn, Hoeyer, Dyrborg, Leth, & Kendall, 2010) which can be further compounded by developmental factors (Kendall et al., 2010). Unfortunately, measuring function and functional impairments have been a difficult task (Bird, 1999; Kramer et al., 2004; Smith et al., 2011).

Function and functional impairment have always been a main focus of occupational therapy (Creek, 2008; Driver, 1968; Mosey, 1980; Townsend & Polatajko,

2007). The profession, however, has evolved the idea of function and functional impairment into a broader conceptualization of: (a) the individual, (b) their interaction with the external environment (e.g., their roles, etc.), and (c) the understanding of the impact of these individual and environmental factors on one's health and well-being. These broader concepts are referred to as occupational performance and occupational performance issues (Townsend & Polatajko, 2007; Law, Polatajko, Baptiste & Townstead, 1997). The premise that occupations affect an individual's health and well-being is one of the basic assumptions of occupational therapy (Polatajko et al., 2007c). Occupational performance entails involving one's self in a meaningful occupation to some level of personal satisfaction and can be conceptualized as consisting of the continuous interaction between three realms of a person's life: (a) *person*, (b) *environment*, and (c) *occupation* (Law et al., 1997). Occupational performance is optimized when an individual is able to achieve balance in these three areas (Law et al., 1997; Townsend & Polatajko, 2007), thus providing a means by which health and well-being can be influenced (Law et al., 1997; Law, Steinwender, & Leclair, 1998; Passmore, 2003).

### Design Overview

The purpose of the current cross-sectional study was to examine the relationship between anxiety symptoms and occupational performance in adolescents. We examined occupational performance in a sample of thirty adolescents between 13 and 17 years of age who were current clients of one of two services at St. Boniface Hospital; that is, the Anxiety Disorders Service for Children and Youth <sup>a</sup>, or the Anxiety Disorders Program (Child Service) (Clinical Health Psychology) <sup>b</sup>. The research questions included:

- What are the types of meaningful activities that adolescents identify?
- What are the relationships between perceptions of, and satisfaction with, occupational *performance* of meaningful activities and: (a) anxiety symptoms, (b) depressive symptoms, and (c) stress?

The adolescents were assessed using *four* self-report assessment tools, the: Canadian Occupational Performance Measure (COPM) (Law et al., 2005) (consisting of two scales: (a) performance, (b) satisfaction), Adolescent Stress Questionnaire - 2 (ASQ-2) (Byrne, Davenport, & Mazanov, 2007), Children's Depression Inventory (CDI) (Kovacs, 1992a), and Spence Children's Anxiety Scale (SCAS) (Spence, 1997) (see Appendix A).

The study assessed the following *five* self-reported variables through the use of one of the four aforementioned tools: perception of occupational *performance* (via the COPM performance scale), *satisfaction* with occupational performance (via the COPM satisfaction scale), stress levels (via the ASQ-2), and levels of depressive symptoms (via the CDI) and anxiety symptoms (via the SCAS). Subsequent qualitative and quantitative

<sup>a</sup> The Anxiety Disorders Service for Children and Youth will be referred to as "Service1" from this point forward.

<sup>b</sup> The Anxiety Disorders Program (Child Service) (Clinical Health Psychology) will be referred to as "Service2" from this point forward.

analysis determined the types of meaningful activities the adolescents identified.

Meanwhile quantitative analysis identified the relationship between perceptions of, and satisfaction with, occupational performance and anxiety symptoms, depressive symptoms, and stress.

## Literature Review

### Theoretical Models

Theoretical models are the foundation for clinical reasoning regarding the assessment and treatment of clients. The key models pertinent to anxiety and occupational performance will be briefly highlighted in the next section.

**Biomedical versus biopsychosocial models.** The biomedical model which has formed the basis of prior diagnostic criteria for mental health disorders focused primarily on illness severity. A more recent shift has occurred, however, that takes into consideration the client's functional impairment(s) (Kramer et al., 2004; Pickles et al., 2001; Spitzer & Wakefield, 1999; Winters et al., 2005). The DSM-IV has therefore been based upon the biopsychosocial model. The next section briefly describes the differences between the biomedical and biopsychosocial models.

**Biomedical model.** The biological sciences are one component of the theoretical basis for the biomedical model (Mosey, 1974). This model sees health as being the *absence of disease* (Alonso, 2004). Health care professionals working under this model aim to diagnose and then decrease (or eliminate) the effects of a disease by targeting symptoms (Mosey, 1974). An occupational therapist practicing strictly under the biomedical model would perceive the reduction of impairments as the means to achieve occupational engagement which is the participation of the individual in their occupations (Polatajko et al., 2007b).

In highlighting some of the shortcomings of the biomedical model, Engel (1977) stated that an individual's health is comprised of more than just the presence or absence of disease. This author argued that, when developing an understanding of an individual's



health, in conjunction with considering the biological aspects of a person, one must also incorporate the psychological and social components.

***Biopsychosocial model.*** The biopsychosocial model considers the biological, psychological and social aspects of an individual's life when assessing health (Engel, 1977; Mosey, 1974). This model is particularly relevant in the treatment of adolescences as this phase of life is signified by a vast number of changes in these three areas (Williams, Holmbeck, & Greenley, 2002).

In 1977, Engel published the first of two influential articles which discussed the shortcomings of the medical model and introduced and stressed the importance of the biopsychosocial model. However, Alonso (2004) examined articles published from 1978 to 1982 and 1996 to 2000 and found no change in how medical researchers conceptualized health. This finding surprised the author as the expectation was that more of an impact would be seen on a physician's practice as a result of these key articles by Engel (Alonso, 2004).

Unfortunately, in making the theoretical shift to the biopsychosocial model new difficulties have arisen. First, function and functional impairments have been difficult to measure (Bird, 1999; Kramer et al., 2004; Winters et al., 2005). The DSM-IV leaves the issue of determining severity of an individual's functional impairments to clinical judgment (Üstün & Kennedy, 2009). Meanwhile, the determination of a client's Global Assessment of Functioning score is based not only on function but also symptoms, and the two cannot be separately assessed using this measure (Üstün & Kennedy, 2009). Second, to occupational therapists, a client's health is comprised of more than just the biological, psychological and social aspects identified by the biopsychosocial model

(Mosey, 1980); it also includes occupations (Polatajko et al., 2007c). The Canadian Model of Occupational Performance and Engagement, discussed below, addresses the gap from the biopsychosocial model by targeting the client's performance of (and engagement in) occupations as an important means by which to better understand an individual's functional impairments.

**Canadian Model of Occupational Performance and Engagement.** The Canadian Model of Occupational Performance and *Engagement*, a revised version of the former Canadian Model of Occupational Performance, perceives a client's life as being dynamic interaction between three areas: person, occupation, and environment (Law et al., 1997; Polatajko et al., 2007c). The term engagement highlights the fact that occupational therapists are not only interested in a client's occupational performance, as individuals can only *perform* one occupation a time, but acknowledges that individuals can be concurrently engaged in a variety of occupations over their lifespan and that one does not have to perform an occupation to be engaged (Polatajko et al., 2007c).

The person is composed of three performance components. These performance components include: (a) physical (i.e., doing), (b) cognitive (i.e., thinking), and (c) affective (i.e., feeling) (Law et al., 1997). Occupation is made-up of three categories: (a) self-care (e.g., hygiene, feeding self), (b) productivity (e.g., work or school), and (c) leisure (e.g., sports, clubs) (Law et al., 2005). Meanwhile, the environment is comprised of four sub-components: (a) physical (i.e., natural and man-made elements), (b) institutional (i.e., political, economic, and legal), (c) cultural (i.e., a groups' values and beliefs influencing behaviour such as ethnic and religious practices), and (d) social (e.g., social priorities and social groups) (Law et al., 1997). *Spirituality* in this model is the

core of the client's life and is embedded in the person; it is influenced by the environment and in turn influences occupations by providing meaning to those occupations (Law et al., 1997). According to Law et al. (1997), in order to understand a client in terms of spirituality and what spirituality means to the client, one must acknowledge their fundamental value as a person and appreciate their viewpoints, principles and goals, in spite of variables such as age or ability.

The Canadian Model of Occupational Performance and Engagement is based on the premise that function consists of occupational performance and engagement. The model incorporates *activity* as part of the formulation of occupational performance and interprets *participation* as a consequence of, or the setting for, occupational performance. Finally, occupational performance is not needed for an occupation to be meaningful to the individual (Polatajko et al., 2007c).

Occupational therapists focus on clients' occupations and subsequent roles. The Canadian Model of Occupational Performance and Engagement demonstrates the importance of understanding how elements from the areas of the person and environment influence clients' performance of and engagement in their occupations (Polatajko et al., 2007c; Zhang, McCarthy, & Craik, 2008). Occupational therapists can attempt to gain an understanding of a client in the area of spirituality by inquiring about their satisfaction with, and the importance of, their occupational performance and engagement. According to the Canadian Model of Occupational Performance and Engagement, an individual attains optimal health and well-being when they achieve an appropriate balance of participation and engagement in the three areas of their lives: person, occupation, and environment and when the individual's spirituality is taken into consideration (Polatajko

et al., 2007c). Balance in these three areas, however, can be disrupted by anxiety disorders. Untreated anxiety disorders may result in social, academic and emotional impairments (Flannery-Schroeder & Kendall, 2000).

### **Anxiety Disorders**

Anxiety disorders are “[a] group of disorders in which anxiety is the central feature” (Campbell, 1996, p. 53). Adolescents have been found to experience the following anxiety disorders: (a) social anxiety disorder (also known as social phobia), (b) separation anxiety disorder, (c) generalized anxiety disorder, (d) specific phobia, (e) panic disorder (with or without agoraphobia), (f) agoraphobia (without a history of panic disorder), (g) obsessive-compulsive disorder, and (h) posttraumatic stress disorder (and acute stress disorder) (APA, 2000; Essau, Conradt, & Petermann, 2000; Ford et al., 2003; Merikangas et al., 2010; Muris, Schmidt, & Merckelbach, 2000). These aforementioned anxiety disorders are briefly described below.

Social anxiety disorder is characterized by worrying about being embarrassed in social situations (APA, 2000). These individuals worry about what others might say or think about them (APA, 2000). Some activities that may be avoided by these individuals include: classroom presentations, asking their teacher questions, eating lunch with peers at school, and participating in gym class (Rapee, Wignall, Hudson, & Schniering, 2000).

Separation anxiety disorder is characterized by excessive anxiety related to separating from major attachment figures (APA, 2000). This fear is inappropriate for the child’s, or adolescent’s developmental level (APA, 2000). Worries may include: their parents dying, being kidnapped or getting lost (Rapee et al., 2000).

Generalized anxiety disorder consists of unrealistic worries about future events (e.g., natural disasters, upcoming events) (APA, 2000). Children and adolescents with this disorder are often described as ‘worry warts’ (Chansky, 2004; Rapee et al., 2000). To observers they are often seen as perfectionists and self-conscious individuals who regularly seek out reassurance (APA, 2000; Chansky, 2004; Rapee et al., 2000).

Specific phobia is characterized by worrying too much about a particular object or situation (e.g., needles, bugs) (APA, 2000). The individual becomes very upset when confronted with the anxiety provoking object or situation (Rapee et al., 2000).

Panic disorder (with or without agoraphobia) is characterized by the occurrence of panic attacks, that is, excessive anxiety and discomfort is experienced repeatedly, unexpectedly, and there is no apparent trigger (APA, 2000). Some of the physical symptoms of a panic attack include: racing heart, chest pain, difficulty breathing and dizziness (APA, 2000). Other characteristics of this disorder include the adolescent thinking that they are going to die, feeling as if they are ‘going crazy’, and/or having an urgent need to escape the situation (Chansky, 2004; Rapee et al., 2000). The presence of agoraphobia refers to the fear the adolescent may have of being embarrassed or unable to flee a place or situation when needed or to access help when a panic attack occurs. Situations such as traveling and being outside alone may be avoided (APA, 2000).

Agoraphobia (without history of panic disorder) is similar to panic disorder with agoraphobia (mentioned above). The difference between the two disorders, however, is that, in the former, the individual experiences panic-like symptoms rather than full panic attacks (APA, 2000).

Obsessive-compulsive disorder is distinguished by obsessions and compulsions. Obsessions are reoccurring thoughts, impulses, or images which are unwanted and/or intrusive. They are also distressing to the individual (APA, 2000). This may include worries of: contamination, self-harm or harming others, and/or superstitious beliefs (Chansky, 2004; Rapee et al., 2000). Compulsions consist of the behaviours or mental actions that an adolescent is compelled to repeat (e.g., cleaning, checking, counting) (APA, 2000). Individuals typically engage in compulsions after obsessions in attempts to keep the feared outcome from happening (APA, 2000; Chansky, 2004; Rapee et al., 2000).

Posttraumatic stress disorder may occur after experiencing, witnessing, or being confronted with a terrifying event, or events, which (or potentially could have) resulted in death or serious injury (APA, 2000); for example, a car accident, a natural disaster (Rapee et al., 2000; Chansky, 2004). Individuals with this disorder often repeatedly reexperience the event via scary and intrusive memories (APA, 2000; Chansky, 2004; Rapee et al., 2000). The primary difference between posttraumatic stress disorder and the related acute stress disorder is the duration for which the symptoms must be present for the diagnosis to be made (APA, 2000, Rapee et al., 2000). Posttraumatic stress disorder requires symptoms to be present for more than a month, while acute stress disorder ranges from 2 days to 4 weeks (APA, 2000).

**Prevalence of anxiety disorders.** Two primary factors affect the prevalence rates of anxiety disorders in adolescents. The first is the period of reference (i.e., the length of time) an adolescent is monitored for symptoms (Costello, Egger, & Angold, 2004). The second is whether or not functional impairments were considered at time of

diagnosis. Foa et al. (2005), a commission of experts in the field of anxiety disorders, reviewed the adolescent literature, condensed it, and then compared and contrasted the effect of anxiety disorders on adolescents and adults. When functional impairments were required for diagnosis, as is required when using the DSM-IV, prevalence rates for anxiety disorders decreased by two-thirds (Foa et al., 2005). Meanwhile, they reported that 3% to 5% of children and adolescents, on any given day, endured an anxiety disorder.

The prevalence rates provided in this section therefore only report data from studies which used the DSM-IV criteria. The discussion is limited to the population being investigated in this study; that is, adolescent population. The prevalence rates for *any* anxiety disorder are illustrated below in Table 1, meanwhile the prevalence of the eight specific anxiety disorders are outlined in Table 2. However, the studies in these two tables differ from each other in terms of the period of reference used.

Table 1

*Prevalence (%) and Period of Reference of Any Anxiety Disorder Based on DSM-IV Diagnostic Criteria*

Prevalence (%)	Period of reference	Age	Authors
31.9 <sup>a</sup>	Lifetime	13-18	Merikangas et al. (2010)
18.6	Lifetime	12-17	Essau et al. (2000)
10.57	3 months	≥ 13 <sup>b</sup>	Bittner et al. (2007)
9.7	12 months	16-18	Garland et al. (2001)
8.3 <sup>c</sup>	Lifetime	13-18	Merikangas et al. (2010)
7.9	12 months	12-15	Garland et al. (2001)
6.89 <sup>d</sup>	12 months	11-17	Roberts et al. (2007)
5.04	Current	13-15	Ford et al. (2003)
3.42 <sup>e</sup>	12 months	11-17	Roberts et al. (2007)
1.36 <sup>f</sup>	12 months	11-17	Roberts et al. (2007)

<sup>a</sup> Without *severe* impairment. <sup>b</sup> A longitudinal study that followed participants until 19 years of age. <sup>c</sup> Signifies percentage of adolescents with *severe* impairment. <sup>d</sup> Prevalence without impairment. <sup>e</sup> Prevalence with impairment using the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV) (Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000). <sup>f</sup> Prevalence with impairment using the Child Global Assessment Scale (CGAS) (Shaffer et al., 1983).



Table 2

Prevalence (%) for **GAD<sup>a</sup>** and **Specific Phobia** Based on DSM-IV Diagnostic Criteria (age and period of reference in parentheses)

GAD	Authors (Age; Period of Reference)	Specific Phobia	Authors (Age; Period of Reference)
4.0	Bittner et al. (2007) (≥ 13 <sup>b</sup> ; 3 months)	19.3 <sup>c</sup>	Merikangas et al. (2010) (13-18; Lifetime)
2.2 <sup>c</sup>	Merikangas et al. (2010) (13-18; Lifetime)	3.5	Essau et al. (2000) (12-17; Lifetime)
1.3	Garland et al. (2001) (16-18; 12 months)	0.68	Ford et al. (2003) (13-15; Current)
0.9 <sup>d</sup>	Merikangas et al. (2010) (13-18; Lifetime)	0.6 <sup>d</sup>	Merikangas et al. (2010) (13-18; Lifetime)
0.41 <sup>e</sup>	Roberts et al. (2007) (11-17; 12 months)	0.2	Bittner et al. (2007) (≥ 13 <sup>b</sup> ; 3 months)
0.4	Essau et al. (2000) (12-17; Lifetime)		
0.38 <sup>f</sup>	Roberts et al. (2007) (11-17; 12 months)		
0.20 <sup>g</sup>	Roberts et al. (2007) (11-17; 12 months)		
0.2	Garland et al. (2001) (12-15; 12 months)		
0.18	Ford et al. (2003) (13-15; Current)		

(continued)

<sup>a</sup> GAD = Generalized Anxiety Disorder. <sup>b</sup> A longitudinal study that followed participants until 19 years of age. <sup>c</sup> Without *severe* impairment. <sup>d</sup> With *severe* impairment. <sup>e</sup> Prevalence without impairment. <sup>f</sup> Prevalence with impairment using the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV) (Shaffer et al., 2000). <sup>g</sup> Prevalence with impairment using the Child Global Assessment Scale (CGAS) (Shaffer et al., 1983).

Table 2

Prevalence (%) for **Social Phobia and SAD**<sup>a</sup> Based on DSM-IV Diagnostic Criteria (age and period of reference in parentheses)(continued)

Social Phobia	Authors (Age; Period of Reference )	SAD	Authors (Age; Period of Reference)
9.1 <sup>b</sup>	Merikangas et al. (2010) (13-18; Lifetime)	7.6 <sup>b</sup>	Merikangas et al. (2010) (13-18; Lifetime)
3.1	Garland et al. (2001) (16-18; 12 months)	4.3	Garland et al. (2001) (16-18; 12 months)
1.64 <sup>c</sup>	Roberts et al. (2007) (11-17; 12 months)	4.1	Garland et al. (2001) (12-15; 12 months)
1.6	Garland et al. (2001) (12-15; 12 months)	0.97	Ford et al. (2003) (13-15; Current)
1.6	Essau et al. (2000) (12-17; Lifetime)	0.6 <sup>d</sup>	Merikangas et al. (2010) (13-18; Lifetime)
1.3 <sup>d</sup>	Merikangas et al. (2010) (13-18; Lifetime)	0.4	Bittner et al. (2007) (≥ 13 <sup>h</sup> ; 3 months)
1.02 <sup>e</sup>	Roberts et al. (2007) (11-17; 12 months)		
1	Bittner et al. (2007) (≥ 13 <sup>h</sup> ; 3 months)		
0.38	Ford et al. (2003) (13-15; Current)		
0.28 <sup>f</sup>	Roberts et al. (2007) (11-17; 12 months)		

(continued)

<sup>a</sup> SAD = Separation Anxiety Disorder. <sup>b</sup> Without *severe* impairment. <sup>c</sup> Prevalence without impairment. <sup>d</sup> With *severe* impairment. <sup>e</sup> Prevalence with impairment using the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV) (Shaffer et al., 2000). <sup>f</sup> Prevalence with impairment using the Child Global Assessment Scale (CGAS) (Shaffer et al., 1983).

Table 2

*Prevalence (%) for OCD<sup>a</sup> and Panic Disorder Based on DSM-IV Diagnostic Criteria (age and period of reference in parentheses) (continued)*

OCD	Authors (Age; Period of Reference)	Panic Disorder	Authors (Age; Period of Reference)
2.7	Garland et al. (2001) (12-15; 12 months)	2.3 <sup>b</sup>	Merikangas et al. (2010) (13-18; Lifetime)
2.6	Garland et al. (2001) (16-18; 12 months)	0.65 <sup>c</sup>	Roberts et al. (2007) (11-17; 12 months)
1.3	Essau et al. (2000) (12-17; Lifetime)	0.5	Essau et al. (2000) (12-17; Lifetime)
0.63	Ford et al. (2003) (13-15; Current)	0.47	Ford et al. (2003) (13-15; Current)
		0.38 <sup>d</sup>	Roberts et al. (2007) (11-17; 12 months)
		0.19 <sup>e</sup>	Roberts et al. (2007) (11-17; 12 months)
		0	Garland et al. (2001) (16-18; 12 months)
		0	Garland et al. (2001) (12-15; 12 months)

(continued)

<sup>a</sup> OCD = Obsessive Compulsive Disorder. <sup>b</sup> Without *severe* impairment. <sup>c</sup> Prevalence without impairment. <sup>d</sup> Prevalence with impairment using the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV) (Shaffer et al., 2000). <sup>e</sup> Prevalence with impairment using the Child Global Assessment Scale (CGAS) (Shaffer et al., 1983).

Table 2

*Prevalence (%) for Agoraphobia and PTSD<sup>a</sup> Based on DSM-IV Diagnostic Criteria (age and period of reference in parentheses) (continued)*

Agoraphobia	Authors (Age; Period of Reference )	PTSD	Authors (Age; Period of Reference)
4.5 <sup>b</sup>	Roberts et al. (2007) (11-17; 12 months)	5.0 <sup>c</sup>	Merikangas et al. (2010) (13-18; Lifetime)
4.1	Essau et al. (2000) (12-17; Lifetime)	3.1	Garland et al. (2001) (16-18; 12 months)
2.4 <sup>c</sup>	Merikangas et al. (2010) (13-18; Lifetime)	2.3	Garland et al. (2001) (12-15; 12 months)
2.4	Bittner et al. (2007) (≥ 13 <sup>d</sup> ; 3 months)	1.6	Essau et al. (2000) (12-17; Lifetime)
1.56 <sup>e</sup>	Roberts et al. (2007) (11-17; 12 months)	1.5 <sup>f</sup>	Merikangas et al. (2010) (13-18; Lifetime)
0.75 <sup>g</sup>	Roberts et al. (2007) (11-17; 12 months)	0.59 <sup>b</sup>	Roberts et al. (2007) (11-17; 12 months)
0.22	Ford et al. (2003) (13-15; Current)	0.51 <sup>e</sup>	Roberts et al. (2007) (11-17; 12 months)
		0.27	Ford et al. (2003) (13-15; Current)
		0.21 <sup>g</sup>	Roberts et al. (2007) (11-17; 12 months)

<sup>a</sup> PTSD = Posttraumatic Stress Disorder. <sup>b</sup> Prevalence without impairment. <sup>c</sup> Without *severe* impairment. <sup>d</sup> A longitudinal study that followed participants until 19 years of age. <sup>e</sup> Prevalence with impairment using the Diagnostic Interview Schedule for Children, Version 4 (DISC-IV) (Shaffer et al., 2000). <sup>f</sup> With *severe* impairment. <sup>g</sup> Prevalence with impairment using the Child Global Assessment Scale (CGAS) (Shaffer et al., 1983).

In terms of prevalence, Table 2 shows the most common anxiety disorders were separation anxiety disorder, agoraphobia, and generalized anxiety disorder. The least common was panic disorder. The mean age of onset was reported to be seven years of age (SD 4.2) for ‘any’ anxiety disorder in participants who developed an anxiety disorder by 16 years of age (Costello et al., 2004). Meanwhile, in a retrospective study using a population of adults 18 and older, Kessler et al. (2005) found the median age of onset (i.e., the 50<sup>th</sup> percentile) was 11 years of age. The mean age of onset and median age of onset for specific anxiety disorders are outlined in Table 3.

*Table 3*

*Mean, and Median, Age of Onset for GAD<sup>a</sup>, Specific Phobia, Social Phobia, and SAD<sup>b</sup> Based on DSM-IV Diagnostic Criteria*

	Age of Onset (SD)			
	GAD	Specific Phobia	Social Phobia	SAD
Mean Costello et al., 2004 <sup>c</sup>	5.8 (5.7)	6.3 (5.2)	7.3 (4.8)	8.8 (2.1)
Median Kessler et al. (2005) <sup>d</sup>	31	7	13	7

(continued)

<sup>a</sup> GAD = Generalized Anxiety Disorder. <sup>b</sup> SAD = Separation Anxiety Disorder. <sup>c</sup> Mean age of onset in participants who developed an anxiety disorder by 16 years of age. <sup>d</sup> This was a retrospective study using a population of adults 18 and older.

Table 3

*Mean, and Median, Age of Onset for OCD<sup>a</sup>, Panic Disorder, Agoraphobia, and PTSD<sup>b</sup> Based on DSM-IV Diagnostic Criteria (continued)*

	Age of Onset (SD)			
	OCD	Panic Disorder	Agoraphobia	PTSD
Mean Costello et al., 2004 <sup>c</sup>	10.4 (2.8)	13.4 (1.3)	9.5 (3.6)	-----
Median Kessler et al. (2005) <sup>d</sup>	19	24	20	23

<sup>a</sup> OCD = Obsessive Compulsive Disorder. <sup>b</sup> PTSD = Posttraumatic Stress Disorder. <sup>c</sup> Mean age of onset in participants who developed an anxiety disorder by 16 years of age. <sup>d</sup> This was a retrospective study using a population of adults 18 and older.

In summary, Table 3 demonstrates that generalized anxiety disorder had the earliest mean age of onset, while panic disorder had the latest; Costello et al. (2004) did not report age of onset for PTSD. The anxiety disorders with the earliest *median* age of onset, when assessing anxiety retrospectively, were specific phobia and separation anxiety disorder; meanwhile generalized anxiety disorder had the latest age of onset (Kessler et al., 2005).

**Etiology of anxiety disorders.** Vallance and Garralda (2008) summarized the etiology of anxiety disorders into six categories. These categories include: (a) temperament, (b) genetics, (c) parent-child interactions (e.g., parenting style, parent modeling), (d) catastrophic life events (e.g., home broken into, parents breaking up), (e) social adversity (e.g., socioeconomic status), and (f) neurobiology/neuropsychology. This final category is described as an individual's neurobiology being defined by both their genetics and environment. These biological changes then affect one's

neuropsychology by changing the way in which information is processed (e.g., when appraising threats, etc.) (Pine, 2007; Vallance & Garralda, 2008).

Sex and age, however, are also key variables in the development of anxiety disorders (Costello, Egger, & Angold, 2005; Hale III, Raaijmaker, Muris, & Meeus, 2005; Muris et al., 2000; Romano, Tremblay, & Vitaro, 2001). Using a community sample of adolescents 12 to 17 years of age, Essau et al. (2000) found a significantly higher prevalence of anxiety disorders in females than males; that is, 21.8% females versus 13.8% males. This difference was more striking in a clinical sample in contrast to the general population (Foa et al., 2005). It has been hypothesized that such findings are the result of fewer referrals for treatment being made for boys (Foa et al., 2005). This difference between the sexes may be due to males hiding their anxiety as a result of societal pressure (Marmorstein, 2007).

Adolescents differ from their adult counterparts in terms of: (a) their ability to read and understand their emotions, (b) cognitive abilities (e.g., more concrete), (c) being more focused on the present rather than the future, (d) motivation, and (e) their dependence on the social aspect of their environment (e.g., family, friends, school) (Piacentini & Bergman, 2001).

**Comorbidity of depression and anxiety disorders.** Evans et al. (2005), a commission of experts, in the field of adolescent depression and bipolar disorder reviewed the literature, condensed it, and then compared and contrasted the effect on adolescents and adults. These authors found that anxiety disorders were either comorbid, or previously problematic, in 60% of depressed adolescents. Typically, during childhood

individuals experienced an anxiety disorder and then in adolescence developed major depression (Evans et al., 2005).

### **Adolescence, Normal Development, and Meaningful Occupations**

According to Erik Erikson, adolescence is the period in which an individual is trying to answer the question: “Who am I?” In the process, adolescents establish both a social and occupational *identity* (Erikson, 1968; Shaffer, 1996). Arnett (2000), however, reported that one of the difficulties with implementing Erikson’s theory into practice is that he did not often outline age ranges in which his stages were to occur. Havighurst (1972) identified eight tasks that adolescents needed to complete in order to develop an identity as discussed by Erikson. Havighurst (1972) also provided an age range during which, he hypothesized, these tasks were to be completed for an adolescent to achieve normal development; that is, 12 to 18 years of age. These tasks included: (a) developing a social network of both same and opposite sex individuals and adopting a sexual identity, (b) assuming a social role predetermined by gender, (c) accepting physical appearance and putting one’s body to use effectively, (d) becoming independent of parents (or guardians) for emotional support, (e) getting ready for marriage and beginning their own family, (f) making plans for and taking steps towards achieving a paid occupation, (g) developing a set of ethics to live by, and (h) incorporating societal beliefs into their behaviours (Havighurst, 1972).

Havighurst (1972) reported that adolescents then transition into the first stage of adulthood (which he termed *early adulthood*) spanning 18 to 30 years of age. This stage, he argued, consisted of such tasks as: getting married, having children and settling into their own home. Arnett (2000) argued that in industrialized societies individuals are



choosing to get married and have children later; therefore the onset of adulthood has been postponed.

Seiffge-Krenke and Gelhaar (2008) found that Havighurst's (1972) tasks were still relevant to adolescents in today's society. They reported that by 14 years of age the adolescents in their study had begun working on, or completed, most of the tasks outlined by Havighurst (1972). These authors found, however, that the time frame for transition into adulthood, proposed by Havighurst (1972) during which these tasks were to be accomplished, did not fit with young adults in contemporary society and argued that the contemporary time frame is in fact prolonged. Individuals do not feel as much pressure to achieve the developmental milestones proposed by Havighurst (1972) and although the milestones eventually occur in young adults in our contemporary society they are not occurring in the order in which was proposed (Seiffge-Krenke & Gelhaar, 2008).

As adolescents become more involved with peers and their communities they also may find themselves more influenced by cultural norms and peer influences (Eisenberg, Neumark-Sztainer, Story, & Perry, 2005; Field, Camargo, Taylor, Berkey, & Colditz, 1999; Sieving, Eisenberg, Pettingell, & Skay, 2006; Tanti, Stikas, Halloran, & Foddy, 2011). It is believed adolescents balance the drive to commit themselves to adult roles and the fear that their choices may be mistakes (Crocetti, Klimstra, Keijsers, Hale III, & Meeus, 2009).

By choosing and participating in developmentally appropriate meaningful occupations throughout adolescence, individuals develop the skills to progress through adolescence and achieve normal development (Berg, Neufeld, Harvey, Downes, & Hayashi, 2009; Lerner, 2002). This development can be impeded in individuals who

experience higher levels of anxiety (Crocetti et al., 2009). Participating in fewer occupations and thus having fewer opportunities to become competent can result in developmental milestones not being attained (Havighurst, 1972; Stam, Grootenhuis, & Last, 2005). For instance, anxious adolescents' attempts to avoid anxiety provoking situations may limit the occupations in which they are engaged.

### **A Comparison of Symptoms and Occupational Performance**

A thorough search of the literature did not produce any articles that investigated the relationship between symptoms of anxiety (and depression), occupational performance, and *adolescents*. Fifteen articles were found using the COPM to investigate the relationship between diagnostic symptoms and occupational performance; two were with a pediatric population and 13 were from the adult literature.

Rice and Waugh (2009) and Fragala, O'Neil, Russo, and Dumas (2002) looked at the relationship between these two variables in pediatric populations; their population ages were two to 18 (median age 7.9) and three to 11 respectively. However, both of these articles included the parents or caregivers in the COPM interview, and in fact Fragala et al. (2002) reported that the occupational performance issues had been identified by solely the adult.

The following section will summarize key points from these 15 articles which are relevant to the present study (see Appendix C). McNulty and Beplat (2008) assessed the validity of the COPM by looking at depressive symptoms in a community sample of older adults. The other 14 articles were based in physical medicine settings (Bailey, Starr, Alderson, & Moreland, 1999; Brincat, 2004; Corr, Phillips, & Walker, 2004; Dagfinrud, Kjekken, Mowinckel, Hagen, & Kvien, 2005; Davidson et al., 2009; Fragala et

al., 2002; Carpenter, Baker, & Tyldesley, 2001; Gilbertson & Langhorne, 2000; Jenkinson, Ownsworth, & Shum, 2007; Mead, Theadom, Byron, & Dupont, 2007; Sandqvist, Johnsson, Sturesson, Tägil, & Geborek, 2009; Schmid et al., 2009; Rice & Waugh, 2009; Rochman, Ray, Kulich, Mehta, & Driscoll, 2008). Six of these remaining 14 articles assessed the participant's level of anxiety and/or depression (Carpenter et al., 2001; Corr et al., 2004; Davidson et al., 2009; Jenkinson et al., 2007; Mead et al., 2007; Schmid et al., 2009).

Five main findings from the 15 articles were found to be relevant to the current study. Firstly, a significant *negative* correlation was found between occupational performance (i.e., COPM performance and satisfaction) and symptom intensity (i.e., pain) (Brincat, 2004; Rochman et al., 2008); thus higher levels of occupational performance were related to lower levels of pain.

Secondly, a significant *negative* correlation was found between the COPM (performance and satisfaction) and levels of both anxiety and depression at the end of treatment and at follow-up (Carpenter et al., 2001); that is, higher levels of occupational performance were equated with lower levels of anxiety and depression. Similarly, Jenkinson et al. (2007) found a statistically significant negative correlation between COPM (satisfaction) and anxiety among a group of adults with acquired brain injury. Mead et al. (2007) reported a significant decrease in anxiety and depression; and increase in occupational performance (i.e., COPM performance and satisfaction scores), post-treatment. These authors, however, did not assess for a correlation between symptoms (i.e., anxiety and depression) and occupational performance (i.e., COPM performance and satisfaction) (Mead *et al.*, 2007). Significant improvements in COPM satisfaction

ratings were found by Davidson et al. (2009), to correspond to higher COPM performance and lower anxiety scores at 6 month post-treatment. Meanwhile, statistically significant increases in COPM (performance and satisfaction) scores post-treatment were reported by Corr et al. (2004), however they found no significant changes in anxiety or depression ratings. As in the Mead et al. (2007) article however, neither Davidson et al. (2009) nor Corr et al. (2004) assessed for correlations between these two variables.

Thirdly, only about 28% of the variation in the COPM (performance) scores was accounted for by impairment variables (e.g., Bath AS Disease Activity Index scores) (Garrett et al., 1994), and 11% by personal variables (e.g., age and sex) (Dagfinrud et al., 2005). These authors concluded that variables related to environmental conditions must make up the remainder of the variation in the COPM (performance) scores (Dagfinrud et al., 2005).

Fourthly, Gilbertson and Langhorne (2000) reported having a few clients that were unable to identify occupational performance issues. The final finding relevant to the current study was that a statistically significant larger number of OPIs were identified on the COPM by participants with a clinically significant number of depressive symptoms (McNulty & Beplat, 2008).

### Summary

The discipline of occupational therapy contends that we must broaden our understanding of function and functional impairment by assessing an individual's occupational performance and occupational performance issues (Polatajko et al., 2007c; Townsend & Polatajko, 2007). No published articles have been found, however, that investigated the relationship between occupational performance and diagnostic symptoms in a purely adolescent population, specifically in adolescents with anxiety disorders.

The present study addressed the aforementioned gap in the literature by investigating if occupational performance was related to self-reported symptoms in an adolescent population with anxiety disorders; irrespective of whether or not the adolescent met the diagnostic criteria. In the anxiety disorder literature, outcome measures in this population have focused on reduction in symptoms. However, the understanding of the adolescent's performance of activities that are meaningful in relation to self-care, productivity and leisure is also important. The current study looked at the occupational performance of adolescents with anxiety disorders to determine if there was a relationship between anxiety symptoms and occupational performance bearing in mind that occupational performance is affected by more than just an individual's health status (Polatajko et al., 2007b). Adolescents' perceptions of their abilities to perform *meaningful* occupations and their subsequent satisfaction with their performance are considered when assessing occupational performance. This then provides a more holistic and client-centred understanding of the adolescents.

### Research Questions

Among a sample of adolescents 13-17 years of age referred to a clinical anxiety disorders treatment program:

- What are the types of meaningful activities that adolescents identify?
- What are the relationships between perceptions of occupational *performance* of meaningful activities and: (a) anxiety symptoms, (b) depressive symptoms, and (c) stress?
- What are the relationships between *satisfaction* with occupational performance of meaningful activities and: (a) anxiety symptoms, (b) depressive symptoms, and (c) stress?

The primary investigator of the current study expected that, in contrast to the findings from the adult literature, the negative correlation found between anxiety and depressive symptoms and level of occupational performance would be statistically significant for a population of adolescents. The investigator postulated that the personal variables (i.e., age and sex) and environmental conditions (e.g., stress at home, school, and/or work) would have a greater influence on an adolescent population's occupational performance than they did on the adult population in the study by Dagfinrud et al. (2005).

These differences were anticipated as adolescence is a period during which an individual undergoes a vast number of changes (e.g., biologically, psychologically, and socially). Havighurst (1972) outlined that adolescents try to achieve the normal stages of development, among which include: transitioning to increased independence from parents, increased reliance on peers, and increased involvement with their external environment (e.g., via work). Meanwhile, the adults in the study by Dagfinrud et al.

(2005) theoretically should have already achieved these stages; especially as the mean age of the sample was 47 years of age.

## Methods

### Sample

**Sampling frame.** The sampling frame consisted of clients from two anxiety clinics in the Child and Adolescent Mental Health Program at St. Boniface Hospital (i.e., Service1 and Service2).

**Service1.** Service1 was an interdisciplinary team consisting of occupational therapy, nursing, social work, education, and psychiatry which saw clients between five to 17 years of age. Between January 1, 2008 and December 31, 2008 a total of 301 clients were seen by the service for assessment and/or treatment. Of this 301, 134 (44.5%) were adolescents, ages 13 to 17; 60 (or 44.8%) were males and 74 (or 55.2%) were females.

Adolescents were referred to Service1 primarily via Centralized Intake. Centralized Intake was responsible for referring approximately 90% of the individuals to Service1. The other 10% were either: (a) cross-service referrals from within the Child and Adolescent Mental Health Services offered at the hospital, or (b) “sibling referrals”. Sibling referrals consisted of individuals who were siblings of a current client of Service1.

Referrals from Centralized Intake were typically initiated by a parent, health care professional, or the adolescent (16 years of age or older), by calling Centralized Intake. Health care staff (e.g., doctors, psychiatrists, psychologists, etc.) could also initiate the referral in writing. The parent, or adolescent, was required to participate in a telephone interview with one of the Centralized Intake clinicians. If the Centralized Intake clinician believed the presenting complaint was primarily due to an anxiety disorder, the individual was referred on to Service1 and their name was put on a waiting list. Similarly, if a



mental health clinician from another service at St. Boniface Hospital believed one of their clients was experiencing an anxiety disorder they placed the client's name on the waiting list. Meanwhile, if a sibling of a client already involved with Service1 was experiencing significant anxiety related symptoms the sibling could be placed directly on the waiting list. Half-way through participant recruitment for the study however, Service1 discontinued the practice of sibling referrals and instead required these referrals be directed to Centralized Intake.

An intake appointment was then scheduled by a clinician with Service1 (i.e., an occupational therapist or a nurse). The information gathered at intake was then presented to the attending psychiatrist and interdisciplinary team at a weekly team meeting at which time it was determined if the child or adolescent was appropriate for the service.

Overall, individuals were referred to Service1 due to the anxiety symptoms they were experiencing. They often had not been previously diagnosed with an anxiety disorder and not all clients seen in Service1 ended up being assessed by a psychiatrist and receiving a formal anxiety diagnosis. The focus of Service1 therefore was not so much diagnosing, but rather assessing and treating anxiety symptoms. Adolescents with a primary diagnosis of posttraumatic stress disorder were routed to another clinic at St. Boniface Hospital which specializes in this area.

**Service2.** Service2 was based in, and staffed by, clinical health psychology. Their clients ranged from four to 17 years of age. At the time of recruitment for the current study, Service2 was receiving referrals from three sources: directly from parents (40%), directly from family doctors and/or paediatricians (40%), and Centralized Intake (as mentioned above) (20%) (J. Walker, personal communication, November 8, 2011).

All referrals for Service2 were reviewed for appropriateness by the staff psychologist, and it was seldom that referrals were deemed inappropriate (J. Walker, personal communication, January 24, 2012). Intakes were conducted by the psychologist or one of the PhD (psychology) students. All clients were given a DSM-IV (APA, 2000) diagnosis, if warranted, at the time of their initial intake. This clinic does not routinely collect data regarding the number of clients seen in a year and the number who would fall into the 13 to 17 age category. However, it was estimated that 50 to 100 clients were seen yearly and of those about 25 would have been in the 13 to 17 year old age range (J. Walker, personal communication, September 22, 2010). In contrast to Service1, Service2 treats adolescents with posttraumatic stress disorder, however none were referred to the clinic during the time recruitment for the current study was taking place (J. Walker, personal communication, November 8, 2011).

**A general overview of the population characteristics of both services.** The clinics treat clients who primarily experience an anxiety disorder, or an anxiety disorder which is comorbid with attention deficit hyperactivity disorder, pervasive developmental disorder, or depression. In these latter cases however, it is the anxiety disorder that is the primary focus of treatment. When attention deficit hyperactivity disorder or depression is comorbid, these symptoms may be under control with medication. One of the requirements to be accepted into treatment by these two services is that the individual has the cognitive abilities to participate in the primary treatment modalities offered (i.e., cognitive-behavioural therapy or behaviour therapy). The section that follows outlines the inclusion and exclusion criteria for referral to both services.

***Inclusion criteria.***

- Both males and females
- Have an anxiety disorder, or comorbid anxiety disorders
- May have another comorbid psychiatric diagnosis
- Adolescents with various family structures

***Exclusion criteria.***

- Primary focus of treatment is not an anxiety disorder
- Primary diagnosis is post-traumatic stress disorder <sup>a</sup>
- Parents' marriages are undergoing acrimonious breakdown and this is the basis of the anxiety symptoms or for an assessment for legal purposes
- Receiving treatment for their worries elsewhere <sup>b</sup> and wish to remain in treatment with that therapist.
- Experiencing severe developmental delays

**Recruitment to the Current Study**

Participants were recruited for the study by having an administrative staff member send out recruitment packages to: (a) all of Service1's clients, between 13 to 17 years of age, and (b) everyone on a list of potential participants provided by Service2. In total, 155 recruitment packages were distributed. Forty-one adolescents expressed interest in participating in the study; the study's final sample size, however, was 30 for an effective response rate of 19.4%. Some of the reasons given for why adolescents did not follow through with participating in the study, after expressing interest and in some instances scheduling an intake appointment, included: scheduling difficulties, recent death in the

<sup>a</sup> Applicable to Service1 only see Services section above for further elaboration.

<sup>b</sup> Other than with Child and Adolescent Mental Health Services at St. Boniface Hospital

family, and the adolescent changing their mind. Recruitment from Service1 began in November 2009. Due to low recruitment levels however, recruitment of adolescents from Service2 began in May 2011; recruitment for the study ended in June 2011. Of the 30 adolescents who participated in the study, 26 were clients of Service1 while the other four were from Service2.

Recruitment packages included: a recruitment letter and a letter of support from the director of the service (see Appendices D to G). Initially the recruitment letter was addressed to both the adolescent and their parents (or guardian); the letter did not identify the individuals by name. In August 2010 it was determined that the recruitment letter should be personalized to the specific intended recipient (i.e., adolescent and parent/guardian) in attempts to increase recruitment. The recruitment letter briefly introduced the research study, what their role would be, and mentioned that the adolescent would receive a \$15.00 honorarium for their time and to cover transportation costs. If the adolescent (and parent or guardian) were interested in participating, the letter provided them with the principal investigator's contact information. The letter of support endorsed the research study and was written by the head of the service with whom that adolescent was associated (i.e., Service1 or Service2). Potential participants who contacted the principal investigator and verbally agreed to participate were scheduled for an appointment; approximately 75 minutes in length.

A follow-up letter was delivered to nonresponders (see Appendices H and I). The letter emphasized the study's importance and outlined that the present study was part of the principal investigator's educational program (i.e., Master's of Science). The follow-up letter was sent out 10 days after the original mail out.

The inclusion and/or exclusion criteria for the recruitment into the current *study* have been outlined below.

***Inclusion criteria.***

- Accepted into the services for treatment
- Between the ages of 13 and 17 at the time of the study
- Either male or female.

***Exclusion criteria.***

- Lacking a working knowledge of English in order to complete the questionnaires

The working knowledge of English was determined by a combination of both: (a) parents (or adolescent) when filling out the *History and Information* package for acceptance to the services at the hospital (i.e., language spoken at home is identified as something other than English), (b) meeting the adolescent for the intake interview (i.e., during conversation and when the adolescent filled out the questionnaires).

**Sample (continued)**

**Sample Size.** The *final* sample size for the study was 30 adolescents; this was revised from the *original* expectation of a sample size of 45 after recruitment difficulties were encountered.

The initial sample size of 45 had been chosen for several reasons. First of all, it was found that after looking at numerous studies using the COPM as an outcome measure with child populations, although not necessarily mental health specific, the sample sizes ranged from four to 50, with the two clusters forming between four to seven participants and 20 to 33 participants (McColl et al., 2006). Secondly, the principal researcher had

planned to recruit participants over a six month period and, therefore, estimated that access to two-thirds (i.e., 89) of the 134 adolescents ages 13 to 17 seen over a one year period by Service1 may have been possible based on the 2008 numbers. If, of these 89 adolescents, the study was able to get a 50% participation rate, then a sample size of 45 would have been attained. Thirdly, a power analysis was conducted in order to determine the sample size required to attain a power ( $\beta$ ) of .80 (i.e., 80%) at  $p = .05$  (see Table 4).

Completing the power analysis for the ASQ-2 was more complicated however, than for the other measures. The challenge with the ASQ-2 was that, at the time this research study was developed, there was no published data regarding a total score; the data that was published was regarding the 10 subscales (which have different means). The power analysis was, therefore, conducted using the two subscales with means at either of the extremes (i.e., Stress of Home Life and Stress of Emerging Adult Responsibility) (see Table 4).

Table 4

*Power Analyses Results for All Four Measures for a Power ( $\beta$ ) of .80*

Measure	Power ( $\beta$ )	Level of Significance ( $\alpha$ )	Sample Size (n)
COPM (performance)	.80	.05	73
COPM (satisfaction)	.80	.05	73
ASQ-2			
Stress of Home Life	.80	.05	32
Stress of Emerging Adult Responsibility	.80	.05	39
CDI	.80	.05	34
SCAS	.80	.05	71

Based on the fact that a pilot project could have 25 to 30 participants and with the power results outlined in Table 4, a sample size of 45 was chosen. A sample size of forty-five would allow for a power of 80% to be attained for the ASQ-2 and the CDI, though this criteria would not be met for the COPM (performance and satisfaction) or SCAS. As such, the power analysis was redone in order to determine the power for the COPM (participation and satisfaction) and SCAS a sample size of 45 (see Table 5).

Table 5

*Power Analyses Results for the COPM and SCAS for a Sample Size (N) of 45*

Measure	Power ( $\beta$ )	Level of Significance ( $\alpha$ )
COPM (performance)	.70	.05
COPM (satisfaction)	.70	.05
SCAS	.60	.05

Finally, upon completion of the study, the power analysis was redone for the final sample size of 30 (see Table 6).

Table 6

*Power Analyses Results for All Four Measures for a Sample Size (N) of 30*

Measure	Power ( $\beta$ )	Level of Significance ( $\alpha$ )
COPM (performance)	.58	.05
COPM (satisfaction)	.58	.05
ASQ-2		
Stress of Home Life	.77	.05
Stress of Emerging Adult Responsibility	.72	.05
CDI	.78	.05
SCAS	.47	.05



**Sample demographics.** The sample demographics for the current study can be summarized as follows. All ages from 13 to 17 were represented in the sample with each group being relatively equally represented. The smallest age group in the sample was the 13 year olds; meanwhile the largest age group was the 14 year olds (see Table 7).

Table 7

*Age Distribution*

Age (years)	Number of participants	Percent (%)
13	4	13.3
14	8	26.7
15	7	23.3
16	5	16.7
17	6	20.0
Total	30	100.0

In the current study the sex distribution was 83.3% female ( $n = 25$ ). This is in contrast to findings by Essau et al. (2000) who used a sample size of 1,035 adolescents ages 12 to 17. These authors reported that of the total 192 adolescents with an anxiety disorder, 58 were male and 134 were female; that is, 30.2% versus 69.8% (Essau et al., 2000). The sex distribution of the current study may differ from the Essau et al. (2000) findings due to the fact that a clinical, rather than community sample was used (Foa et al., 2005). That is, fewer males may be referred to a clinical anxiety setting for treatment (Foa et al., 2005), possibly as a result of males hiding their anxiety in accordance with societal pressures (Marmorstein, 2007). The sex distribution of the current study's

sample also differed from Service1 which had a more equal distribution for adolescents 13 to 17 years of age; that is, 44.8% males versus 55.2% females (percentages are based on data from 2008). The disproportionately higher percentage of girls recruited to the present study may be partially explained by the fact that survey response rates have been positively associated with being female (de Winter et al., 2005; Søgaaard, Selmer, Bjertness, & Thelle, 2004).

Table 8 outlines with whom the adolescents in the study reported living. Neither of the services used in the current study, however, routinely collected nor tabulated demographic information for their clinics. It is therefore difficult to compare or contrast the adolescent participants of this current study to non-participants. In addition for confidentiality reasons the current study did not have access to participants', or non-participants', hospital records; therefore, other differences which may have existed between the two groups, such as symptom severity, cannot be made.

Table 8

*Living Situation of Adolescent Participants*

Living With	Number of participants	Percent (%)
Both Biological Parents	22	73.3
Biological Mother	8	26.7
Total	30	100.0

## **Design and Procedures**

**Study design.** The current cross-sectional study investigated the relationship between anxiety symptoms and occupational performance using survey research; in both interview and questionnaire formats (Portney & Watkins, 2000).

**Details regarding the administration of the measures.** Upon attending the face-to-face appointment, the principal investigator (or the alternate occupational therapist): (a) described the study in further detail, (b) obtained informed consent from the adolescent's parent (or guardian), as well as from the adolescent themselves, and (c) had the adolescent complete the three questionnaires, interview, and classification data form. Generally the consent form was mailed to participants and their parents (or guardian) prior to the appointment (see Appendices J and K). In a few instances when the consent form would not have reached the family prior to the appointment, extra time was provided to the adolescent and parent (or guardian) to allow them to review the consent form on-site.

In those instances where the researcher was the case coordinator and/or the treating therapist, an alternate occupational therapist (who was not part of the treatment team) scheduled the appointment, obtained consent, and administered the questionnaires and interview. This process served to protect the adolescents' privacy and confidentiality. It also served to avoid the chance the adolescents felt coerced into participating as could have occurred if they had been asked by their case coordinator, who was also the primary investigator of the study (University of Manitoba, 2009). Of the 30 participants 17 were interviewed by the principal investigator and the remaining by the alternate.

Prior to participants departing from the appointment, the self-report questionnaires (i.e., ASQ-2, CDI, and SCAS) were reviewed in order to try to minimize missing data by trying to identify any questions the adolescent may have omitted when filling out the questionnaires. During this process, adolescents who identified having active suicidal ideations on the CDI were encouraged to discuss these thoughts with their case manager from the respective service (i.e., Service1 or Service2). The matter was discussed with the adolescent and their parent (or guardian) together, prior to them leaving the appointment, at which time they were reminded of the emergency services available to them. The study staff directly relayed the information to the adolescent's case-manager and recorded the information, on an otherwise blank progress form, which was then placed in the adolescent's medical record by an administrative staff member.

An envelope with the honorarium enclosed, in the form of cash, was given to participants immediately following their attendance at the face-to-face appointment, and subsequent completion of the four measures (i.e., the ASQ-2, CDI, COPM, and SCAS) and the classification data form.

### **Measures**

Participants were given the following four measures: COPM, ASQ-2, CDI, and SCAS.

**The COPM.** The COPM (Law et al., 2005) is a client-centred outcome measure that does not take a uniform approach to assessment. The problem with uniform approaches to assessment is that it may result in a client's treatment goals being overlooked (Jenkinson et al., 2007). This outcome measure assesses occupations that are meaningful to the adolescent, their perception of their ability to perform these occupations and their subsequent satisfaction. The COPM requires the client to identify

areas of concern in which an occupation cannot be satisfactorily fulfilled due to role expectations or environmental demands that have not been met; these are referred to as occupational performance issues (Law et al., 2005). Occupational performance, consists of a continuously changing interaction between the areas of the person, occupation, and environment over an individual's life. It is comprised of occupations that the individual is involved in which are not only age appropriate but also defined by their culture (Townsend & Polatajko, 2007).

Developed by occupational therapists, the COPM was first published in 1990 (McColl et al., 2005). It has a format of a semi-structured interview and takes 15 to 30 minutes to complete. Once an individual has identified their most important occupational performance issues they then rate the issues in terms of their self perceived performance ability and their satisfaction with their current performance. Both performance ability and satisfaction are rated using a Likert scale of 1 to 10; 1 = not satisfied at all, and 10 = extremely satisfied (Law et al., 2005). Some participants, however, have found the scoring process employed by the COPM to be a bit confusing (Rochman et al., 2008).

To date this researcher has been unable to find articles discussing the reliability of the COPM using adolescents as participants. However, with adult populations good *test-retest reliability* with intraclass correlation coefficients was found. Sewell and Singh (2001) reported coefficients for performance and satisfaction of .92 and .90 respectively over a one week time span. Meanwhile, coefficients ranging from .842 (performance) and .847 (satisfaction) were found for a test-retest time frame of two to four weeks; this study used the Mandarin translation of the COPM with a sample of participants with psychiatric disorders (Pan, Chung, & Hsin-Hwei, 2003). In calculating Spearman's rho

( $r_S$ ), Cup, Scholte op Reimer, Thijssen, and van Kuyk-Minis (2003) found similar results using a time frame of eight days; performance ( $r_S = .89$ ) and satisfaction ( $r_S = .88$ ).

These authors conducted the study in the Netherlands using a sample of patients who had had a stroke; however the authors do not specify whether or not the Dutch translation of the COPM had been used (Cup et al., 2003).

The *inter-rater* reliability (or reproducibility) was assessed by two groups of authors using the Dutch translation of the COPM (Eyssen, Beelen, Dedding, Cardol, & Dekker, 2005; Verkerk, Wolf, Louwers, Meester-Delver, & Nollet, 2006). Eyssen et al. (2005) used a population of adults; meanwhile Verkerk et al. (2006) assessed a population of parents of children (one to 7.5 years of age) with disabilities. Both studies conducted the COPM on two separate occasions by two separate occupational therapists, with the second assessor blinded to the results of the first interview (Eyssen et al., 2005; Verkerk et al., 2006). Eyssen et al. (2005) found 66% of the problems prioritized in the first interview were prioritized in the second. These authors reported however, that the number of OPIs increased to 71% when they excluded the clients who had undergone a change in therapy or medication (Eyssen et al., 2005). The intraclass correlation coefficient for the mean performance and mean satisfaction scores were .67 and .69 respectively (Eyssen et al., 2005). Verkerk et al. (2006) found that 80% of the OPIs prioritized in the first interview were prioritized in the second. These authors found no systematic differences between the mean performance and satisfaction scores.

Baptiste (2008), a co-author of the COPM, argued that the only form of reliability that is pertinent to the COPM is test-retest reliability. Carswell et al. (2004) (an article

written by all of the COPM co-authors) state that inter-rater reliability with this measure cannot be assessed because it is a subjective measure and the client is the rater.

As with reliability, this researcher was unable to find articles discussing the validity of the COPM in an adolescent population. The subsequent discussion will therefore consist of an article by Verkerk et al. (2006) which measured construct validity using a population of children's parents and several studies that evaluated the validity of the COPM using adult populations.

A sample of people with a diagnosis of schizophrenia was used in the Boyer, Hachey, and Mersier (2000) study. These authors reported a *criterion validity* of  $r_S = .46$  and  $.53$  when comparing the COPM to: (a) the Wisconsin QOL-Client Questionnaire (Becker, Diamond, & Sainfort, 1993), and (b) the Work Personality Profile (Bolton & Roessler, 1986) respectively (Boyer et al., 2000). Verkerk et al. (2006), meanwhile, report criterion validity was demonstrated by the COPM when compared to merely asking open-ended questions. That is, 71% of the problems prioritized by the COPM were also identified in the open-ended questions.

*Concurrent criterion* validity was demonstrated between the COPM and both the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988) and the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); the correlation coefficients at the end of treatment were performance  $r_S = -.3$  and  $-.4$ , and satisfaction  $r_S = -.3$  and  $-.4$  respectively (Carpenter et al., 2001). Rochman et al. (2008) found evidence for concurrent validity between the COPM and the Pain Disability Index (Pollard 1984; Tait, Pollard, Margolis, Duckro, & Krause, 1987). Statistically significant negative correlations were found between the COPM (performance and satisfaction) and the Pain

Disability Index (Pollard 1984; Tait et al., 1987);  $r = -.62$  and  $r = -.41$  ( $p < .05$ ) respectively (Rochman et al., 2008).

Dedding, Cardol, Eyssen, Dekker, and Beelen (2004), using the Dutch translation of the COPM, found the measure to possess both *convergent* and *divergent validity*. Convergent validity was found when compared to the Disability and Impact Profile (Lankhorst et al., 1996) and the short version of the Sickness Impact Profile (i.e., SIP68) (de Bruin, Diederiks, de Witte, Stevens, & Philipsen, 1994); that is, of the occupational performance issues identified on the COPM, 63% and 74% (respectively) were identified as problems on these two aforementioned measures. Divergent validity was illustrated by the finding of low correlation coefficients between the COPM (performance and satisfaction) and the total score for the short version of the Sickness Impact Profile (de Bruin et al., 1994). These findings were expected as the COPM, in contrast to the other tool, takes the importance of an occupation into consideration (Dedding et al., 2004).

Finally, Verkerk et al. (2006) reported findings that supported the COPM's construct validity. These authors compared the COPM to the Pediatric Evaluation of Disability Inventory (Dutch Version) (by Custers & Wassenberg-Severijnen; as cited in Verkerk et al., 2006), which is a parent report measure of independence and the TNO AZL Preschool Quality of Life questionnaire (Fekkes et al., 2000) and TNO AZL Children's Quality of Life questionnaire (Vogels et al., 2000), both of which measure parent's perception of their child's health-related quality of life. When the COPM was compared to the Pediatric Evaluation of Disability Inventory (Dutch Version) (by Custers & Wassenberg-Severijnen; as cited in Verkerk et al., 2006), 50% of the occupational performance issues identified by the COPM (the first time it was administered) had



comparable items in the Pediatric Evaluation of Disability Inventory (Dutch Version) (by Custers & Wassenberg-Severijnen; as cited in Verkerk et al., 2006). Meanwhile, Verkerk et al. (2006) reported 39% of the occupational performance issues were also on the TNO AZL Preschool Quality of Life questionnaire (Fekkes et al., 2000) and TNO AZL Children's Quality of Life questionnaire (Vogels et al., 2000).

**The ASQ-2.** The ASQ-2 (Byrne et al., 2007) was used to measure the stressors the adolescent had been exposed to over the past year. By using the ASQ-2 the current study was able to gain precise information regarding etiological factors such as parent-child interactions, catastrophic life events, and social adversity. Therefore, this measure provided a broad understanding of the level of stress the adolescent was under and the source of the stress. At the time that the present study began, reliability and validity regarding the total score for the ASQ-2 had not been published, although other researchers were using the total score for the ASQ-2. Given the current study's small sample size it was deemed appropriate to only use the total score for the ASQ-2 (D. Byrne, personal communication, April 21, 2009). De Vriendt et al. (2011) have since published information regarding the psychometrics of the ASQ-2 in terms of both the individual scales as well as the total score (which they refer to as a *summary score*). These authors used a sample of adolescents from five countries (i.e., Belgium, Sweden, Austria, Hungary, Greece, and Spain), this resulted in the ASQ-2 being translated into the native languages of these five countries (i.e., Dutch, Swedish, German, Hungarian, Greek, and Spanish) (De Vriendt et al., 2011).

The ASQ-2 is a self-report questionnaire, which uses a 5-point Likert scale (1 = not at all stressful, 5 = very stressful). This updated version consists of 58 items: 20

unchanged from the original ASQ, 2 re-worded items, and 36 new items (Byrne et al., 2007). The target population of the ASQ-2 is adolescents (i.e., 13 to 19 years of age). There are 10 stress categories in total. These categories (or scales) include: (a) home life, (b) school performance, (c) school attendance, (d) romantic relationships, (e) peer pressure, (f) teacher interaction, (g) future uncertainty, (h) school/leisure conflict, (i) financial pressure, and (j) emerging adult responsibility (Byrne et al., 2007). The next section will discuss the psychometric properties of the ASQ-2 in terms of both the individual scales and the total score.

Regarding *internal reliability* of the ASQ-2, the Cronbach's Alpha coefficients were between .62 and .92, with a value of .8 occurring in eight of the 10 scales (Byrne et al., 2007). A recent study by De Vriendt et al. (2011) found the ASQ-2 to have Cronbach Alpha scores ranging from .57 to .88; five of the 10 scales achieved values above .8. These authors also calculated a Cronbach's Alpha coefficient, of .95, for the total score on the ASQ-2 (De Vriendt et al., 2011).

*Test-retest reliability* conducted over a one week time frame was  $r = .68$  to  $.88$ , with seven of the 10 scales having values of  $r = .8$  (Byrne et al., 2007). De Vriendt et al. (2011) found the total score of the ASQ-2 to have an intraclass correlation coefficient of  $.89$  ( $p < .001$ ), however the values for the individual scales ranged from  $.45$  ( $p < .01$ ) to  $.79$  ( $p < .001$ ); the test-retest time frame was two weeks.

For *construct validity*, the ASQ-2 appeared valid when findings were compared to the sex differences reported by the original ASQ and by current literature (i.e., stress is higher in girls) (Byrne et al., 2007). When sex differences were analyzed for the ASQ-2 scales, the girls' scores were significantly higher on four of the 10 scales with t-values

between 4.23 and 6.70 ( $p < .001$ ). Meanwhile, three of the 10 scales reported t-values of 2.04 to 2.28 ( $p < .05$ ) (Byrne et al., 2007). Similarly De Vriendt et al. (2011) found girls reported significantly higher stress levels when the ASQ-2 total scores were assessed.

Byrne et al. (2007) reported that also in agreement with recent literature were their results obtained for the ASQ-2 between age and exposure to stressors (as determined by the ASQ-2 scales), that is, exposure to stressors increased with age. Five of the 10 ASQ-2 scales had small yet significant correlations coefficients; that is,  $r = .12$  to  $.35$  ( $p < .001$ ) (Byrne et al., 2007). In contrast, De Vriendt et al. (2011) reported finding three significant negative relationships between age and stress levels; that is for the ASQ-2 total score ( $p = .026$ ), and the peer pressure ( $p = .002$ ) and teacher interaction ( $p < .001$ ) scales. The authors hypothesized that these findings may be indicative of cultural differences between their European adolescents and the Australian adolescents.

Construct validity of the ASQ-2 was also assessed when De Vriendt et al. (2011) compared data from a sample of European adolescents to results in the literature which originally used Australian adolescents (Byrne et al., 2007). Using a confirmatory factor analysis they reported finding a high correlation between the factors for the individual questions and 10 scales of the ASQ-2 of the two populations (De Vriendt et al., 2011). These authors reported that two thirds of the correlations were  $\geq .6$ ; however, they did not show this data in their article (De Vriendt et al., 2011).

*Concurrent validity* was assessed by comparing the ASQ-2 to results from the Spielberger State-Trait Anxiety Inventory (by Spielberger; as cited in Byrne et al., 2007) and a 15 question non-clinical depression scale developed by the researchers (Byrne et al., 2007). The correlation coefficients ( $r$ ) for these 10 scales when compared to the

anxiety measure ranged from .26 to .43 ( $p < .001$ ), and .35 to .56 ( $p < .001$ ) when compared to the depression measure (Byrne et al., 2007). Meanwhile an inverse correlation was found between the ASQ-2 scales and the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The correlation coefficients ( $r$ ) ranged from -.19 to -.40 (Byrne et al., 2007). Once again, these three trends were in agreement with current evidence in the literature (Byrne et al., 2007). De Vriendt et al. (2011) reported finding poor criterion validity, especially in females, when they compared the scores on the ASQ-2 scales to baseline wake-up salivary free cortisol values. That is, for males, four of the 10 ASQ-2 scales had a positive statistically significant relationship, meanwhile no significant relationships were found in females.

**The CDI.** The CDI was used to measure symptoms of depression. Depressive symptoms were measured in the current study because anxiety and depression frequently co-occur and depressive symptoms can negatively affect an individual's occupational performance. The CDI is a self-report questionnaire that was first developed in 1977, and can be provided to children and adolescents ages seven to 17. The purpose of the CDI is to assess for, and grade the severity of, symptoms of depression (Kovacs, 1985; Kovacs, 1992a). Consisting of 27 items, the CDI, which was developed by modifying the Beck Depression Inventory for adults, requires 10 to 20 minutes to complete (Saylor, Finch, Spirito, & Bennett, 1984). Each item is comprised of three choices which are scored between zero and two. The individual is asked to read the question and pick the response that best describes them in the past two weeks (Kovacs, 1992b). The total CDI score can be a value ranging from zero to 54; the higher the score the greater the number of depressive symptoms the individual is identifying (Kovacs, 1992a).

In terms of the CDI's reliability, Cronbach's Alpha coefficients of  $\geq .80$  were found for *internal consistency* (Kovacs, 1992a; Saylor et al., 1984; Smucker, Craighead, Craighead, & Green, 1986). Meanwhile, Finch, Saylor, Edwards and McIntosh (1987) reported the *test-retest reliability* coefficients ( $r$ ) for two, four and six week intervals were: .82, .66, and .67 in a population of "normal" school-children seven to 12 years old ( $N = 108$ ). Smucker et al. (1986) found similar results over a three week interval using grade five students (mean age = 10.7 years) (i.e., .74 and .77 for females and males respectively).

In terms of *face validity*, the CDI has been found to focus more on the individual's cognitive symptoms of depression rather than the somatic, affective, and/or psychomotor symptoms (Brooks & Kutcher, 2001).

Regarding *discriminant validity*, many studies reported that the CDI can distinguish between depressed and nondepressed individuals (e.g., Hodges, 1990; Knight, Hensley, & Waters, 1988; Liss, Phares, & Liljequist, 2001). Liss et al. (2001) found the CDI was able to discriminate between children and adolescents with depression versus aggressive-related disorders. Meanwhile, Hodges (1990) reported the CDI demonstrated the ability to discriminate between both conduct disorders and anxiety disorders. Some researchers, such as Saylor et al. (1984), however, reported finding no statistical significance between depressed and nondepressed children. The controversy regarding this measure's ability to distinguish between depressed and nondepressed individuals primarily arose from the fact that the CDI leaves determining the cut-off score up to the clinician (Comer & Kendal, 2005; Kovacs, 1992a). Clinicians based their decision on what works best for the setting in which they work (i.e., clinical or community). The

range of total CDI cut-off scores varied from 10 to 20 (Kovacs, 1992a). Kovacs (1985) stated, however, that the CDI was developed to measure the severity of an adolescent's depressive symptoms, rather than to act as a diagnostic tool.

Kovacs' (1992a) study reported that adolescents (i.e.,  $\geq 13$  years old) typically score higher on the CDI than do children (i.e.,  $\leq 12$  years old), however, not to a statistically significant degree. Kovacs (1985) assessed *concurrent validity* between the CDI and both the Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978) and the Coopersmith Self-Esteem Inventory (Coopersmith, 1967). The anxiety scale and CDI were found to have a significant positive correlation ( $r = .65, p < .0001$ ) (Kovacs, 1985). Meanwhile, the CDI was negatively correlated with the self-esteem measure ( $r = -.59, p < .0001$ ) (Kovacs, 1985). Knight et al. (1988) found a positive correlation between the CDI and the Children's Depression Scale (total *depression* score) (by Lang & Tisher; as cited in Knight et al., 1988);  $r = .76, p = .001$ . A negative relationship, in contrast, was found for the CDI and the Children's Depression Scale total *pleasure* score (by Lang & Tisher; as cited in Knight et al., 1988);  $r = -.69, p = .001$ .

The present study used the CDI for the following four reasons. Firstly, it is a reliable tool in children, easy to administer, and cost-effective (Kovacs, 1985; Kovacs, 1992a; Knight et al., 1988). Meanwhile, following a review of the literature, Brooks and Kutcher (2001) concluded that although the information regarding reliability and validity for the CDI in adolescents is limited, a tool which fulfills all these requirements for use with adolescents has not yet been developed. Secondly, Service1 currently uses the CDI to screen for depressive symptoms in their clients (both children and adolescents). Thirdly, Comer and Kendall (2005) concluded that the CDI was an effective tool as a

continuous measure of depressive symptoms in youth with anxiety disorders. Finally, the current study used the CDI to assess the degree of an adolescent's depressive symptoms rather than using a particular cut-off score.

**The SCAS.** The SCAS was used to measure anxiety symptoms. The SCAS is a self-report questionnaire appropriate for children seven to 19 years of age. Self-report questionnaires typically have the following three purposes: identify symptoms, quantify symptoms, and be an outcome measure (Silverman & Ollendick, 2005). The SCAS is a global measure which is used to assess an individual's overall anxiety levels although it also assists in identifying the type of anxiety disorder. It is composed of 44 items and is based on a four point Likert scale: never (0), sometimes (1), often (2), and always (3) (Spence, 1998). This instrument screens for anxiety disorders based upon the DSM-IV criteria (Spence, 1997). The SCAS categorizes worries into the following subscales: (1) generalized anxiety disorder, (2) separation anxiety, (3) social phobia, (4) panic disorder and agoraphobia, (5) obsessive-compulsive disorder, and (6) physical injury fears (i.e., specific phobia) (Spence, 1997, 1998). This measure provides clinicians with a total score, as well as a score for each individual anxiety diagnosis. Finally, the fact that the SCAS lacks questions focusing on posttraumatic stress disorder was not a deterrence from its' use in this study as adolescents with a primary diagnosis of posttraumatic stress disorder were excluded from this study.

A summary of some of the published means and standard deviations for the SCAS total scores, using an adolescent population in a community setting can be found in Table 9. Table 9 also identifies the countries from which the adolescent samples were taken and if a translated version of the original English SCAS was used, the language of the

translation. Additionally, Muris, Merklebach, Ollendick, King, and Bogie (2002) also reported the SCAS total score means and standard deviations for males and females; that is, 13.54 (10.69) and 19.89 (11.83) respectively.

Two studies which used participants from both community and anxiety treatment settings are outlined in Table 10. Of these two studies, Lyneham and Rapee (2005) used a child sample, while Whiteside and Brown (2008) did not separate the adolescents from the children in their sample. From the articles described in Tables 9 and 10, only Muris et al. (2000), using the Dutch version of the SCAS, attempted to supply readers with normative data and as such provided cut-off scores for adolescents in the 90<sup>th</sup> percentile. Adolescents reporting scores equal to, or greater than the cut-off scores experienced the greatest amount of anxiety; Muris et al. (2000) referred to these scores as the 10% cut-off scores. For the SCAS total score, Muris et al. (2000) reported a cut-off score of 30 for adolescents 13 to 19 years of age.



Table 9

*Summary of Means and Standard Deviations for the SCAS Total Scores of Adolescents in Community Settings from a Range of Different Countries*

Source	Age	Sample Size (N)	Country	SCAS total scores Mean (SD)
Essau, Sasagawa, and Anatassiou-Hadjicharalambous (2011c)	12-17	2558	Germany <sup>a</sup>	21.91 (10.78)
			England	34.33 (21.10)
			Sweden <sup>b</sup>	23.94 (15.63)
			Italy <sup>c</sup>	27.11 (15.42)
			Cyprus <sup>d</sup>	28.42 (15.57)
Essau et al. (2011b)	12-17	351	England	30.28 (17.8)
			Japan <sup>e</sup>	22.26 (16.2)
Muris et al. (2000)	13-19	613	Netherlands <sup>f</sup>	16.56 (11.68)
Spence, Barrett, and Turner (2003)	13-14	875	Australia	21.72 (13.56)

Language of translated version of the SCAS used: <sup>a</sup> German, <sup>b</sup> Swedish, <sup>c</sup> Italian, <sup>d</sup> Greek, <sup>e</sup> Japanese, <sup>f</sup> Dutch.

Table 10

*Summary of Means and Standard Deviations for the Total Scores SCAS using Concurrent Community and Anxiety Treatment Settings*

Source	Age	Sample Size (N)		Country	SCAS total scores Mean (SD)	
		Community	Anxiety		Community	Anxiety
Lyneham and Rapee (2005)	6-12	18	20	United States	17.44 (17.17)	33.55 (20.51)
Whiteside and Brown (2008)	9-18	82	80	Australia	17.68 (11.9)	35.82 (17.5)

Reliability tests found that overall the SCAS has *good internal consistency*, with Cronbach Alphas for the total score ranging from .89 to .94 (Essau et al., 2011c; Muris et al., 2000; Spence et al., 2003; Whiteside & Brown, 2008). For five of the six subcategories the Alphas were .71 to .84 (Muris et al., 2000; Spence et al., 2003; Whiteside & Brown, 2008). The sixth subcategory (i.e., physical injury fears), however, has been found to have the lowest Cronbach's Alpha ranging from .53 to .60; *moderate* internal consistency (Muris et al., 2000; Spence et al., 2003; Whiteside & Brown, 2008). A *test-retest reliability* coefficient of .63 (total score) was found for adolescents for a 12 week time frame (Spence et al., 2003). This coefficient improved when the time frame between test and retest was reduced to two-four weeks (Ishikawa, Sato, & Sasawaga, 2009). These authors reported a coefficient of .86 (total score) with participants 13 to 15 years of age; using the Japanese translation of the SCAS (Ishikawa et al., 2009).

Validity tests have found the *convergent validity* between the SCAS and the SCARED-R to be  $r = .89$  (Muris et al., 2000). These two self-report anxiety questionnaires are similar in that they both belong to the new “family” of anxiety questionnaires based on the DSM-IV and were developed for children (Muris et al., 2000). Brown-Jacobsen, Wallace, and Whiteside (2011) recently found significant positive correlations between the SCAS subscales and the Anxiety Disorders Interview Schedule for DSM-IV: Child version (Albano & Silverman, 1996); reported to be the *gold standard* of interviews (Greco & Morris, 2004). These findings therefore demonstrated that the self-reported SCAS results and clinical interview findings generally coincided (Brown-Jacobsen, Wallace, & Whiteside, 2011).

Evidence was found of *divergent validity* between anxiety and depressive symptoms for the SCAS (Spence et al., 2003). Spence et al. (2003) reached this conclusion after finding that although there was a significant positive correlation between the SCAS (total score) and CDI ( $r = .60, p < .01$ ), the correlation was significantly lower ( $p < .001$ ) than the correlation between the SCAS and another measure of anxiety, the Revised Children’s Manifest Anxiety Scale (Reynolds & Richmond, 1978). Meanwhile, Essau et al. (2011c) reported divergent validity to exist between anxiety symptoms, assessed by the SCAS, and both conduct and attention problems, assessed using the conduct problems and hyperactivity-inattention subscales of the Strengths and Difficulties Questionnaire (Goodman, 1997). Essau et al. (2011c) reached this conclusion after finding a significantly larger correlation between the SCAS total score and the emotional symptoms subscale, than the conduct problems or hyperactivity-inattention subscales, of the Strengths and Difficulties Questionnaire (Goodman, 1997).

Of the five countries assessed by these authors (i.e., Germany, England, Sweden, Italy, Cyprus), the only exception to this finding was for the separation anxiety subscale of the SCAS for adolescents in Sweden (Essau et al., 2011c). In this instance, separation anxiety was found to be linked with conduct problems.

Finally, the *construct validity* for the generalized anxiety disorder subscale has been questioned. Spence (1998) reported that an exploratory factor analysis found that two of the questions in this subscale had a loading of less than .40. Essau et al. (2011c) supported the 6-factor model proposed by Spence (1998) stating that the model was not compromised even with the greater restrictions related to analyzing data from five different countries.

Chorpita, Yim, Moffit, Umemoto, and Francis (2000) made changes to the SCAS and renamed it the Revised Child Anxiety and Depression Scale. To date, however, a limited number of articles have been found which used the Revised Child Anxiety and Depression Scale (Chorpita et al., 2000; see also Chorpita, Moffitt, & Gray 2005; de Ross, Gullone, & Chorpita, 2002; van Lang, Ferdinand, Oldehinkel, Ormel, & Verhulst, 2005; Van Oort, Greaves-Lord, Verhulst, Ormel, & Huizink, 2009). In contrast, numerous other researchers are still reporting they have used the SCAS (e.g., Barrett, Lock, & Farrell, 2005; Essau, 2002; Essau et al., 2011c; Essau, Anastassiou-Hadjicharalambous, & Munoz, 2011a; Ishikawa et al., 2009; Muris et al., 2002; Nauta et al., 2004; Spence et al., 2003; Stallard et al., 2005; Whiteside & Brown, 2008), which has been translated into 18 different languages (Spence, 2012). The SCAS was therefore used in the current research study, for the aforementioned reasons, but also because this

measurement tool is used by both clinical services from which the current study's adolescent sample was derived.

### **Collection of Classification Data**

The classification questions (e.g., demographics, etc.) were used to describe the study population (see Appendix B).

### **Data Analyses**

**Recording of data.** Data from the ASQ-2, CDI, SCAS, and Classification Data form were recorded on the questionnaires/form themselves. Responses received from the COPM (performance and satisfaction) were recorded using both the COPM form and the interviewers' notes. The ASQ-2, CDI, and SCAS questionnaires, the COPM and Classification Data forms were coded with identification numbers rather than clients' names.

**Storing and destroying of data.** Data obtained from the current study was not part of the client's hospital record. The data, which was in hard copy format (e.g., the original SCAS questionnaires), was stored in a locked filing cabinet in the principal investigator's office (M1009) on the first floor of the McEwen Building at St. Boniface Hospital. The consent forms, a list of client names and corresponding questionnaire/form ID numbers were kept in a second locked filing cabinet in this office, and thus separate from the research data. Personal identifying information was not included in electronic files used for data analysis, ID numbers were used instead.

**Reducing and statistically analyzing the data.** Qualitative analysis was conducted to determine the types of meaningful activities adolescents identified. The

way in which the present study coded the data obtained from, and outlined the results of, the COPM interview was modeled after the two level approach used by Livingston, Stewart, Rosenbaum, and Russell (2011). That is, the OPIs identified by participants were first assessed in terms of frequency. For the current study, the raw data from the COPM resulted in a total of 117 occupational performance issues (OPIs) that were identified by the adolescents. This raw data was then coded into similar themes; 37 themes in total (see Table 11). For the purposes of clarity these 37 occupational performance themes will be simply referred to as the OPIs, following the outline in the results section which will first illustrate the conversion of the raw data into these OPI themes. These OPI themes were then coded into the broader COPM subcategories (e.g., personal care, community management etc.) and categories (i.e., self-care, productivity, and leisure).

The Predictive Analytics SoftWare by IBM was used to quantitatively analyze the data gathered from the study; specifically the “IBM®SPSS® Statistics Standard GradPack Version 19.0”. Data was analyzed using parametric statistics (see Table 12). The data was found to meet the assumptions of parametric tests (e.g., the data was not greatly skewed etc.); this determination was made after conducting frequency distributions on and plotting histograms (with the normal curve superimposed) of the study data. The quantitative analyses that were conducted used the total scores for all five variables (i.e., perception of occupational *performance*, *satisfaction* with occupational performance, anxiety symptoms, depressive symptoms, and stress) assessed by the four measures (i.e., COPM, SCAS, CDI, and ASQ-2).

Table 11

*Research Question Posed and Qualitative Analysis Conducted*

Qualitative Analysis		
Research Question	Measure	Analysis
What are the types of meaningful activities that adolescents identify?	COPM	<ol style="list-style-type: none"> <li>1. Coded the 117 raw occupational performance issues (OPIs) into similar themes; 37 themes in total. Determined the frequency of the OPIs.</li> <li>2. Coded the results from the above themes into broader COPM subcategories (e.g., personal care, community management etc.) and calculated their frequency.</li> <li>3. Coded the above subcategories into three broader COPM categories (i.e., self-care, productivity, and leisure) and determined the frequency of OPIs in these categories.</li> </ol>

Table 12

*Research Questions Posed and Quantitative Analysis Conducted*

Quantitative Analysis		
Research Questions	Measures	Parametric Tests
What are the types of meaningful activities that adolescents identify?	COPM	Chi-square test (COPM categories versus the two adolescent age groups)
What are the relationships between perceptions of occupational <i>performance</i> and anxiety symptoms, depressive symptoms, & stress?	COPM ( <i>performance</i> ), SCAS, CDI & ASQ-2	Pearson's Product-moment correlation coefficient (r), using a correlation matrix
What are the relationships between <i>satisfaction</i> with occupational performance and anxiety symptoms, depressive symptoms, & stress?	COPM ( <i>satisfaction</i> ), SCAS, CDI & ASQ-2	Pearson's Product-moment correlation coefficient (r), using a correlation matrix
Is there a significant difference between means of the SCAS for the two adolescent age groups?	SCAS	Independent t-test (SCAS versus the two adolescent age groups)

The current study also considered analyzing the data obtained for males and females separately. The decision not to take this approach was made because the sex ratios were unbalanced (i.e., only five males versus 25 females). Thus analyzing the data according to sex would have meant the sample size for males would have been very small and the chances of committing a Type II error would have increased.



Missing data was a factor for the SCAS questionnaire and affected one question for five participants. A different question was missed by each of the five adolescents. Consistent with the approach used by Barrett et al. (2005), missing data was dealt with by substituting the mean value for that question. For the COPM, one participant reported having no occupational performance issues to identify so calculations are based on an (n) of 29.

There were a few instances in which the participant gave two answers for one question; this affected the SCAS, ASQ-2, and COPM. These occurrences were dealt with by using the average of the two values given.

### **Ethical Considerations**

The study population was adolescents; therefore, one of the key ethical considerations was obtaining the consent. Consent was obtained from both the adolescent (14 years of age and older) and the parent (or guardian) of all participants prior to the research study starting. Assent was obtained from adolescents 13 years of age (see Appendices L and M). An assent form, in age appropriate language and describing the research study, was given to the participants. Participants 13 years of age were asked to read the form themselves. If they agreed to participate, the adolescent was then asked to sign the form and the principal investigator (or designate) who obtained the assent also signed the form. In addition to getting assent from the adolescent, consent was obtained from the parent (or guardian). If the adolescent was one of the researcher's individual clients, another occupational therapist also involved with the study obtained the consent/assent.

Time was provided to the adolescent and their parent (or guardian) to read the consent form. Time was also taken to answer any questions that they had about the research study. Once the adolescent and their parent (or guardian) understood the purpose of the research study and agreed to the adolescent participating, they were both asked to sign and date a consent form. A copy of the original signed consent form was provided to the parent (or guardian). It was also highlighted to the adolescent and parent (or guardian) that the participant (i.e., the adolescent) could withdraw from the research study at any time. If this were to occur they would merely continue with their predetermined course of treatment.

Five other ethical considerations of note included: (a) the only change in protocol the current research study proposed from the current standard of care was conducting one additional outpatient visit (about 75 minutes long) to complete three questionnaires, an interview, and a Classification Data form; (b) wait times for treatment were not prolonged by the research study; (c) only the principal investigator and her advisor (Gayle Restall) had access to all the data collected; (d) ethics approval was obtained from two sources (i.e., the University of Manitoba Health Research Ethics Board and the ethics board at St. Boniface Hospital); and (e) participants were invited to contact the principal investigator should they want to obtain feedback regarding the results of the study.

## Results

The study sample was divided into two different age categories following an initial assessment of the correlation matrix which demonstrated a significant relationship between age and CDI score, as well as age and SCAS score. This data was divided into two groups based on the median age of the sample (i.e., 15.375). Both the results and discussion sections of the study will compare and contrast the findings of these two age groups. In a longitudinal study, Van Oort et al. (2009) found that both anxiety and depression vary with age. The ages by which researchers group their adolescent subjects however, varies (Hale III et al., 2005; Hale III, Raaijmakers, Muris, van Hoof & Meeus, 2008; Van Oort et al., 2009).

### **What Were the Meaningful Activities that Adolescents Identified?**

The number of OPIs each adolescent reported varied ranging between two and five. The COPM manual recommends limiting the individual to a maximum of five OPIs, which they then rate in terms of performance and satisfaction (Law et al., 2005).

**OPI themes identified on the COPM.** Table 13 shows the percentage of all OPIs identified by adolescents when classified by OPI themes and the corresponding COPM subcategory. The most frequently mentioned themes (by the sample as a whole) were: (a) job acquisition (i.e., 8.5% of all the OPIs identified); (b) homework, tests, and assignments (6.8%); (c) community mobility (6.0%); and (d) sports (6.0%). Community mobility, in relation to the current study, refers to OPIs related to the adolescents getting around their community whether this is by walking, biking, bus, or driving.

Table 13

*Number of OPIs Identified by Adolescents, Classified by OPI Theme and Corresponding COPM Subcategory (valid percent in parentheses)*

OPI Themes	Number of OPIs		
	Entire sample (n=29)	Age group	
		Younger (n=14)	Older (n=15)
<b>Personal Care</b>			
Hygiene	3 (2.6)	1 (1.8)	2 (3.3)
Sleeping	2 (1.7)	2 (3.5)	---
Healthy lifestyle	3 (2.6)	1 (1.8)	2 (3.3)
Medication routine	1 (0.9)	1 (1.8)	----
Organization/Time management	6 (5.1)	2 (3.5)	4 (6.7)
<b>Community Management</b>			
Money management	3 (2.6)	1 (1.8)	2 (3.3)
Community mobility	7 (6.0)	2 (3.5)	5 (8.3)
Shopping	1 (0.9)	1 (1.8)	----
<b>Paid/Unpaid Work</b>			
Job acquisition	10 (8.5)	3 (5.3)	7 (11.7)
Acquisition of volunteer experiences	4 (3.4)	2 (3.5)	2 (3.3)
Relating to co-workers	2 (1.7)	----	2 (3.3)
Dealing with problems & conflict	2 (1.7)	----	2 (3.3)
Managing responsibilities	1 (0.9)	1 (1.8)	----
<b>Household Management</b>			
Chores/cleaning	6 (5.1)	4 (7.0)	2 (3.3)
Preparing food	1 (0.9)	1 (1.8)	----
<b>School</b>			
School attendance	4 (3.4)	2 (3.5)	2 (3.3)
Homework, tests, & assignments	8 (6.8)	4 (7.0)	4 (6.7)
Grades	5 (4.3)	4 (7.0)	1 (1.7)
Long-term academic goals	3 (2.6)	2 (3.5)	1 (1.7)
Classroom seating	1 (0.9)	----	1 (1.7)
Attention span	1 (0.9)	----	1 (1.7)
Organization/Time management	3 (2.6)	3 (5.3)	----

(continued)

Table 13

*Number of OPIs Identified by Adolescents, Classified by OPI Theme and Corresponding COPM Subcategory (valid percent in parentheses) (continued)*

OPI Themes	Number of OPIs		
	Entire sample (n=29)	Age group	
		Younger (n=14)	Older (n=15)
Quiet Recreation			
Hobbies	2 (1.7)	1 (1.8)	1 (1.7)
Reading	2 (1.7)	----	2 (3.3)
Videogames	2 (1.7)	2 (3.5)	----
Music	1 (0.9)	----	1 (1.7)
Attention span	1 (0.9)	----	1 (1.7)
Organization/Time management	1 (0.9)	----	1 (1.7)
Miscellaneous	1 (0.9)	----	1 (1.7)
Active Recreation			
Sports	7 (6.0)	5 (8.8)	2 (3.3)
Outings	2 (1.7)	2 (3.5)	----
Travel	2 (1.7)	----	2 (3.3)
Dancing	3 (2.6)	3 (5.3)	----
Exercise/fitness	5 (4.3)	2 (3.5)	3 (5.0)
Outdoor activities	1 (0.9)	1 (1.8)	----
Socialization			
Make more friends	6 (5.1)	2 (3.5)	4 (6.7)
Spend more time with current friends	4 (3.4)	2 (3.5)	2 (3.3)
Total	117 (100)	57 (100)	60 (100)

As a group the younger adolescents most frequently identified the following OPI themes: (a) sports (8.8%); (b) homework, tests, and assignments (7.0%); (c) grades (7.0%); and (d) chores/cleaning (7.0%). Meanwhile, the older adolescents identified the

OPI themes of: (a) job acquisition (11.7%); (b) community mobility (8.3%); (c) organization/time management (i.e., related to personal care) (6.7%); (d) homework, tests, and assignments (6.7%); and (e) make more friends (6.7%) most often. As previously mentioned, these 37 occupational performance themes will be simply referred to as the OPIs from this point forward.

**COPM Subcategories.** When the OPIs were coded into broader COPM subcategories results showed the sample as a whole had reported OPIs in the areas of school, active recreation, and paid/unpaid work most frequently (see Table 14).

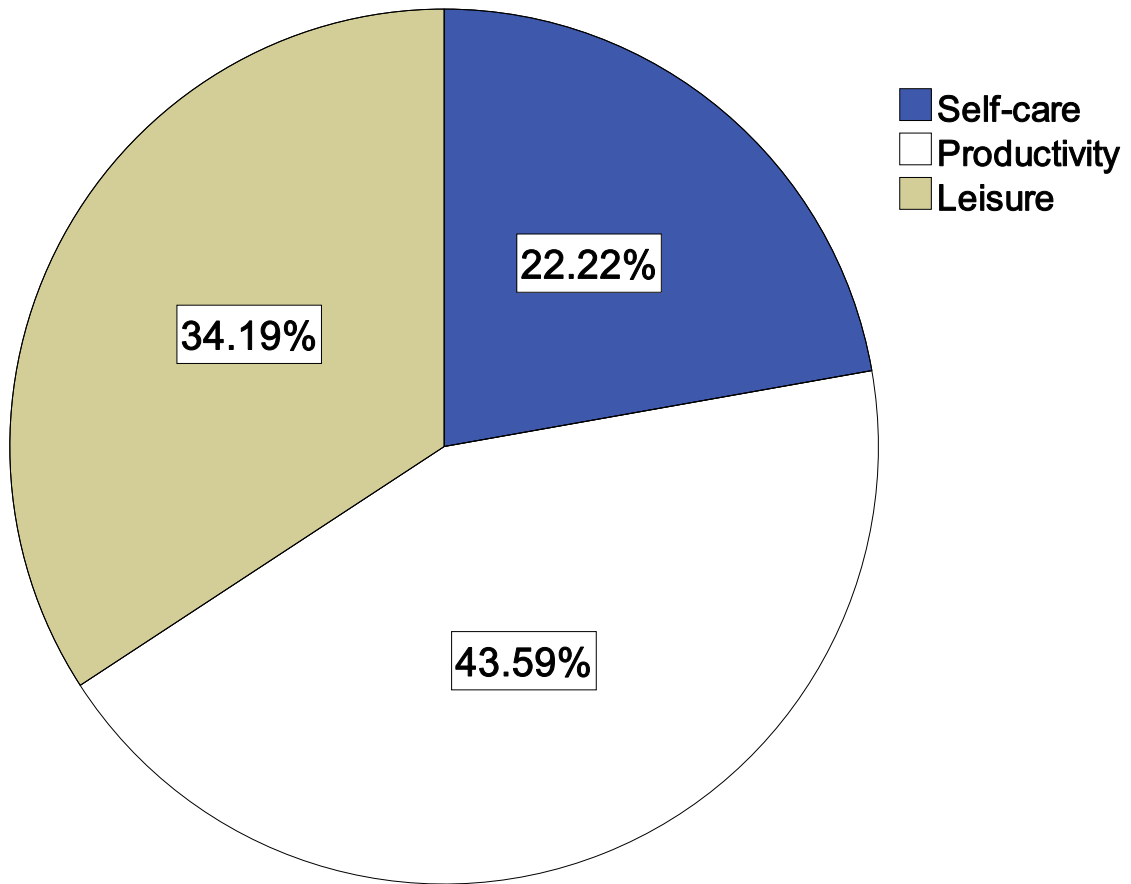
Table 14

*Number of OPIs Identified by Participants in the Subcategories of the COPM and Corresponding COPM Category (valid percent in parentheses)*

Subcategory	Number of OPIs		
	Entire sample (n=29)	Age group	
		Younger (n=14)	Older (n=15)
<b>Self-care</b>			
Personal Care	15 (12.8)	7 (12.3)	8 (13.3)
Community Management	11 (9.4)	4 (7.0)	7 (11.7)
<b>Productivity</b>			
Paid/Unpaid Work	19 (16.2)	6 (10.5)	13 (21.7)
Household Management	7 (6.0)	5 (8.8)	2 (3.3)
School	25 (21.4)	15 (26.3)	10 (16.7)
<b>Leisure</b>			
Quiet Recreation	10 (8.5)	3 (5.3)	7 (11.7)
Active Recreation	20 (17.1)	13 (22.8)	7 (11.7)
Socialization	10 (8.5)	4 (7.0)	6 (10.0)
<b>Total</b>	<b>117 (100)</b>	<b>57 (100)</b>	<b>60 (100)</b>

The younger group had two primary subcategories in which their OPIs were classified, school (26.3%) and active recreation (22.8%). Older adolescents, however, reported concerns which included: (a) paid/unpaid work (21.7%), (b) school (16.7%), and (c) personal care (13.3%).

**COPM Categories.** The COPM subcategories were classified into the broader categories identified by the COPM (see Figure 1).



*Figure 1.* OPIs Identified, by the Entire Sample (n = 29), in the Three Categories of the COPM (%)

When the sample was divided into younger and older age categories, similar percentages were found although the older adolescents reported more self-care and less productivity OPIs (see Table 15). However, a Chi-square test conducted to determine if there was a significant difference between the number of OPIs identified by the two adolescent age groups found no significant difference.



Table 15

*Number of All OPIs Identified by Each Age Group in the Three Categories of the COPM (valid percent in parentheses)*

COPM category	Number of OPIs	
	Age group	
	Younger (n= 14)	Older (n=15)
Self-care	11 (19.3)	15 (25.0)
Productivity	26 (45.6)	25 (41.7)
Leisure	20 (35.1)	20 (33.3)
Total	57 (100.0)	60 (100.0)

*Note.* Chi-square was not significant ( $\chi^2 = .56$ ,  $df = 2$ ,  $n = 29$ ,  $p = .756$ ).

### **What is the Relationship between Perceptions of and *Satisfaction* with Occupational Performance and Anxiety Symptoms, Depressive Symptoms, and Stress?**

Table 16 illustrates the descriptive statistics of COPM performance and COPM satisfaction and the variables used to investigate the above mentioned relationships through the use of the ASQ-2, CDI, and SCAS.

Table 16

*Descriptive Statistics of the COPM and Other Variables under Investigation*

Measure	# of subjects	Mean	(SD)	95% CI	
				LL	UL
COPM (P)	29	5.3	(1.4)	4.79	5.85
COPM (S)	29	4.8	(1.8)	4.07	5.45
ASQ-2	30	137.6	(43.8)	121.24	153.93
CDI	30	12.5	(7.4)	9.69	15.25
Younger group	15	9.3	(6.9)	5.50	13.17
Older group	15	15.6	(6.8)	11.85	19.36
SCAS	30	40.4	(17.8)	33.75	47.04
Younger group	15	31.5	(13.0)	24.37	38.72
Older group	15	49.2	(17.9)	39.33	59.15

*Note.* CI = confidence interval; *LL* = lower limit, *UL* = upper limit.

After conducting an independent t-test comparing mean total SCAS scores between the two age groups, a significant difference was found between the means of the anxiety levels of these two age groups (i.e., younger and older);  $t = -3.10$ ,  $df = 28$ ,  $p < .004$ , 2-tailed. The group of older adolescents had higher anxiety levels than the younger group.

To gain a further understanding of the level of anxiety in the sample of adolescents, the mean for each SCAS subscale was calculated (see Table 17). These means were then compared to the 10% cut-off scores for 13-19 year olds, reported by Muris et al. (2000) in a community sample (see Table 18). Adolescents who reported

SCAS total scores at or above the 10% cut-off scores were in the 90<sup>th</sup> percentile, or higher, on the normal curve (Muris et al., 2000). These adolescents therefore experienced higher levels of anxiety than the adolescents who fell below this cut-off score.

Table 17

*Descriptive Statistics of the SCAS Subscales*

SCAS subscale	# of subjects	Mean	(SD)	95% CI	
				LL	UL
Panic disorder and agoraphobia	30	7.1	(4.7)	5.39	8.89
Separation anxiety	30	5.7	(3.2)	4.47	6.86
Physical injury fears	30	4.6	(2.7)	3.60	5.64
Social phobia	30	8.0	(4.0)	6.48	9.50
Obsessive compulsive	30	6.0	(4.2)	4.46	7.57
Generalize Anxiety Disorder	30	9.0	(3.6)	7.66	10.32

*Note.* CI = confidence interval; *LL* = lower limit, *UL* = upper limit.

Table 18

*Distributions of Participants in Relation to the 10% Cut-Off Score for the SCAS (i.e., Total Score and Subscales) (in percentages)*

SCAS subscale	10% cut-off		Total (%)
	Below	At or above	
SCAS TOTAL Score	23.3	76.7	100.0
Panic disorder and agoraphobia	33.3	66.7	100.0
Separation anxiety	33.3	66.7	100.0
Physical injury fears	66.7	33.3	100.0
Social phobia	30.0	70.0	100.0
Obsessive compulsive	46.7	53.3	100.0
Generalized Anxiety Disorder	33.3	66.7	100.0

A correlation matrix was calculated to determine the relationship between the five self-reported variables: (a) perception of occupational performance (measured with the COPM performance scale), (b) satisfaction with occupational performance (measured with the COPM satisfaction scale), (c) stress levels (assessed using the ASQ-2), (d) levels of depressive symptoms (quantified using the CDI), and (e) levels of anxiety symptoms (measured using the SCAS) (see Table 19, the entire sample; Table 20, the younger age group; and Table 21, the older age group).

The principal investigator decided to maintain the alpha level at .05; although there had been some discussion about the possibility of increasing it to .1 (due to the small sample size) (Forbes & Abrahams, 1997; Wilkinson, 2002). This approach was

taken in attempt to minimize the possibility of not only Type I but also Type II errors (Cascio & Zedeck, 1983). Also, the power for each of the measures used in the current study was calculated at an alpha level of .05.

Table 19

*Summary of Pearson Correlations between the COPM & Other Variables under Investigation for the Entire Sample*

Entire Sample		Entire Sample					
		COPM		Age	ASQ-2	CDI	SCAS
		(P)	(S)				
COPM (P)	Corr.	1	<b>.715**</b>	.074	.309	-.263	.210
	N	29	29	29	29	29	29
COPM (S)	Corr.		1	.112	.026	-.116	.148
	N		29	29	29	29	29
Age	Corr.			1	.286	<b>.453*</b>	<b>.421*</b>
	N			30	30	30	30
ASQ-2	Corr.				1	.120	.343
	N				30	30	30
CDI	Corr.					1	<b>.597**</b>
	N					30	30

*Note.* Corr. = Pearson product-moment coefficient of correlation (r)  
 \* p ≤ .05 (2-tailed). \*\* p ≤ .01 (2-tailed).

Table 20

*Summary of Pearson Correlations between the COPM & Other Variables under Investigation for the Younger Adolescent Group*

		Younger age group	
		CDI	SCAS
COPM (P)	Corr.	-.165	<b>.836**</b>
	n	14	14
COPM (S)	Corr.	-.360	<b>.548*</b>
	n	14	14
Age	Corr.	.372	.105
	n	15	15
ASQ-2	Corr.	.110	<b>.770**</b>
	n	15	15
CDI (younger group)	Corr.	1	.163
	n	15	15

*Note.* Corr. = Pearson product-moment coefficient of correlation (r)

\*  $p \leq .05$  (2-tailed). \*\*  $p \leq .01$  (2-tailed).

Table 21

*Summary of Pearson Correlations between the COPM & Other Variables under Investigation for the Older Adolescent Group*

		Older age group	
		CDI	SCAS
COPM (P)	Corr.	<b>-.498<sup>a</sup></b>	-.260
	n	15	15
COPM (S)	Corr.	-.049	-.153
	n	15	15
Age	Corr.	.058	-.087
	n	15	15
ASQ-2	Corr.	.009	.015
	n	15	15
CDI (older group)	Corr.	1	<b>.740**</b>
	n	15	15

*Note.* Corr. = Pearson product-moment coefficient of correlation (r)

<sup>a</sup>p = .059.

\* p ≤ .05 (2-tailed). \*\* p ≤ .01 (2-tailed).

## Discussion

### What were the Meaningful Activities that Adolescents Identified?

Schnell (2008) reported finding limited literature related to occupational performance in adolescent mental health. However, two studies which assessed adolescent populations provided comparison to the current study's findings; that is, McGavin (1998) and Livingston et al. (2011). Both these articles investigated adolescents with physical impairments and, unlike the current study, neither article assessed the adolescents in terms of younger and older cohorts (McGavin, 1998; Livingston et al., 2011).

McGavin (1998) compared the occupational performance issues identified by 67 adolescents 13 to 19 years of age to those identified by their parents. Sports was one of the most frequently identified OPIs for adolescents from both McGavin (1998) and the current study (see Table 22). For adolescents with physical impairments, it was reported that "they wanted more availability of 'disabled' sports activities and they wanted to be able to play sports better" (McGavin, 1998, p. 75). Meanwhile, adolescents in the current study wanted to either be involved, or more involved, in sports. The OPIs identified by the two groups differed, as one may expect, in the area of self-care whereby adolescents with physical impairments experienced greater self-care challenges than adolescents from the present study (see Table 22). Specifically, the adolescents in the McGavin (1998) study were concerned about having endurance, stability, and being safe while ambulating, as well as transferring in and out of the tub and shower.



Table 22

*Comparison of OPIs Identified Most Frequently by Adolescents with Physical Impairments and Anxious Adolescents from the Current Study*

Adolescents with	
Physical Impairments <sup>a</sup>	Anxiety <sup>b</sup>
Sports	Job acquisition
Hygiene/bathing/grooming	Homework, tests, and assignments
Ambulation	Community mobility
Transfers	Sports

<sup>a</sup> McGavin (1998)

<sup>b</sup> Current Study (entire sample)

The OPIs identified most frequently by the two age groups of adolescents in the present study appeared consistent with many of the main tasks Havighurst (1972) identified that adolescents needed to accomplish for normal development. That is, society's expectation was that adolescents would become more independent as they got older and the OPIs identified appear to reflect this expectation. As outlined in Table 13, the younger adolescents' main concerns were related to (a) sports; (b) homework, tests, and assignments; (c) grades; and (d) chores/cleaning. Meanwhile, the older adolescents identified: (a) job acquisition; (b) community mobility; (c) organization/time management (i.e., related to personal care); (d) homework, tests, and assignments; and (e) to make more friends. In comparison, the adolescents with physical impairments were striving for independence from their parents (McGavin, 1998).

The adolescents in the current study reported OPIs in the *subcategories* of: (a) school, (b) active recreation, and (c) paid/unpaid work most frequently. This pattern was also seen when the sample was divided into the two age groups (i.e., younger and older adolescents). These results are somewhat parallel to those of Livingston et al. (2011) who had a sample size of 203 adolescents ranging from 12.9 to 19.8 years of age with physical impairments. These authors, similar to the current study, found that the adolescents' OPIs were most frequently in the areas of active leisure and school (Livingston et al., 2011). The difference between the two populations was with the third COPM subcategory. While adolescents from the current study (i.e., anxiety clinics) identified OPIs related to paid/unpaid work, the adolescent population with physical impairments identified OPIs related to mobility (Livingston et al., 2011).

In terms of findings related to the broad COPM *categories* (i.e., self-care, productivity, and leisure), adolescents from the anxiety clinics (i.e., in the current study) were primarily concerned about OPIs related to the area of productivity, with leisure as the second area of concern. The current study found no significant differences in the percentages of OPIs reported in the three COPM categories by younger and older adolescents. In the Livingston et al. (2011) study, adolescents identified more OPIs in the area of productivity and leisure in comparison to the parent respondents. These contrasting findings can likely be explained by the two different groups the studies compared (i.e., adolescent vs. parent; younger vs. older adolescents). However, of the three COPM categories (i.e., self-care, productivity, and leisure) the majority of the OPIs both the adolescent and parent participants identified were from the self-care category (Livingston et al., 2011). The emphasis of OPIs in the category of self-care (which is in

contrast to the pattern identified by adolescents from the anxiety clinics; that is, the current study), was to be anticipated in a population of adolescents with physical impairments.

A comparison of the current study's findings in regards to younger and older adolescents with the Livingston et al. (2011) study could not be made. Livingston et al. (2011) did not determine the overall percentage of OPIs in these three COPM *categories*, nor did they statistically analyze their findings for differences between adolescent age groups or between the two respondent groups (i.e., adolescents and parents).

Anxiety was perceived by the Canadian Model of Occupational Performance and Engagement as a disturbance in the affective component of the person. Meanwhile, environmental factors (e.g., cultural and social) also influenced the occupational performance of these adolescents. These changes in the person and environment in turn contributed to the development of OPIs in the area of occupation (i.e., self-care, productivity, and leisure). Based on the findings presented in this section, the Canadian Model of Occupational Performance and Engagement would suggest that, in order to optimize an adolescent's health and well-being an occupational therapist would want to support the adolescent to have greater balance between the categories of self-care, productivity, and leisure by minimizing their OPIs. For this population of anxious adolescents, therapists could work towards achieving this balance by increasing the adolescent's occupational performance and engagement in the areas of productivity and leisure.

### **Perception of Occupational Performance versus Satisfaction with Occupational Performance**

In the original COPM pilot study of 268 individuals from five to 90 years of age, a Pearson's correlation coefficient of  $r = .76$  ( $p < .001$ ) was found between the initial scores for performance (i.e., an individual's perception of their ability to perform an occupation) and satisfaction (i.e., an individual's satisfaction with their performance of that occupation) (Law et al., 1994). More recently, Rochman et al. (2008) found a significant positive correlation between satisfaction and performance in an adult population. The present study's finding of a significant positive correlation ( $r = .715$ ,  $p \leq .01$ ) was in keeping with the prior literature. Therefore, although the perception of occupational performance and the satisfaction with one's occupational performance are related, adolescents are able to decipher a difference between performance and satisfaction.

### **Description of the Sample in Relation to Anxiety**

More than three quarters of the adolescents in the present study had sufficiently high levels of anxiety to classify them at or above the 90<sup>th</sup> percentile on a normal curve according to the 10% cut-off scores reported by Muris et al. (2000). In terms of the types of anxiety symptoms these adolescents were experiencing, social fears were most prominent; meanwhile the physical injury fears were the least prominent for this group.

The anxiety levels found in the present study may have been higher, however, as a result of the larger ratio of females, as research has found that females typically have higher and more stable, anxiety levels than do males (Hale III et al., 2008; Crawley, Hunt, & Stallard, 2009). The fact that the current study used a clinical sample rather than

a community sample could have also resulted in higher levels of anxiety being identified (Lynham & Rapee, 2005; Whiteside & Brown, 2008).

It is helpful to know the general type of anxiety fears the adolescent is experiencing in order to understand the anxiety in the context of normal adolescent development and how those particular types of worries may be affecting the adolescents' occupational performance. For instance, for an older adolescent, symptoms of separation anxiety could be more detrimental to their occupational performance than those of social phobia because separation fears in adolescence are likely to be less culturally acceptable (at least in Western cultures), and thus have a greater potential to impede normal development than social fears. Meanwhile, for a younger adolescent with a generalized anxiety disorder, for instance, their "what-if" worries may prevent them from engaging in age appropriate occupations such as attending sleepovers or getting babysitting jobs. Future research may consider investigating the relationship between individual anxiety disorders and occupational performance and satisfaction.

### **What is the Relationship between Perceptions of Occupational *Performance* and Anxiety Symptoms, Depressive Symptoms, and Stress?**

**Perceptions of occupational performance and anxiety symptoms.** When the adolescents' perceived occupational performance was compared to their self-reported levels of anxiety only one significant relationship was found. For the younger adolescent group, higher perceptions of occupational performance were related to higher anxiety levels.

The finding of a positive correlation between occupational performance and anxiety levels from the younger group of adolescents was in contrast to results reported in

the adult literature. Carpenter et al. (2001), for instance, found a significant negative correlation between occupational performance and anxiety levels; both at the end of treatment and at follow-up. Therefore, in the adult population the higher the anxiety levels the lower the perceived occupational performance. Similarly, Mead et al. (2007) also found a significant decrease in anxiety; and increase in occupational performance post-treatment. However, these authors did not assess the correlation between these two variables (Mead et al., 2007). In an observational study, Schmid et al. (2009) reported finding significantly lower perceived occupational performance scores and higher anxiety levels in adults post-stroke who had a fear of falling in comparison to individuals without this fear.

The present thesis proposes five possible hypotheses in an attempt to understand the positive correlation found between the perceptions of occupational performance and the level of anxiety symptoms in the younger adolescents. These hypotheses are classified into five plausible arguments and relate to: (a) support, (b) negative self-thoughts, (c) intelligence, (d) development/self-awareness, and (e) social desirability bias.

***Support argument.*** The level of support that the younger adolescents have, or perceive they have, may be a key factor affecting their ability to cope with high anxiety levels while at the same time perceive their occupational performance to be high. An individual's perception of their ability to cope with increasing stress is affected by their perception of the skills and environmental resources (i.e., supports) that they have available to them (Forman, 1993; Pan, Chan, Chung, Chen, and Hsiung, 2006). It is possible that younger adolescents may have a larger, or more dependable, support network on whom they can rely which enable them to successfully cope with high level

of anxiety, and participate in more of life's roles, leading them to also report high levels of occupational performance.

The results in this study indicate a significantly lower mean level of anxiety in the younger group of adolescents in comparison to the older group. Lower levels of anxiety may allow the younger adolescents to remain engaged in many of the occupations they perceive to be important. Meanwhile, this group may be able to cope more effectively with high anxiety levels due to this broader social support network.

A larger support network and a lower mean level of anxiety, may also allow the younger adolescents to involve themselves in more activities relative to the older cohort. Greater engagement in, and performance of, occupations could result in this group of adolescents perceiving themselves to have higher levels of occupational performance, but also more anxiety due to their increased exposure to anxiety provoking situations.

The fact that a large proportion of the sample was female may also partially explain these findings as females tend to employ different coping strategies than males<sup>a</sup>. That is, girls tend to depend on social resources to cope with stress (Hampel & Petermann, 2005). Meanwhile, normal development suggests that adolescents become less reliant on their parents as they get older. In fact, Furman and Buhrmester (1992) found that the primary sources of support for adolescents in the seventh grade were parents and same-sex friends, whereas the tenth graders relied primarily on same-sex friends. These authors also found that conflict between adolescents and their parents peaked in early and middle adolescence (i.e., for the participants in grades seven and ten). Therefore, findings from the present study may illustrate that the younger adolescents were still relying on parents as well as peers for support, whereas the older adolescents

<sup>a</sup> Females outnumbered males in the present study (25:5).

may have been attempting to distance themselves from parents but may have had limited peer supports available to fill the ensuing void.

Results for the group of older adolescents in the current study did find no statistically significant relationship between occupational performance and anxiety levels. This difference in findings between age groups may be an indication that the older cohort's perception of their occupational performance was affected by an over reliance on their parents for support (e.g., to complete tasks which the adolescent avoids because of anxiety). This is supported by the current study's finding that one of the OPIs identified by the older group is to make more friends. An over reliance on parents could inhibit the normal developmental task which the adolescents are expected to be striving to achieve (i.e., a decreased reliance on their parents). A similar observation was made by McGavin (1998), whereby both adolescents and parents identified independence from parents in the areas of self-care and productivity to be key concerns. The adolescents in McGavin's (1998) study, however, had difficulty distancing themselves from their parents due to the physical impairments they were experiencing.

*Negative self-thoughts.* Alfano, Beidel, and Turner (2006) reported that adolescents with social phobia, not only perceived themselves to be less skilled in social situations, but their perceptions were confirmed by *blinded* observers. These authors argued that negative self-thoughts may be a consequence of, rather than a cause of, social phobia. As such, the authors hypothesized that, as adolescents got older and accumulated more negative experiences in social situations; they developed negative self-thoughts. This resulted in the development of increased negative self-talk in later adolescence and adulthood.



It may be possible that a similar phenomenon occurs in regards to an adolescent's perception of their occupational performance. That is, perhaps the younger adolescents perceive their occupational performance more positively as a result of having had fewer negative experiences leaving them more optimistic about their performance in comparison to older adolescents.

***Intelligence argument.*** Spielberger (1966) synthesized the findings of five prior studies in which he had been involved. The author discussed a link between anxiety levels under which an individual was able to function and their level of intelligence (i.e., the theory of manifest anxiety as drive) in relation to academic achievement. Spielberger (1966) reported that academic achievement was impeded by high levels of anxiety, a phenomenon primarily problematic for individuals of average intelligence. For individuals with lower intelligence, academic performance remained low irrespective of their anxiety level. For individuals of higher intelligence, higher levels of anxiety appeared to increase academic performance (Spielberger, 1966). A study by McCann and Meen (1984) provided evidence for the validity of this above mentioned hypothesis by finding anxiety and achievement to be positively correlated for the more intelligent participants, while negatively correlated for the less intelligent group. Kanekar (1977) found a negative correlation of  $r = -.39$  ( $p < .01$ ) between anxiety levels and academic performance in the study participants with lower intelligence. Meanwhile, in a longitudinal study, DiLalla, Marcus, and Wright-Phillips (2004) found that school performance was significantly higher in participants 11 to 13 years of age who had been identified as anxious when initially assessed at the age of five.

In regards to the current study, one possible hypothesis is that the group of younger adolescents are more intelligent and therefore able to withstand higher levels of anxiety in regards to school, one of their primary occupations. As such, higher levels of anxiety correlate with higher levels of perceived occupational performance because the younger adolescents may be performing better academically, as per the above argument from Spielberg (1966). This hypothesis, however, is beyond the scope of the present study, and slightly improbable as the study did find the younger adolescents to be experiencing significantly lower levels of anxiety (on average) than their older counterparts. In addition, the current study did not assess IQ.

***Development/self-awareness argument.*** In the current study, it is possible that self-awareness for the younger group of adolescents was still developing (Westenberg & Gjerde, 1999; Kendall et al., 2010). Thus, the younger group may have not begun to notice their skill deficits to the same degree as the older group of adolescents. Storch et al. (2010) found a negative correlation between insight and symptom severity using a population of children and adolescents with a diagnosis of obsessive-compulsive disorder. In the present study, therefore, greater insight may result from the older adolescents comparing themselves (and their ability to perform occupations) to their peers.

***Social desirability bias.*** It is possible that the relationship between the perceived occupational performance and anxiety levels was influenced by a social desirability bias. Crowne and Marlowe (1960) define *social desirability* as the phenomenon whereby the subject replies to questions in a culturally appropriate and socially acceptable manner in an attempt to present themselves favourably. Evidence from survey research literature

(e.g., Leggett, Kleckner, Boyle, Duffield, & Mitchell, 2003) suggests that participants are more likely to respond in a socially desirable fashion when the data is collected by an interviewer. The reasoning is that individuals are trying to please the interviewer (Leggett et al., 2003). In a population of anxious children, the need to please may be more appropriately interpreted as “faking good”, as this population struggles with wanting to “look good” to others when, in reality, they often feel quite the opposite (Kendall & Chansky, 1991).

Lie scores, a term used interchangeably with social desirability, have been found to decrease with age (Dadds, Perrin, & Yule, 1998; Pina, Silverman, Saavedra, & Weems, 2001). Meanwhile, a correlation between lie scores and sex was shown in seven to 10 year olds, with females having had higher scores (Dadds et al., 1998).

Social desirability should be a consideration of researchers when studying an adolescent population (Peter & Valkenburg, 2011). For example, the social desirability bias was found to have had a strong influence on pain levels in a sample of adolescents, 12 to 17 years of age, affecting 20% of the population (Logan, Claar, & Scharff, 2008).

The social desirability bias may be relevant for the current study as it was the first time the interviewer and adolescent were meeting, therefore the adolescents may have been concerned about making a good impression (Logan et al., 2008). It has been argued that more accurate results were obtained when data collection via a survey method allowed participants to respond to sensitive questions by writing down their replies, rather than responding verbally to an interviewer (Fowler, Roman, & Di, 1998). The COPM, being an interview format, was the only measure that required adolescents in the current study to respond verbally and was the first measure conducted during the course

of the appointment (i.e., the self-report questionnaires were given after the COPM interview).

Logan et al. (2008) found individuals who were more susceptible to the social desirability bias identified *less* psychological distress when symptoms of anxiety and depression were assessed. Similarly, Hagborg (1991) found a significant negative correlation between social desirability and self-reported anxiety symptoms in adolescent males; this relationship did not pertain to adolescent females. With this in mind, one might question if the COPM results in the present study are artificially high due to the social desirability bias, while the SCAS results (and perhaps for the CDI as well) are artificially low.

In summary, the five aforementioned arguments in this section attempted to explain the current study's findings between perceived occupational performance and self-reported anxiety symptoms. Specifically, the positive correlation found between these two variables for the younger adolescents illustrates that, unlike findings from adult populations, fewer anxiety symptoms do not mean that adolescents would report better occupational performance. Of the five explanations provided in this section, the social desirability bias seemed to be the most applicable to the current study as this population of anxious adolescents primarily identified experiencing anxiety symptoms related to social phobia. However, the arguments of support, negative self-thoughts and development/self-awareness may have also played contributing roles. The least plausible argument from this group of five, for this present study, was the role of intelligence.

Due to this possible effect of the social desirability bias on the reporting of occupational performance, particularly for younger adolescents, occupational therapists

should consider gathering collateral information regarding the adolescents' occupational performance from integral adults in the adolescents' lives (e.g., teachers, parents/guardians etc.).

**Perceptions of occupational performance and depressive symptoms.** The relationship between an adolescent's perceived occupational performance and depressive symptoms in the present study was found to have no statistical significance for any of the comparisons made (i.e., the entire sample or by age group). In the older adolescent group, however, the negative correlation between perceived occupational performance and depressive symptoms can be considered a *trend*. For older adolescents, higher levels of depressive symptoms correspond with lower levels of perceived occupational performance. This finding supports the Canadian Model of Occupational Performance and Engagement as this model would have anticipated an adolescent's occupational performance would be negatively affected by depressive symptoms; that is, a disruption in the affective performance components of a person.

Carpenter et al. (2001) reported that results from their adult population found higher levels of perceived occupational performance were significantly correlated with lower levels of depressive symptoms both at the end of treatment and at follow-up. Meanwhile, a similar observation was made by Mead et al. (2007) post-treatment, however, these authors assessed the variables independently of each other; that is, they did not assess for a correlation between depressive symptoms and occupational performance.

Following a review of the literature, McKnight and Kashdan (2009) reported that symptoms of depression began to resolve before improvements in function occurred as

the latter was more difficult to treat. In the present study, it may be possible that adolescents in the older group experienced a reduction in depressive symptoms (e.g., via medication management), while not having experienced improvements in their functioning as quickly; therefore their perception of their occupational performance may remain low. It is also possible that a Type II error may have occurred because of the small sample of older adolescents ( $n = 15$ ).

**Perceptions of occupational performance and stress.** The relationship between perceived occupational performance and stress levels in the current study was not statistically significant. This finding is in contrast to what the Canadian Model of Occupational Performance and Engagement would have anticipated. That is, in this model a stress (which affects an adolescent in both the realms of person and environment) would negatively affect occupational performance. This discrepancy may be due to the small sample size used by the present study.

One of the aims of the current study had been to determine the amount of variation of adolescent COPM (performance) scores that could be attributed to impairment variables, personal variables, and environmental factors in the adolescent population. However, due to the small sample size a regression analysis which could have analyzed this relationship could not be performed. Future research with a larger sample size could assess this relationship.

### **What is the Relationship between *Satisfaction of Occupational Performance* and Anxiety Symptoms, Depressive Symptoms, and Stress?**

**Satisfaction with occupational performance and anxiety symptoms.** The current study found that higher levels of satisfaction with occupational performance were significantly associated with higher levels of anxiety symptoms in younger adolescents.

This positive correlation found in the current study between the satisfaction of occupational performance and anxiety symptoms is in contrast to findings reported in the adult literature. Carpenter et al. (2001) and Jenkinson et al. (2007), for instance, found that higher levels of anxiety were significantly associated with lower levels of satisfaction with occupational performance. Mead et al. (2007) also reported a significant decrease in anxiety symptoms and increase in satisfaction of occupational performance, but, they did not assess for a correlation. Schmid et al. (2009) found that individuals who had a fear of falling post-stroke reported finding low COPM (satisfaction) scores and high anxiety, however these authors, as with Mead et al. (2007) did not assess for a correlation between the two variables. The results from the present study show that, unlike adults, higher levels of anxiety do not mean younger adolescents will be less satisfied with their ability to perform their occupations. Two possible explanations for the aforementioned findings in this group of younger adolescents include: development/self-awareness and social desirability bias.

***Development/self-awareness argument.*** This argument, which was discussed in relation to perceived occupational performance and anxiety symptoms may also, at least partially, explain the relationship between satisfaction with occupational performance and anxiety symptoms. It may be possible that, due to their younger age, these adolescents have fewer experiences against which to evaluate their satisfaction with their

occupational performance. This development/self-awareness argument, therefore, may also partially explain the differences between the findings from the current study and the adult literature.

***Social desirability bias and satisfaction.*** From the perspective of the consumer satisfaction literature, Sabourin, Bourgeois, Gendreau, and Morval (1989) stated that those individuals who were more susceptible to this social desirability bias also reported higher levels of satisfaction. These authors cautioned that researchers must be prudent when interpreting this finding since the social desirability bias variables (i.e., *self-deception* and *impression management*) could only explain 9% of the variance of their clients' satisfaction scores. In the current study it is possible that, by reporting high levels of satisfaction, the younger adolescents are trying to give the impression that they are doing well in the area of occupational performance and thus they believe the interviewer will see them favourably.

Towbin and Showalter (2008), in a summary of adolescent development, reported that adolescents 13 to 18 years of age became more objective of peers' influences on them as they got older. It may be, therefore, that younger adolescents are more susceptible to the social desirability bias than are both older adolescents and adults. This may partially explain why younger adolescents in the current study demonstrated a positive relationship between satisfaction of occupational performance and anxiety while older adolescents did not. Meanwhile, this may be a topic for further research in a study that concurrently investigates adolescent and adult populations.

**Satisfaction with occupational performance and depressive symptoms.** The present study found non-significant relationships between the adolescents' satisfaction



with their occupational performance and their depressive symptoms. This finding is contrary to the literature in the adult population. Carpenter et al. (2001) reported lower depressive symptoms were significantly correlated with higher levels of satisfaction with occupational performance. Similarly, Mead et al. (2007) reported a significant decrease in depression and increase in satisfaction with occupational performance post-treatment. However, they did not assess for a correlation between the two variables.

**Satisfaction with occupational performance and stress.** Satisfaction with occupational performance and stress levels were not significantly correlated in the present study. Gilman and Huebner (2006) found that, in their adolescent population, increased stress levels were associated with low levels of *life* satisfaction. It is possible that in the face of stress adolescents may continue to experience satisfaction with their occupational performance in self-care, productivity, and leisure but less so with their overall life satisfaction.

In summary, this section discussed findings from the current study regarding adolescents' satisfaction with their occupational performance and anxiety symptoms, depressive symptoms, and stress. This is a topic about which no prior research has been conducted. The findings highlight that adolescents differ not only according to age group, but also from their adult counterparts. It is possible that the non-significant finding between satisfaction with occupational performance and both depressive symptoms and stress may be due to the small sample size of the current study. The differences may also be due to the fact that adolescents undergo a vast number of changes during normal development (e.g., biologically, psychologically, and socially); changes that, theoretically, adults should have already undergone. In relation to the Canadian

Model of Occupational Performance and Engagement, adolescents are experiencing constant changes in the areas of person (e.g., their physical and cognitive abilities), as well as environment (e.g., cultural expectations and social influences). These changes could disrupt the interaction between these two realms (i.e., person and environment) and that of occupation. For this reason then, it should be expected that the findings from the current study would deviate from those in the adult literature.

### **Interactions between Other Variables**

**Anxiety symptoms and age.** The findings from the current study suggested that higher levels of anxiety positively correlated with age. This finding is in agreement with that of Van Oort et al. (2009) who reported an increase in anxiety for teens in middle and late adolescence. They conducted a longitudinal study using adolescents ranging from 10 to 18 years old and found a curvilinear relationship between anxiety symptoms and age, with anxiety levels decreasing in early adolescence and increasing in middle and late adolescence (Van Oort et al., 2009).

**Anxiety symptoms and depressive symptoms.** Consistent with findings by Muris et al. (2002) and Spence et al. (2003), the current study demonstrated that in both the entire sample and the older group, higher levels of anxiety were significantly associated with higher levels of depressive symptoms. It is possible that for some of the adolescents in the current study with anxiety symptoms below the 10% cut-off levels (i.e., below the 90<sup>th</sup> percentile) outlined by Muris et al. (2000), their anxiety symptoms may have been masked by depression. The presence of both anxiety and depression often results in a greater severity of symptoms and a greater degree of functional impairment (Masi, Favilla, Mucci, & Millipiedi, 2000; Storch et al., 2010). This increased functional

impairment may have been the primary reason that some of the treatment referrals for these adolescents were initiated (i.e., rather than exceptionally high levels of anxiety). In these adolescents, higher levels of depressive symptoms may have led to the adolescents reporting lower levels of anxiety as a result of being involved in fewer occupations and subsequently being exposed to fewer anxiety provoking situations. Future research may consider investigating the occupational performance and satisfaction in a population of adolescents with anxiety and comorbid depression.

**Anxiety symptoms and stress.** A significant positive correlation has been found between many of the subscales for stress and anxiety levels (Byrne et al., 2007); therefore, higher stress was related to higher anxiety. Moksnes, Moljord, Espnes, and Byrne (2010b), using the Norwegian translation of the ASQ-2, reported higher levels of stress and anxiety in adolescent females. The current study found that the relationship between anxiety symptoms and stress levels was not significant in the population as a whole. Meanwhile, for the group of younger adolescents higher levels of anxiety correlated significantly to higher levels of stress. The use of the ASQ-2 subscales, rather than the total scores, may have resulted in a more comprehensive understanding of the relationship between stress and the other variables in this current study. In order to further investigate this relationship, however, a larger sample size would have been required.

**Depressive symptoms and age.** Van Oort et al. (2009) found depressive symptoms increased with age. These authors also reported no differences between the sexes. In contrast, Moksnes et al. (2010b) found females identified higher levels of depressive symptoms than males. In keeping with the findings of Van Oort et al. (2009),

the current study found age was significantly associated with depressive symptoms when the sample was evaluated as a whole. This agreement may be in part due to the fact that the longitudinal study by Van Oort et al. (2009) used 10 to 18 year olds, rather than adults.

**Depressive symptoms and stress.** Literature on the ASQ-2 reported that a significant positive correlation had been found between depressive symptoms and many of the subscales which assess adolescents' level of stress (Moksnes, Byrne, Mazanov, & Espnes, 2010a). The present study, however, found no statistically significant relationship between depressive symptoms and stress levels (as determined by the ASQ-2 total score). The difference between the literature and the current study may be attributed to the small sample size and use of the ASQ-2 total score (i.e., rather than the ASQ-2 subscales) in the present study.

**Stress and age.** The current study found no significant relationship between age and stress levels (using the ASQ-2 total score). This finding is in contrast to the significant positive correlation found on many of the subscales, using the ASQ-2 or ASQ-N (the Norwegian version) (Byrne et al., 2007; Moksnes et al., 2010a). The current study's findings are also in contrast with De Vriendt et al. (2011) who assessed the ASQ-2 using five translations in five European countries. These authors, unlike the two previously mentioned studies, reported a significant decrease in stress levels (determined by the ASQ-2 total score) with age (De Vriendt et al., 2011). De Vriendt et al. (2011) questioned if their findings were indicative of the ASQ-2 having difficulties assessing cultural differences in adolescents, a question originally formulated by Byrne et al. (2007).

Byrne et al. (2007) also argued that a higher level of stress is expected in older adolescents as the societal expectations for them to become independent adults and conform to cultural norms is greater than for the younger cohort. During this period adolescents evaluate their skill level and may become aware that they lack certain key skills required to continue with their journey through the stages of normal development.

### **Limitations**

There were several limitations to the current study. The first limitation was the small sample size; limited by the number of adolescents seen by the services from which the sample was drawn. The small sample size limited the type of statistical tests that could be used and the number of comparisons that could be made; therefore the second limitation to the study was the number of correlations that could be performed. This increased the chances of a Type I error being committed. Contrary to the suggestion by Curtin and Schulz (1998), the Bonferroni correction was not employed as it would have required the present study to have achieved a  $p$  value which would have been difficult to attain (i.e.,  $< .01$ ) (Bezeau & Graves, 2001). Bezeau and Graves (2001) also reported that “with 139 comparisons, one would expect seven to be significant at the  $p < .05$  level by chance alone” (p. 404). The principle investigator of the current study, therefore, limited the number of comparisons performed to only those identified by the main hypotheses (Bezeau & Graves, 2001). In total, therefore, 33 comparisons were made in the study.

A third limitation was the power analysis results for all the measures used in the study with a sample size of 30. Due to low power ( $\beta$ ) levels, especially for the COPM and the SCAS, there was a higher chance of committing a Type II error (i.e., accepting the null hypothesis when it was indeed false) (Portney & Watkins, 2000). Type II errors only affected the correlations that did not achieve statistical significance (e.g., the trend found between perceived occupational performance and levels of depressive symptoms in the older group of adolescents). Meanwhile, the chances that Type II errors were committed were reduced by the fact that statistically significant findings were observed (Guyer, Clure-Tone, Shiffin, Pine, & Nelson, 2009).

The fourth limitation was the fact that there was no published data regarding the ASQ-2 total score, at the time that the research proposal for the current study was developed, resulting in the power analysis being based upon the published data for the 10 subscales.

Finally, the use of two different occupational therapists to conduct the data collection may be a fifth limitation in terms of the differing interviewing styles (Donald & Cottrell, 2002). Attempts were made to minimize the effect different interviewers may have had by conducting the interviews in similar settings, by reviewing the COPM training video (Donald & Cottrell, 2002) prior to starting recruitment for the study, and by both occupational therapist having had years of experience conducting clinical interviews.

### Summary and Implications

The main goals of the present study were to determine the types of meaningful activities adolescents identified, as well as the relationships between *perceptions* of and *satisfaction* with occupational performance and anxiety symptoms, depressive symptoms, and stress. The results from the present study were mixed; differences according to age were found in many of the comparisons. An analysis of the anxiety levels between these two age groups found a statistically significant difference. That is, the older group of adolescents had higher levels of self-reported anxiety than the younger adolescents.

Adolescents from the two age groups had different priorities for their occupational performance issues. The OPIs identified by the younger group most frequently included: (a) sports; (b) homework, tests, and assignments; (c) grades; and (d) chores/cleaning. In contrast, the older adolescents reported: (a) job acquisition; (b) community mobility; (c) organization/time management (i.e., related to personal care); (d) homework, tests, and assignments; and (e) making more friends as the OPIs which most frequently concerned them. The older adolescents seemed to place more emphasis on concerns related to achieving more independence through means such as employment and community mobility. The OPIs identified therefore followed what appeared to be a pattern towards achieving normal adolescent development. However, no statistically significant differences were found between the two age groups and the number of OPIs that they identified in the three categories of occupation (i.e., self-care, productivity, and leisure).

In terms of the relationship between the adolescents' perception of and satisfaction with their occupational performance, the current study hypothesized that the



findings would differ from those reported in the adult literature. That is, the negative correlations found between these two variables and levels of anxiety and depressive symptoms would not be statistically significant. In fact, the current study found two statistically significant correlations. These significant correlations were in the younger adolescent group between occupational performance (perception of and satisfaction with) and anxiety levels. Higher levels of anxiety symptoms related to higher levels of perceived occupational performance in the younger adolescents. This group of younger adolescents also reported their level of satisfaction with their ability to perform occupations was higher when experiencing higher levels of anxiety. In both of these comparisons, the adult literature would have anticipated negative correlations to have occurred.

In contrast, in the group of older adolescents lower levels of perceived occupational performance corresponded to higher levels of depressive symptoms. This was not a statistically significant negative correlation; however it could be considered a trend. This finding is somewhat more reflective of that found in the adult literature which would have expected a significant negative correlation to have occurred.

Meanwhile, due to the vast number of changes that occur during adolescence and based on the stages of adolescent development outlined by Havighurst (1972), it was expected that personal variables (e.g., age and sex) and environmental conditions (e.g., stress at home, school and/or work) would have a greater impact on an adolescents' perceptions of their occupational performance than that found in adults. The current study was unable to investigate this hypothesis however, as a larger sample size would have been required in order to conduct a regression analysis.

This study provides support for the use of the Canadian Model of Occupational Performance and Engagement as the foundation for clinical reasoning regarding the assessment and treatment of adolescents; specifically anxious adolescents. The Canadian Model of Occupational Performance and Engagement provides a means by which to understand an adolescent's anxiety levels and the potential effect on their occupational performance. That is, occupational performance is seen as an interaction between the areas of person, environment, and occupation. This model interprets anxiety as a disruption in the affective component of the person. And, adolescence is a period during which an individual experiences a vast number of changes in the area of environment (e.g., culture expectations and social influences). Both of these areas then affect and are affected by the area of occupation when an adolescent does not have a balance between self-care, productivity, and leisure. With this theoretical framework therefore, an occupational therapist can gain an understanding of the reason for a disruption in an adolescent's occupational performance and subsequently develop a treatment plan to improve the adolescent's occupational performance.

Implications of this study for theory and research consist of the following. Theory should discuss adolescents separately from the adult population, especially in the anxiety literature. In the context of normal development, this population should also be discussed in terms of age groups rather than adolescents as a whole.

Researchers should study adolescents separately from adult populations and according to younger and older cohorts. Adolescents should also be considered in terms of normal development when creating research proposals. The fact that the social desirability bias may affect study results should be kept in mind, particularly in an

anxious population. Finally, more research assessing occupational performance should be conducted with adolescent populations, particularly in the area of mental health.

### **How Do these Results Apply to Practice?**

These results emphasize the fact that the assessment of symptoms alone in adolescents is not sufficient. An adolescent experiencing high levels of anxiety symptoms is not necessarily unsatisfied with or perceiving themselves to have low levels of occupational performance. This study supports the assessment of an adolescent's occupational performance in a clinical practice setting.

The current study found adolescents differ from each other depending on age (i.e., younger versus older adolescents). One treatment implication related to this finding is that clinicians conducting adolescent treatment groups should be mindful of the differences between adolescent age groups and divide adolescents up accordingly.

An occupational therapist should also be cognizant that the feedback younger adolescents provide in terms of occupational performance (perception of, and satisfaction with) may be affected by a social desirability bias. This in turn could result in younger adolescents reporting artificially high occupational performance scores, particularly during an initial intake appointment. Occupational therapists may benefit from taking more time developing a rapport with their younger adolescent clients, in comparison to older adolescents, as well as collaborating more actively with parents (or guardians).

The findings from the current study also highlight the importance of being knowledgeable of adolescent development and the ways in which adolescents differ from adult populations. Occupational therapists should also be mindful of the ways in which anxiety symptoms and occupational performance issues may impede an adolescent's

normal development. When working with adolescents to improve their occupational performance a therapist must be aware of the stages of normal development in order to attempt to promote independence by enabling the adolescent to engage in occupations which will allow them to progress through the various stages of normal development.

The results from the current study are based on a clinical sample of adolescents referred to anxiety clinics, therefore the findings should generalize to other clinical anxiety settings. It is the principal investigator's belief that the findings of the current study could also generalize to a community setting; however a lesser degree of symptom severity would be anticipated. The fact that the majority of the present study's sample were females may mean that the results may not readily generalize to adolescent males. It is also possible that a sample consisting of individuals taken from a clinical setting may have experienced higher rates of comorbidity of disorders than would be expected in adolescents from a community setting; therefore there is a possibility the present study's findings may not generalize to other populations (Comer & Kendall, 2005).

### **Suggestions for Further Study**

Suggestions for further study include the following. Reproduce the study using a larger sample size with a more equally distributed sex ratio, or research males and females separately. This would permit an in depth analysis of the interaction of COPM (performance and satisfaction) and the subscales on the SCAS. A larger sample size would also allow for the ASQ-2 subscales to be used and a better understanding of the interaction between adolescent stress levels and occupational performance to be obtained. It would make it possible to conduct an analysis assessing for similarities and differences between the sexes. Meanwhile, a step-wise multiple regression could be performed to

assess for the influence of personal variables and environmental conditions on occupational performance in adolescents. By making changes to both the sample size and sex distribution, a better understanding of the differences between younger and older adolescent age groups could be investigated in more depth.

Other suggestions for further study include: (a) investigating the relationship between the individual anxiety disorders and occupational performance and satisfaction; (b) assessing the effects of the social desirability bias on ratings of occupational performance and levels of anxiety; (c) determining if younger adolescents are more susceptible to the social desirability bias than both older adolescents and adults; (d) investigating the perception of, and satisfaction with, occupational performance in a population of adolescents with anxiety and comorbid depression; (e) replicating the current study using a larger community sample of adolescents; and (f) determining if occupational performance ratings in anxious adolescents differs across socio-economic groups.

### **Conclusion**

This study contributes to the literature by investigating the relationship between occupational performance and anxiety symptoms in an adolescent population a topic about which no prior literature has been found. The current study contributes to our understanding of the occupational performance issues identified by adolescents referred to anxiety clinics. More OPIs identified by this population of adolescents fell into the categories of productivity and leisure rather than self-care. However, when the population was divided into two age groups no significant relationship was found in relation to the number of OPIs identified in the three categories of occupation (i.e., self-care, productivity, and leisure).

In addition, data was compiled regarding adolescents' perceptions of, and satisfaction with, their occupational performance which was then compared and contrasted to the adult literature. Findings showed that adolescents differed from each other in terms of their anxiety levels and perception of, and satisfaction with, their occupational performance according to age group (i.e., younger vs. older). Younger adolescents reported statistically significant correlations between these variables. That is, higher levels of anxiety symptoms were related to higher occupational performance scores (i.e., perception of and satisfaction with). Older adolescents showed no significant findings in relation to the occupational performance variables. A trend was found however, between perceptions of occupational performance and depressive symptoms in the older adolescent group. The two groups of adolescents also differed from each other in that the older adolescents had significantly higher levels of anxiety.

Meanwhile, the current study demonstrates that adolescents (i.e., younger adolescents in particular) differ from adults in regards to the relationship between their

occupational performance and both anxiety and depressive symptoms. These findings are to be expected since adolescents undergo a variety of changes in the three areas of the Canadian Model of Occupational Performance and Engagement (i.e., person, environment, and occupation) during adolescence.

This study highlights the need to treat adolescents separately from adult populations, as well as in terms of age groups rather than adolescents as a whole. It supports evaluating occupational performance in the assessment and treatment of adolescents. Finally, findings highlight the importance of obtaining feedback regarding an adolescents' occupational performance from key adults in their lives (for example, parents/guardians, teachers); particularly younger adolescents.

## Glossary

### Adolescence

Characterized by “significant changes in hormones, brain and physical development, emotions, cognition, behaviour, and interpersonal relationships” (Evans & Seligman, 2005, p. xxix).

Evans and Seligman (2005) defined adolescence as individuals 10 to 22 years of age, and acknowledge that this is a broad age range. They argue however, that children are now entering sexual maturation earlier and often entering their adult roles later.

Typically however, the term ‘adolescence’ refers to individuals between 12 to 18 years of age (Foa et al., 2005; Rapee et al., 2000).

The current study has defined the age of the adolescent study population as 13 to 17 years of age for several reasons, two of which include: (a) the age parameters constraints measures such as the CDI and ASQ-2 have set out in the guidelines for their use (i.e., upper age 17 and lower age 13 respectively), and (b) published literature which report using 13 years of age as their lower limit cut off for adolescents (e.g., Kovacs, 1992a; Muris et al., 2000).

### Canadian Occupational Performance Measure (COPM)

“...An individualized measure designed for use by occupational therapists to detect change in a client’s self-perception of **occupational performance** over time” (Law et al., 2005, p. 1)

Three purposes of the COPM relevant to the current study include:

- “identify problem areas in occupational performance” (Law et al., 2005, p. 1)



- “provide a rating of the client’s priorities in occupational performance” (Law et al., 2005, p.1)
- “evaluate performance and satisfaction relative to those problem areas” (Law et al., 2005, p. 1)

**Child**

Generally refers to individuals younger than 12 years of age (Rapee et al., 2000).

**Client-centred practice**

“...client-centred occupational therapists demonstrate respect for clients, involve clients in decision making, advocate with and for clients’ needs, and otherwise recognize clients’ experience and knowledge” (Canadian Association of Occupational Therapists [CAOT], 1997, p. 180).

**Function**

“The skill to perform activities in a normal or accepted way (Reed & Sanderson, 1992) and/or adequately for the required tasks of a specific role or setting (Christiansen & Baum, 1991).” (CAOT, 1997, p. 181).

**Functional Impairment**

“...Specific deficits in multiple domains of functioning developing subsequent to a disorder...” (Winters et al., 2005, p. 309).

**Leisure**

“Occupations for enjoyment. Examples include socializing, creative expressions, outdoor activities, games and sports” (Law et al., 1997, p. 37).

## **Occupations**

“Groups of activities and tasks of everyday life, named, organized, and given value and meaning by individuals and a culture” (CAOT, 1997, p. 181).

“Occupations are classified under the following categories: self-care, productivity, and leisure” (Law et al., 2005, p. 3).

## **Occupational Engagement**

“To involve oneself or become occupied, to participate in occupation (Houghton Mifflin Company, 2004). Involvement for *being, becoming, and belonging*, as well as for performing or doing occupations (Wilcock, 2006)” (Townsend & Polatajko, 2007, p. 370).

## **Occupational Performance**

“The result of a dynamic, interwoven relationship between persons, environment, and occupation over a person’s lifespan; the ability to choose, organize, and satisfactorily perform meaningful occupations that are culturally defined and age appropriate for looking after oneself, enjoying life, and contributing to the social and economic fabric of a community” (CAOT, 1997, p. 181).

“The actual execution or carrying out of an occupation (CAOT, 1997a, 2002)” (Polatajko et al., 2007c, p. 26).

“The essence of occupational performance is believed to reside in an integrated and balanced approach to the three performance areas (self-care, productivity, and leisure)” (Law et al., 2005, p. 3).

## **Occupational Performance Issues**

“‘An actual or potential issue (or problem)’ (Fearing and Clark, 2000, p. 184) in the ‘ability to choose, organize, and satisfactorily perform meaningful occupations’ (CAOT, 1997a; 2002, p. 30)” (Townsend & Polatajko, 2007, p. 372).

## **COPM categories, subcategories, and themes**

For the purposes of the present study, the following nomenclature has been used to refer to these different “layers” of the COPM; beginning with the broadest layer, that is:

1. COPM *categories*: The broad categories of the area of occupation; that is *self-care, productivity, and leisure*.
2. COPM *subcategories*: Are the subdivisions of the above mentioned COPM categories.
  - a. Self-care: includes personal care, functional mobility, and community management (Law et al., 2005).
  - b. Productivity: includes paid or unpaid work, household management, school and play (Law et al., 2005).
  - c. Leisure: consists of quiet recreation, active recreation, and socialization (Law et al., 2005).
3. Occupational Performance Issue (OPI) *themes*: The raw data from the COPM interview from the present study, consisting of 117 occupational performance issues (OPIs), was coded into similar themes; this resulted in 37 different themes in total. These OPI themes were simply referred to as OPIs, following the outline

in the results section to illustrate the conversion of the raw data into these OPI themes.

### **Occupational Therapy**

“Is the art and science of enabling engagement in everyday living, through occupation; of enabling people to perform the occupations that foster health and well-being; and of enabling a just and inclusive society so that all people may participate to their potential in the daily occupations of life” (Townsend & Polatajko, 2007, p. 372).

### **Productivity**

“Occupations that make a social or economic contribution, or that provide for economic sustenance. Examples include play in infancy and childhood, school work, employment, homemaking, parenting, and community volunteering” (Law et al., 1997, p. 37).

### **Self-care**

“Occupations for looking after the self. Examples include personal care, personal responsibilities, functional mobility and organization of personal space and time” (Law et al., 1997, p. 37).

### **Spirituality**

“...*Enabling Occupation* (CAOT, 1997a, 2002) states that spirituality is a source of meaning; ‘it resides in persons, is shaped by the environment, and gives meaning to occupations’ (p. 33). Spirituality in this context is not necessarily seen to have a religious base, although it may for some people, and is regarded as the essence that makes us distinctive and unique” (Polatajko et al., 2007a, p. 59).

**Symptom**

“A change in the physical or mental condition of a person, regarded as evidence of a disorder.” (Barber, 2004, p. 1576).

### References

- Albano, A.M., & Silverman W. K. (1996). *Anxiety Disorders Interview Schedule for DSM-IV Clinician Manual*. Toronto, ON: The Psychological Corporation: Harcourt Brace & Company.
- Alfano, C. A., Beidel, D. C., & Turner, S. M. (2006). Cognitive Correlates of Social Phobia Among Children and Adolescents. *Journal of Abnormal Child Psychology*, 34(2), 189-201. doi: 10.1007/s10802-005-9012-9
- Alonso, Y. (2004). The biopsychosocial model in medical research: the evolution of the health concept over the last two decades. *Patient Education & Counseling*, 53(2), 239-244. doi: 10.1016/S0738-3991(03)00146-0
- American Psychiatric Association. (1994). *Diagnostic and Statistical Manual of Mental Disorders* (4<sup>th</sup> edition) (DSM-IV). Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2000). *Diagnostic and Statistical Manual of Mental Disorders* (4<sup>th</sup> edition), Text Revision (DSM-IV-TR). Washington, DC: American Psychiatric Association.
- Arnett, J. J. (2000). Emerging Adulthood: A Theory of Development From the Late Teens Through the Twenties. *American Psychologist*, 55(5), 469-480.
- Bailey, A., Starr, L., Alderson, M., & Moreland, J. (1999). A Comparative Evaluation of a Fibromyalgia Rehabilitation Program. *Arthritis Care & Research*, 12 (5), 336-340.
- Baptiste, S. (2008). Client-Centered Assessment: The Canadian Occupational Performance Measure. In B. Hemphill-Pearson (Ed.), *Assessments in*

- Occupational Therapy Mental Health: An Integrative Approach* (2nd ed., pp. 35-47). Thorofare, NJ: SLACK Incorporated.
- Barber, K. (Ed.). (2004). *Canadian Oxford Dictionary* (2<sup>nd</sup> edition). Toronto, ON: Oxford University Press. doi: 10.1002/1529-0131(199910)12:5<336::AID-ART5>3.0.CO;2-E
- Barrett, P. M., Lock, S., & Farrell, L. J. (2005). Developmental Differences in Universal Preventive Intervention for Child Anxiety. *Clinical Child Psychology and Psychiatry, 10*(4), 539-555. doi: 10.1177/1359104505056317
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An Inventory for Measuring Clinical Anxiety: Psychometric Properties. *J Consult Clin Psychol, 56*(6), 893-897. doi: 10.1037/0022-006X.56.6.893
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An Inventory for Measuring Depression. *Archives of General Psychiatry, 4*(6), 53-63.
- Becker, M., Diamond, R., & Sainfort, F. (1993). A new patient focused index for measuring quality of life in persons with severe and persistent mental illness. *Quality of Life Research, 2*, 239-251. doi: 10.1007/BF00434796
- Berg, C., Neufeld, P., Harvey, J., Downes, A., & Hayashi, R. J. (2009). Late Effects of Childhood Cancer, Participation, and Quality of Life of Adolescents. *OTJR: Occupation, Participation, & Health, 29*(3), 116-124.
- Bezeau, S., & Graves, R. (2001). Statistical Power and Effect Sizes of Clinical Neuropsychology Research. *Journal of Clinical and Experimental Neuropsychology, 23*(3), 399-406. doi: 10.1076/jcen.23.3.399.1181

- Bird, H. R. (1999). The assessment of functional impairment. In D. Shaffer, C. P. Lucas, & J. E. Richters (Eds.), *Diagnostic Assessment in Child and Adolescent Psychopathology* (pp. 209-229). New York: Guilford Press.
- Bittner, A., Egger, H. L., Erkanli, A., Costello, E. J., Foley, D. L., & Angold, A. (2007). What do childhood anxiety disorders predict? *Journal of Child Psychology and Psychiatry*, *48*(12), 1174-1183. doi: 10.1111/j.1469-7610.2007.01812.x
- Bolton, B., & Roessler, R. (1986). *Manual for the work personality profile*. Fayetteville, AR: Arkansas Research & Training Centre in Vocational Rehabilitation.
- Boyer, G., Hachey, R., & Mercier, C. (2000). Perceptions of occupational performance and subjective quality of life in persons with severe mental illness. *Occupational Therapy in Mental Health*, *15*(2), 1-15. doi: 10.1300/J004v15n02\_01
- Brincat, R. (2004). The impact of Complex Regional Pain Syndrome Type I on an individual's occupational performance. *British Journal of Hand Therapy*, *9*(3), 96-104.
- Brooks, S. J., & Kutcher, S. (2001). Diagnosis and Measurement of Adolescent Depression: A Review of Commonly Utilized Instruments. *Journal-of-Child-and-Adolescent-Psychopharmacology*, *11*(4), 341-376.  
doi:10.1089/104454601317261546
- Brown-Jacobsen, A. M., Wallace, D. P., & Whiteside, S. P. H. (2011). Multimethod, Multi-informant Agreement, and Positive Predictive Value in the Identification of Child Anxiety Disorders Using the SCAS and ADIS-C. *Assessment*, *18*(3), 382-392. doi: 10.1177/1073191110375792



- Byrne, D. G. (2004). Adolescent Stress Questionnaire – ASQ. The Australian National University.
- Byrne, D. G., Davenport, S.C., & Mazanov, J. (2007). Profiles of adolescent stress: The development of the adolescent stress questionnaire (ASQ). *Journal-of-Adolescence*, 30(3), 393-416. doi: 10.1016/j.adolescence.2006.04.004
- Campbell, R. J. (1996). *Psychiatric Dictionary* (7<sup>th</sup> ed.)(pp. 53). New York: Oxford University Press.
- Canadian Association of Occupational Therapists (CAOT). (1997). *Enabling Occupation: An Occupational Therapy Perspective*. Ottawa, ON: CAOT Publications ACE.
- Carpenter, L., Baker, G. A., & Tyldesley, B. (2001). The use of the Canadian Occupational Performance Measure as an outcome of a pain management program. *Canadian Journal of Occupational Therapy*, 68(1), 16-22.
- Carswell, A., McColl, M. A., Baptiste, S., Law, M., Polatajko, H., & Pollock, N. (2004). The Canadian Occupational Performance Measure: A research and clinical literature review. *Canadian Journal of Occupational Therapy*, 71(4), 210-222.
- Cascio, W. F., & Zedeck, S. H. E. L. (1983). Open a New Window in Rational Research Planning: Adjust Alpha to Maximize Statistical Power. *Personnel Psychology*, 36(3), 517-526. doi: 10.1111/j.1744-6570.1983.tb02233.x
- Chansky, T. E. (2004). *Freeing Your Child From Anxiety*. Toronto: Broadway Books.
- Chorpita, B. F., Moffitt, C. E., & Gray, J. (2005). Psychometric properties of the Revised Child Anxiety and Depression Scale in a clinical sample. *Behaviour-Research-and-Therapy*, 43(3), 309-322. doi: 10.1016/j.brat.2004.02.004

- Chorpita, B. F., Yim, L., Moffitt, C., Umemoto, L. A., & Francis, S. E. (2000). Assessment of symptoms of DSM-IV anxiety and depression in children: A revised child anxiety and depression scale. *Behaviour-Research-and-Therapy*, 38(8), 835-855. doi: 10.1016/S0005-7967(99)00130-8
- Comer, J. S., & Kendall, P. C. (2005). High-end specificity of the children's depression inventory in a sample of anxiety-disordered youth. *Depression and Anxiety*, 22(1), 11-19. doi: 10.1002/da.20059
- Coopersmith, S. (1967). *The Antecedents of Self-esteem*. San Francisco: W. H. Freeman and Company.
- Corr, S., Phillips, C. J., & Walker, M. (2004). Evaluation of a pilot service designed to provide support following stroke: a randomized cross-over design study. *Clinical Rehabilitation*, 18(1), 69-75. doi: 10.1191/0269215504cr703oa
- Costello, E. J., Egger, H. L., & Angold, A. (2004). Developmental Epidemiology of Anxiety Disorders. In T. H. Ollendick, & J. S. March (Eds.), *Phobic and Anxiety Disorders in Children and Adolescents: A Clinician's Guide to Effective Psychosocial and Pharmacological Interventions* (pp. 61-91). New York: Oxford University Press. doi: 10.1016/j.chc.2005.06.003
- Costello, E. J., Egger, H. L., & Angold, A. (2005). The Developmental Epidemiology of Anxiety Disorders: Phenomenology, Prevalence, and Comorbidity. *Child and Adolescent Psychiatric Clinics of North America*, 14(4), 631-648. doi: 10.1016/j.chc.2005.06.003

- Crawley, E., Hunt, L., & Stallard, P. (2009). Anxiety in children with CFS/ME. *European Child and Adolescent Psychiatry, 18*(11), 683-689. doi: 10.1007/s0787-009-0029-4
- Creek, J. (2008). The knowledge base of occupational therapy. In J. Creek & L. Lougher (Eds.). *Occupational Therapy and Mental Health* (4 ed., pp. 31-56). Toronto, ON: Churchill Livingstone Elsevier.
- Crocetti, E., Klimstra, T., Keijsers, L., Hale III, W. W., & Meeus, W. (2009). Anxiety Trajectories and Identity Development in Adolescence: A Five-wave Longitudinal Study. *Journal of Youth and Adolescence, 38*, 839-849. doi: 10.1007/s10964-008-9302-y
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*(4), 349-354.
- Cup, E. H. C., Scholte op Reimer, W. J. M., Thijssen, M. C. E., & van Kuyk-Minis, M. A. H. (2003). Reliability and validity of the Canadian Occupational Performance Measure in stroke patients. *Clinical Rehabilitation, 17*(4), 402-409.
- Curtin, F., & Schulz, P. (1998). Multiple Correlations and Bonferroni's Correction. *Biological Psychiatry, 44*(8), 775-777. doi: [10.1016/S0006-3223\(98\)00043-2](https://doi.org/10.1016/S0006-3223(98)00043-2)
- Dadds, M. R., Perrin, S., & Yule, W. (1998). Social Desirability and Self-Reported Anxiety in Children: An Analysis of the RCMAS Lie Scale. *Journal of Abnormal Child Psychology, 26*(4), 311-317.
- Dagfinrud, H., Kjekken, I., Mowinckel, P., Hagen, K. B., & Kvien, T. K. (2005). Impact of functional impairment in ankylosing spondylitis: Impairment, activity limitation, and participation restrictions. *Journal of Rheumatology, 32*(3), 516-523.

- Davidson, A. C., Auyeung, V., Luff, R., Holland, M., Hodgkiss, A., & Weinman, J. (2009). Prolonged benefit in post-polio syndrome from comprehensive rehabilitation: A pilot study. *Disability and Rehabilitation, 31*(4), 309-317.
- de Bruin, A. F., Diederiks, J. P. M., de Witte, L. P., Stevens, F. C. J., & Philipsen, H. (1994). The Development of a Short Generic Version of the Sickness Impact Profile. *Journal of Clinical Epidemiology, 47*(4), 407-418. doi: 10.1016/0895-4356(94)90162-7
- de Ross, R., Gullone, E., & Chorpita, B. F. (2002). The Revised Child Anxiety and Depression Scale: A Psychometric Investigation with Australian Youth. *Behaviour-Change, 19*(2), 90-101. doi: 10.1375/behc.19.2.90
- De Vriendt, T., Clays, E., Moreno, L. A., Bergman, P., Vicente-Rodriguez, G., Nagy, E., Dietrich, S., Manios, Y., De Henauw, S. (2011). Reliability and validity of the Adolescent Stress Questionnaire in a sample of European adolescents - the HELENA study. *BMC .Public Health, 11*(1), 717-728. doi: 10.1186/1471-2458-11-717
- de Winter, A., Oldehinkel, A., Veenstra, R., Brunnekreef, J., Verhulst, F., & Ormel, J. (2005). Evaluation of non-response bias in mental health determinants and outcomes in a large sample of pre-adolescents. *European Journal of Epidemiology, 20*, 173-181. doi: 10.1007/s10654-004-4948-6
- Dedding, C., Cardol, M., Eyssen, I. C. J., Dekker, J., & Beelen, A. (2004). Validity of the Canadian Occupational Performance Measure: a client-centred outcome measurement. *Clinical Rehabilitation, 18*(6), 660-667. doi: 10.1191/0269215504cr746oa

- DiLalla, L. F., Marcus, J. L., & Wright-Phillips, M. V. (2004). Longitudinal effects of preschool behavioral styles on early adolescent school performance. *Journal of School Psychology, 42*, 385-401. doi: 10.1016/j.jsp.2004.05.002
- Driver, M. F. (1968). A philosophic view of the history of occupational therapy in Canada. *Canadian Journal of Occupational Therapy, 35*(2), 53-60.
- Donald, L., & Cottrell, R. P. F. (2002). In the clinic. Using the COPM to engage adolescents. *OT Practice, 7*(10), 25-26.
- Eisenberg, M. E., Neumark-Sztainer, D., Story, M., & Perry, C. (2005). The role of social norms and friends' influences on unhealthy weight-control behaviors among adolescent girls. *Social Science & Medicine, 60*(6), 1165-1173. doi: 10.1016/j.socscimed.2004.06.055
- Engel, G. (1977). The need for a new medical model: a challenge for biomedicine. *Science, 196*(4286), 129-136.
- Erikson, E. H. (1968). *Identity: Youth and Crisis* (1st ed.). New York: W. W. Norton & Company Inc.
- Esbjörn, B. H., Hoeyer, M., Dyrborg, J., Leth, I., & Kendall, P. C. (2010). Prevalence and co-morbidity among anxiety disorders in a national cohort of psychiatrically referred children and adolescents. *Journal of Anxiety Disorders, 24*(8), 866-872. doi: 1016/j.janxdis.2010.06.009
- Essau, C. A. (2002). Reliability and validity of the Spence Children's Anxiety Scale and the Screen for Child Anxiety Related Emotional Disorders in German children. *Journal-of-Behavior-Therapy-and-Experimental-Psychiatry, 33*(1), 1-18.

- Essau, C. A., Anastassiou-Hadjicharalambous, X., & Munoz, L. C. (2011a). Psychometric Properties of the Spence Children's Anxiety Scale (SCAS) in Cypriot Children and Adolescents. *Child Psychiatry and Human Development*, 42, 557-568. doi: 10.1007/s10578-011-0232-7
- Essau, C. A., Conradt, J., & Petermann, F. (2000). Frequency, Comorbidity, and Psychosocial Impairment of Anxiety Disorders in German Adolescents. *Journal of Anxiety Disorders*, 14(3), 263-279. doi: 10.1016/S0887-6185(99)00039-0
- Essau, C. A., Ishikawa, S. I., Sasagawa, S., Sato, H., Okajima, I., Otsui, K., Georgiou, G. A., O'Callaghan, J., & Michie, F. (2011b). Anxiety symptoms among adolescents in Japan and England: Their relationship with self-construals and social support. *Depression and Anxiety*, 28(6), 509-518.
- Essau, C. A., Sasagawa, S., Anastassiou-Hadjicharalambous, X., Guzman, B. O., & Ollendick, T. H. (2011c). Psychometric properties of the Spence Child Anxiety Scale with adolescents from five European countries. *Journal of Anxiety Disorders*, 25(1), 19-27.
- Evans, D. L., & Seligman, M. E. P. (2005). Introduction. In D. L. Evans, E. B. Foa, R. E. Gur, H. Hedin, C. P. O'Brien, M. E. P. Seligman, & B. T. Walsh (Eds.), *Treating and Preventing Adolescent Mental Health Disorders: What We Know and What We Don't Know* (pp. 161-253). Toronto, ON: Oxford University Press.
- Evans, D. L., Beardslee, W., Biederman, J., Brent, D., Charney, D., Coyle, J., Craighead, W. E., Crits-Christoph, P., Findling, R., Garber, J., Johnson, R., Keller, M., Nemeroff, C., Rynn, M. A., Wagner, K., Weissman, M., & Weller, E. (2005). Depression and Bipolar Disorder. In D. L. Evans, E. B. Foa, R. E. Gur, H. Hedin,

C. P. O'Brien, M. E. P. Seligman, & B. T. Walsh (Eds.), *Treating and Preventing Adolescent Mental Health Disorders: What We Know and What We Don't Know* (pp. 4-74). Toronto, ON: Oxford University Press.

Eyssen, I. C. J. M., Beelen, A., Dedding, C., Cardol, M., & Dekker, J. (2005). The reproducibility of the Canadian Occupational Performance Measure. *Clinical Rehabilitation, 19*(8), 888-894. doi: 10.1191/0269215505cr883oa

Fekkes, M., Theunissen, N. C. M., Brugman, E., Veen, S., Verrips, E. G. H., Koopman, H. M., Vogels, T., Wit, J. M., & Verloove-Vanhorick, S. P. (2000). Development and psychometric evaluation of the TAPQOL: A health-related quality of life instrument for 1-5-year-old children. *Quality of Life Research, 9*(8), 961-972. doi: 10.1023/A:1008981603178

Field, A. E., Camargo, C. A., Jr., Taylor, C. B., Berkey, C. S., & Colditz, G. A. (1999). Relation of Peer and Media Influences to the Development of Purging Behaviors Among Preadolescent and Adolescent Girls. *Archives of Pediatrics Adolescent Medicine, 153*(11), 1184-1189.

Finch, A. J., Saylor, C. F., Edwards, G. L., & McIntosh, J. A. (1987). Children's Depression Inventory: Reliability Over Repeated Administrations. *Journal of Clinical Child Psychology, 16*(4), 339-341. doi: 10.1207/s15374424jccp1604\_7

Flannery-Schroeder, E. C., & Kendall, P. C. (2000). Group and individual cognitive-behavioral treatments for youth with anxiety disorders: A randomized clinical trial. *Cognitive Therapy and Research, 24*(3), 251-278.

doi:10.1023/A:1005500219286

- Foa, E. B., Costello, E. J., Franklin, M., Kagan, J., Kendall, P., Klein, R., Leonard, H., Liebowitz, M., March, J., McNally, R., Ollendick, T., Pine, D., Pynoos, R., Silverman, W., & Spear, L. (2005). Part III: Anxiety Disorders. In D. L. Evans, E. B. Foa, R. E. Gur, H. Hedin, C. P. O'Brien, M. E. P. Seligman, & B. T. Walsh (Eds.), *Treating and Preventing Adolescent Mental Health Disorders: What We Know and What We Don't Know* (pp. 161-253). Toronto, ON: Oxford University Press.
- Ford, T., Goodman, R., & Meltzer, H. (2003). The British Child and Adolescent Mental Health Survey 1999: The Prevalence of *DSM-IV* Disorders. *J Am Acad. Child Adolesc Psychiatry*, *42*(10), 1203-1211.  
doi: 10.1097/01.chi.0000081820.25107.ae
- Forman, S. G. (1993). *Coping Skills Interventions for Children and Adolescents*. San Francisco: Jossey-Bass Publishers.
- Fowler, F. J., Roman, A. M., & Di, Z. X. (1998). Mode effects in a survey of Medicare prostate surgery patients. *Public Opinion Quarterly*, *62*(1), 29-46.
- Forbes, S., & Abrahams, M. 1997. *Biomodelling: A primer of quantitative biology*. Unpublished manuscript. Department of Biology, University of Winnipeg, & Department of Zoology, University of Manitoba, Winnipeg, Canada.
- Fragala, M. A., O'Neil, M. E., Russo, K. J., & Dumas, H. M. (2002). Impairment, Disability, and Satisfaction Outcomes After Lower-Extremity Botulinum Toxin A Injections for Children with Cerebral Palsy. *Pediatric Physical Therapy*, *14*(3), 132-144. doi: 10.1097/01.PEP.0000030091.82067.51



- Furman, W., & Buhrmester, D. (1992). Age and Sex Differences in Perceptions of Networks of Personal Relationships. *Child Development, 63*(1), 103-115.
- Garland, A. F., Hough, R. L., McCabe, K. M., Yeh, M., Wood, P. A., & Aarons, G. A. (2001). Prevalence of Psychiatric Disorders in Youths Across Five Sectors of Care. *J Am Acad. Child Adolesc Psychiatry, 40*(4), 409-418.
- Garrett, S., Jenkinson, T., Kennedy, L. G., Whitelock, H., Gaisford, P., & Calin, A. (1994). A New Approach to Defining Disease Status in Ankylosing Spondylitis: The Bath Ankylosing Spondylitis Disease Activity Index. *The Journal of Rheumatology, 21*(12), p. 2286-2291.
- Greco, L. A., & Morris, T.L. (2004). Assessment. In T.L. Morris, & J. S. March (Eds.), *Anxiety Disorders in Children and Adolescents* (2<sup>nd</sup> ed.) (pp. 98-121). New York: The Guilford Press.
- Gilbertson, L., & Langhorne, P. (2000). Home-based occupational therapy: stroke patients' satisfaction with occupational performance and service provision. *British Journal of Occupational Therapy, 63*(10), 464-468.
- Gilman, R., & Huebner, E. S. (2006). Characteristics of Adolescents Who Report Very High Life Satisfaction. *Journal of Youth and Adolescence, 35*(3), 311-319. doi: 10.1007/s10964-006-9036-7
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *J Child Psychol Psychiatry, 38*, 581-586. doi: 10.1111/j.1469-7610.1997.tb01545.x
- Guyer, A. E., Clure-Tone, E. B., Shiffrin, N. D., Pine, D. S., & Nelson, E. E. (2009). Probing the Neural Correlates of Anticipated Peer Evaluation in

Adolescence. *Child Development*, 80(4), 1000-1015. doi: 10.1111/j.1467-8624.2009.01313.x

Hagborg, W. J. (1991). The Revised Children's Manifest Anxiety Scale and Social Desirability. *Educational and Psychological Measurement*, 51(2), 423-427.

Hale III, W. W., Raaijmakers, Q., Muris, P., & Meeus, W. (2005). Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED) in the general adolescent population. *Journal of the American Academy of Child and Adolescent Psychiatry*, 44(3), 283-290.

Hale III, W. W., Raaijmakers, Q., Muris, P., van Hoof, A., & Meeus, W. (2008). Developmental Trajectories of Adolescent Anxiety Disorder Symptoms: A 5-Year Prospective Community Study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 47(5), 556-564.

Hampel, P., & Petermann, F. (2005). Age and Gender Effects on Coping in Children and Adolescents. *Journal of Youth and Adolescence*, 34(2), 73-83. doi: 10.1007/s10964-005-3207-9

Havighurst, R. J. (1972). *Developmental Tasks and Education* (3rd ed.). New York: David McKay Company, Inc.

Hodges, K. (1990). Depression and Anxiety in Children: A Comparison of Self-Report Questionnaires to Clinical Interview. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 2(4), 376-381. doi:10.1037/1040-3590.2.4.376

- Ishikawa, S., Sato, H., & Sasagawa, S. (2009). Anxiety disorder symptoms in Japanese children and adolescents. *Journal of Anxiety Disorders, 23*(1), 104-111. doi: 10.1016/j.janxdis.2008.04.003
- Jenkinson, N., Ownsworth, T., & Shum, D. (2007). Utility of the Canadian Occupational Performance Measure in community-based brain injury rehabilitation. *Brain Injury, 21*(12), 1283-1294. doi: 10.1080/02699050701739531
- Kanekar, S. (1977). Academic Performance in Relation to Anxiety and Intelligence. *Journal of Social Psychology, 101*(1), 153-154.
- Kebede, D., Alem, A., Shibire, T., Deyassa, N., Negash, A., Beyero, T. Medhin, G., & Fekadu, A. (2006). Symptomatic and functional outcome of bipolar disorder in Butajira, Ethiopia. *Journal of Affective Disorders, 90*(2-3), 239-249. doi: 10.1016/j.jad.2005.11.009
- Kendall, P. C., & Chansky, T. E. (1991). Considering Cognition in Anxiety-Disordered Children. *Journal of Anxiety Disorders, 5*(2), 167-185. doi: 10.1016/0887-6185(91)90027-Q
- Kendall, P. C., Compton, S. N., Walkup, J. T., Birmaher, B., Albano, A. M., Sherrill, J., Ginsburg, G., Rynn, M., McCracken, J., Gosch, E., Keeton, C., Bergman, L., Sakolsky, D., Suveg, C., Iyengar, S., March, J., & Piacentini, J. (2010). Clinical characteristics of anxiety disordered youth. *Journal of Anxiety Disorders, 24*(3), 360-365. doi: 10.1016/j.janxdis.2010.01.009
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime Prevalence and Age-of-Onset Distributions of DSM-IV

- Disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62(6), 593-602.
- Knight, D., Hensley, V. R., & Waters, B. (1988). Validation of the Children's Depression Scale and the Children's Depression Inventory in a Prepubertal Sample. *Journal of Child Psychology and Psychiatry*, 29(6), 853-863. doi: 10.1111/j.1469-7610.1988.tb00758.x
- Kovacs, M. (1992a). Children's Depression Inventory (CDI) Manual. Toronto, ON: Multi-Health Systems, Inc.
- Kovacs, M. (1992b). Children's Depression Inventory (CDI). Toronto, ON: Multi-Health Systems Inc.
- Kovacs, M. (1985). The Children's Depression Inventory (CDI). *Psychopharmacology Bulletin*, 21(4), 995-998.
- Kramer, T. L., Phillips, S. D., Hargis, M. B., Miller, T. L., Burns, B. J., & Robbins, J. M. (2004). Disagreement between parent and adolescent reports of functional impairment. *Journal of Child Psychology & Psychiatry*, 45(2), 248-259. doi: 10.1111/j.1469-7610.2004.00217.x
- Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a Brief Depression Severity Measure. *Journal of General Internal Medicine*, 16(9), 606-613. doi: 10.1046/j.1525-1497.2001.016009606.x
- Lankhorst, G. J., Jelles, F., Smits, R. C. F., Polman, C. H., Kuik, D. J., Pfenning, L. E. M. A., Cohen, L., Ploeg, H. M., Ketelaer, P., Vleugels, L. (1996). Quality of life in multiple sclerosis: The disability and impact profile (DIP). *Journal of Neurology*, 243(6), 469-474. doi: 10.1007/BF00900502

- Law, M., Baptiste, S., Carswell, A., McColl, M. A., Polatajko, H., & Pollock, N. (2000).  
Canadian Occupational Performance Measure. CAOT Publications ACE.
- Law, M., Baptiste, S., Carswell, A., McColl, M. A., Polatajko, H., & Pollock, N. (2005).  
*Canadian Occupational Performance Measure* (4th ed.). CAOT Publications  
ACE.
- Law, M., Polatajko, H., Baptiste, S., & Townsend, E. (1997). Core Concepts of  
Occupational Therapy. In E. Townsend, S. Stanton, M. Law, H. Polatajko, S.  
Baptiste, T. Thompson-Frason, C. Kramer, F. Swedlove, S. Brintnell, & L.  
Campanile (Eds.), *Enabling Occupation: An Occupational Therapy Perspective*  
(pp. 29-56). CAOT Publications ACE.
- Law, M., Polatajko, H., Pollock, N., McColl, M. A., Carswell, A., & Baptiste, S. (1994).  
Pilot testing of the Canadian Occupational Performance Measure: Clinical and  
Measurement Issues. *Canadian Journal of Occupational Therapy*. 61(4), 191-  
197.
- Law, M., Steinwender, S., & Leclair, L. (1998). Occupation, health and well-being.  
*Canadian Journal of Occupational Therapy*, 65(2), 81-91.
- Leggett, C. G., Kleckner, N. S., Boyle, K. J., Duffield, J. W., & Mitchell, R. C. (2003).  
Social Desirability Bias in Contingent Valuation Surveys Administered Through  
In-Person Interviews. *Land Economics*, 79(4), 561-575.
- Leitch, K. K. (2007). *Reaching for the Top: A Report by the Advisor on Healthy Children  
& Youth, 8 Mental Health and Chronic Illness*. Retrieved September 29, 2008  
from Health Canada's Web site: [http://www.hc-sc.gc.ca/hl-vs/pubs/child-  
enfant/advisor-conseillere/mental-eng.php](http://www.hc-sc.gc.ca/hl-vs/pubs/child-<br/>enfant/advisor-conseillere/mental-eng.php)

- Lerner, R. M. (2002). *Concepts and Theories of Human Development* (3rd ed.). Mahwah, New Jersey: Lawrence Erlbaum Associates, Inc.
- Liss, H., Phares, V., & Liljequist, L. (2001). Symptom Endorsement Differences on the Children's Depression Inventory With Children and Adolescents on an Inpatient Unit. *Journal of Personality Assessment*, *76*(3), 396-411. doi: 10.1207/S15327752JPA7603\_03
- Livingston, M. H., Stewart, D., Rosenbaum, P. L., & Russell, D. J. (2011). Exploring Issues of Participation Among Adolescents with Cerebral Palsy: What's Important to Them? *Physical and Occupational Therapy in Pediatrics*, *31*(3), 275-287. doi: 10.3109/01942638.2011.565866
- Logan, D. E., Claar, R. L., & Scharff, L. (2008). Social desirability response bias and self-report of psychological distress in pediatric chronic pain patients. *Pain*, *136*(3), 366-372. doi: 10.1016/j.pain.2007.07.015
- Lyneham, H. J., & Rapee, R. M. (2005). Agreement between telephone and in-person delivery of a structured interview for anxiety disorders in children. *Journal of the American Academy of Child and Adolescent Psychiatry*, *44*(3), 274-282.
- Marmorstein, N. R. (2007). Relationships between anxiety and externalizing disorders in youth: The influences of age and gender. *Journal-of-Anxiety-Disorders*, *21*(3), 420-432. doi: 10.1016/j.janxdis.2006.06.004
- Masi, G., Favilla, L., Mucci, M., & Millepiedi, S. (2000). Depressive Comorbidity in Children and Adolescents with Generalized Anxiety Disorder. *Child Psychiatry & Human Development*, *30*(3), 205-215.

McCann, S. J. H., & Meen, K. S. (1984). Anxiety, Ability, and Academic Achievement.

*Journal of Social Psychology, 124*(2), 257-258. doi:

10.1080/00224545.1984.9922858

McColl, M. A., Carswell, A., Law, M., Pollock, N., Baptiste, S., & Polatajko, H. (2006).

*Research on the Canadian Occupational Performance Measure: An Annotated Resource*. CAOT Publications ACE.

McColl, M. A., Law, M., Baptiste, S., Pollock, N., Carswell, A., & Polatajko, H. (2005).

Targeted applications of the Canadian Occupational Performance Measure.

*Canadian Journal of Occupational Therapy, 72*(5), 298-308.

McGavin, H. (1998). Planning Rehabilitation: A Comparison of Issues for Parents and

Adolescents. *Physical & Occupational Therapy in Pediatrics, 18*(1), 69-82. doi:

10.1080/J006v18n01\_05

McKnight, P. E., & Kashdan, T. B. (2009). The importance of functional impairment to

mental health outcomes: A case for reassessing our goals in depression treatment research. *Clinical Psychology Review, 29*(3), 243-259. doi:

10.1016/j.cpr.2009.01.005

McNulty, M. C., & Beplat, A. L. (2008). The Validity of Using the Canadian

Occupational Performance Measure with Older Adults with and without

Depressive Symptoms. *Physical & Occupational Therapy in Geriatrics, 27*(1), 1-

15. doi:10.1080/02703180802206231

Mead, K., Theadom, A., Byron, K., & Dupont, S. (2007). Pilot study of a 4-week Pain

Coping Strategies (PCS) programme for the chronic pain patient. *Disability and*

*Rehabilitation, 29*(3), 199-203. doi: 10.1080/09638280600756117

- Merikangas, K. R., He, J., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., Benjet, C., Georgiades, K., & Swendsen, J. (2010). Lifetime Prevalence of Mental Disorders in U.S. Adolescents: Results from the National Comorbidity Survey Replication-Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry, 49*(10), 980-989.
- Moksnes, U. K., Byrne, D. G., Mazanov, J., & Espnes, G. A. (2010a). Adolescent stress: Evaluation of the factor structure of the Adolescent Stress Questionnaire (ASQ-N). *Scandinavian Journal of Psychology, 51*(3), 203-209. doi: 10.1111/j.1467-9450.2009.00803.x
- Moksnes, U. K., Moljord, I. E. O., Espnes, G. A., & Byrne, D. G. (2010b). The association between stress and emotional states in adolescents: The role of gender and self-esteem. *Personality and Individual Differences, 49*(5), 430-435.
- Mosey, A. C. (1974). An alternative: the biopsychosocial model. *American Journal of Occupational Therapy, 28*(3), 137-140.
- Mosey, A. C. (1980). A model for occupational therapy. *Occupational Therapy in Mental Health, 1*(1), 11-31.
- Muris, P., Merckelbach, H., Ollendick, T., King, N., & Bogie, N. (2002). Three traditional and three new childhood anxiety questionnaires: their reliability and validity in a normal adolescent sample. *Behaviour Research and Therapy, 40*(7), 753-772.
- Muris, P., Schmidt, H., & Merckelbach, H. (2000). Correlations among two self-report questionnaires for measuring DSM-defined anxiety disorder symptoms in children: The Screen for Child Anxiety Related Emotional Disorders and the



Spence Children's Anxiety Scale. *Personality and Individual Differences*, 28(2), 333-346. doi: 10.1016/S0191-8869(99)00102-6

Nauta, M. H., Scholing, A., Rapee, R. M., Abbott, M., Spence, S. H., & Waters, A.

(2004). A parent-report measure of children's anxiety: Psychometric properties and comparison with child-report in a clinic and normal sample. *Behaviour Research and Therapy*, 42(7), 813-839. doi: 10.1016/S0005-7967(03)00200-6

Pan, A., Chung, L., & Hsin-Hwei, G. (2003). Reliability and validity of the Canadian Occupational Performance Measure for clients with psychiatric disorders in Taiwan. *Occupational Therapy International*, 10(4), 269-277.

Pan, A.-W., Chan, S. P., Chung, L., Chen, T.-J., & Hsiung, P.-C. (2006). Quality of life in depression: Predictive models. *Quality of Life Research*, 15(1), 39-48. doi: 10.1007/s11135-005-0381-x

Passmore, A. (2003). The Occupation of Leisure: Three Typologies and Their Influence on Mental Health in Adolescence. *OTJR: Occupation, Participation, and Health*, 23(2), 76-83.

Peter, J., & Valkenburg, P. M. (2011). The Impact of "Forgiving" Introductions on the Reporting of Sensitive Behavior in Surveys. *Public Opinion Quarterly*, 75(4), 779-787.

Piacentini, J., & Bergman, R. L. (2001). Developmental issues in cognitive therapy for childhood anxiety disorders. *Journal of Cognitive Psychotherapy*, 15(3), 165-182.

- Pickles, A., Rowe, R., Simonoff, E., Foley, D., Rutter, M., & Silberg, J. (2001). Child psychiatric symptoms and psychosocial impairment: relationship and prognostic significance. *British Journal of Psychiatry, 179*, 230-235.
- Pina, A. A., Silverman, W. K., Saavedra, L. M., & Weems, C. F. (2001). An analysis of the RCMAS lie scale in a clinic sample of anxious children. *Journal of Anxiety Disorders, 15*(5), 443-457. doi: 10.1016/S0887-6185(01)00075-5
- Pine, D. S. (2007). Research review: A neuroscience framework for pediatric anxiety disorders. *Journal of Child Psychology and Psychiatry and Allied Disciplines, 48*(7), 631-648. doi: 10.1111/j.1469-7610.2007.01751.x
- Polatajko, H. J., Backman, C., Baptiste, S., Davis, J., Eftekhari, P., Harvey, A., Jarman, J., Krupa, T., Lin, N., Pentland, W., Rudman, D. L., Shaw, L., Amoroso, B., & Connor-Schisler, A. (2007a). Human occupation in context. In E. A. Townsend, & H. J. Polatajko (Eds.), *Enabling Occupation II: Advancing An Occupational Therapy Vision For Health, Well-Being, & Justice Through Occupation* (pp. 37-62). Ottawa, ON: CAOT Publications ACE.
- Polatajko, H. J., Cantin, N., Amoroso, B., McKee, P., Rivard, A., Kirsh, B., Laliberte Rudman, D., Rigby, P., & Lin, N. (2007b). Occupation-based enablement: A practice mosaic. In E. A. Townsend & H. J. Polatajko (Eds.), *Enabling Occupation II: Advancing An Occupational Therapy Vision For Health, Well-Being, & Justice Through Occupation* (pp. 177-202). Ottawa, ON: CAOT Publications ACE.
- Polatajko, H. J., Davis, J., Stewart, D., Cantin, N., Amoroso, B., Purdie, L., & Zimmerman, D. (2007c). Specifying the domain of concern: Occupation as core.

- In E. A. Townsend, & H. J. Polatajko (Eds.), *Enabling Occupation II: Advancing An Occupational Therapy Vision For Health, Well-Being, & Justice Through Occupation* (pp. 13-36). Ottawa, ON: CAOT Publications ACE.
- Pollard, C. A. (1984). Preliminary Validity Study of the Pain Disability Index. *Perceptual and Motor Skills*, 59(3), 974.
- Portney, L. G., & Watkins, M. P. (2000). *Foundations of Clinical Research Applications To Practice* (2<sup>nd</sup> ed.). Upper Saddle River, NJ: Prentice Hall Health.
- Rapee, R. M., Wignall, A., Hudson, J. L., & Schniering, C. A. (2000). *Treating Anxious Children and Adolescents: An Evidence-Based Approach*. Oakland, CA: New Harbinger Publications, Inc.
- Reynolds, C. R., & Richmond, B. O. (1978). What I Think and Feel: A Revised Measure of Children's Manifest Anxiety. *Journal of Abnormal Child Psychology*, 6(2), 271-280. doi: 10.1007/BF00919131
- Rice, J., & Waugh, M.-C. (2009). Pilot study on Trihexyphenidyl in the Treatment of Dystonia in Children With Cerebral Palsy. *Journal of Child Neurology*, 24(1), 176-182. doi: 10.1177/0883073808322668
- Roberts, R. E., Roberts, C. R., & Xing, Y. (2007). Rates of DSM-IV psychiatric disorders among adolescents in a large metropolitan area. *Journal of Psychiatric Research*, 41(11), 959-967. doi: 10.1016/j.psychires.2006.09.006
- Rochman, D. L., Ray, S. A., Kulich, R. J., Mehta, N. R., & Driscoll, S. (2008). Validity and Utility of the Canadian Occupational Performance Measure as an Outcome Measure in a Craniofacial Pain Center. *OTJR: Occupation, Participation & Health*, 28(1), 4-11.

- Romano, E., Tremblay, R. E., & Vitaro, F. (2001). Prevalence of Psychiatric Diagnoses and the Role of Perceived Impairment: Findings from an Adolescent Community Sample. *Journal of Child Psychology & Psychiatry*, *42*(4), 451-46.  
doi: 10.1111/1469-7610.00739
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Sabourin, S., Bourgeois, L., Gendreau, P., & Morval, M. (1989). Self-Deception, Impression Management, and Consumer Satisfaction With Mental Health Treatment. *Psychological Assessment*, *1*(2), 126-129.
- Sandqvist, G., Johnsson, P. M., Sturesson, A. L., Tägil, M., & Geborek, P. (2009). Measures and time points relevant for post-surgical follow-up in patients with inflammatory arthritis: a pilot study. *BMC Musculoskeletal Disorders*, *10*(50).  
doi:10.1186/1471-2474-10-50
- Saylor, C. F., Finch, A. J. Jr., Spirito, A., & Bennett, B. (1984). The Children's Depression Inventory: A systematic evaluation of psychometric properties. *Journal-of-Consulting-and-Clinical-Psychology*, *52*(6), 955-967. doi: 10.1037/0022-006X.52.6.955
- Schmid, A. A., Acuff, M., Doster, K., Gwaltney-Duiser, A., Whitaker, A., Damush, T., Williams, L., & Hendrie, H. (2009). Poststroke Fear of Falling in the Hospital Setting. *Topics in Stroke Rehabilitation*, *16*(5), 357-366.
- Schnell, G. (2008). Monitoring the progress of young people's occupational performance in an inpatient mental health setting. *New Zealand Journal of Occupational Therapy*, *55*(2), 4-10.

- Seiffge-Krenke, I., & Gelhaar, T. (2008). Does successful attainment of developmental tasks lead to happiness and success in later developmental tasks? A test of Havighurst's (1948) theses. *Journal of Adolescence, 31*(1), 33-52. doi: 10.1016/j.adolescence.2007.04.002
- Sewell, L., & Singh, S. J. (2001). The Canadian Occupational Performance Measure: is it a reliable measure in clients with chronic obstructive pulmonary disease? *British Journal of Occupational Therapy, 64*(6), 305-310.
- Shaffer, D. R. (1996). *Developmental Psychology: Childhood and Adolescence* (4th ed.). Pacific Grove, CA: Brooks/Cole Publishing Company.
- Shaffer, D., Fisher, P., Lucas, C. P., Dulcan, M. K., & Schwab-Stone, M. E. (2000). NIMH Diagnostic Interview Schedule for Children Version IV (NIMH DISC-IV): Description, Differences From Previous Versions, and Reliability of Some Common Diagnoses. *J Am Acad. Child Adolesc Psychiatry, 39*(1), 28-38. doi: 10.1097/00004583-200001000-00014
- Shaffer, D., Gould, M. S., Brasic, J., Ambrosini, P., Fisher, P., Bird, H., & Aluwahlia, S. (1983). A Children's Global Assessment Scale (CGAS). *Archives of General Psychiatry, 40*(11), 1228-1231.
- Sieving, R. E., Eisenberg, M. E., Pettingell, S., & Skay, C. (2006). Friends' Influence on Adolescents' First Sexual Intercourse. *Perspectives on Sexual and Reproductive Health, 38*(1), 13-19. doi: 10.1363/3801306
- Silverman, W. K., & Ollendick, T. H. (2005). Evidence-based assessment of anxiety and its disorders in children and adolescents. *Journal of Clinical Child and Adolescent Psychology, 34*(3), 380-411. doi: 10.1207/s15374424jccp3403\_2

- Smith, G. N., Ehmann, T. S., Flynn, S. W., MacEwan, G. W., Tee, K., Kopala, L. C., Thornton, A. E., Schenk, C. H., & Honer, W. G. (2011). The Assessment of Symptom Severity and Functional Impairment With DSM-IV Axis V. *Psychiatric Services, 62*(4), 411-417.
- Smucker, M. R., Craighead, W. E., Craighead, L. W., & Green, B. J. (1986). Normative and Reliability Data for the Children's Depression Inventory. *Journal-of-Abnormal-Child-Psychology, 14*(1), 25-39.
- Spence, S. H. (1994). Spence Children's Anxiety Scale. Retrieved from the Spence Children's Anxiety Scale Website: [http://www.scaswebsite.com/index.php?p=1\\_6](http://www.scaswebsite.com/index.php?p=1_6)
- Spence, S. H. (1997). Structure of Anxiety Symptoms Among Children: A Confirmatory Factor-Analytic Study. *J Abnorm. Psychol., 106*(2), 280-297. doi: 10.1037/0021-843X.106.2.280
- Spence, S. H. (1998). A measure of anxiety symptoms among children. *Behaviour Research and Therapy, 36*(5), 545-566.
- Spence, S. H., Barrett, P. M., & Turner, C. M. (2003). Psychometric properties of the Spence Children's Anxiety Scale with young adolescents. *Journal of Anxiety Disorders, 17*(6), 605-625. doi:10.1016/S0887-6185(02)00236-0
- Spence, S. H. (2012, February 7). Translations: SCAS and Preschool. The Spence Children's Anxiety Scale Website. [http://www.scaswebsite.com/1\\_16\\_.html](http://www.scaswebsite.com/1_16_.html)
- Spielberger, C. D. (1966). The Effects of Anxiety on Complex Learning and Academic Achievement. In C. D. Spielberger (Ed.), *Anxiety and Behavior* (pp. 361-398). New York, New York: Academic Press, Inc.

- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder: The GAD-7. *Archives of Internal Medicine*, *166*(10), 1092-1097. doi: 10.1001/archinte.166.10.1092
- Spitzer, R. L., & Wakefield, J. C. (1999). DSM-IV diagnostic criterion for clinical significance: Does it help solve the false positives problem? *American Journal of Psychiatry*, *156*(12), 1856-1864.
- Søgaard, A. J., Selmer, R., Bjertness, E., & Thelle, D. (2004). The Oslo Health Study: The impact of self-selection in a large, population-based survey. *International Journal for Equity in Health*, *3*(3). doi: 10.1186/1475-9276-3-3
- Stallard, P., Simpson, N., Anderson, S., Carter, T., Osborn, C., & Bush, S. (2005). An evaluation of the FRIENDS programme: a cognitive behaviour therapy intervention to promote emotional resilience. *Archives of Disease in Childhood*, *90*(10), 1016-1019. doi:10.1136/adc.2004.068163
- Stam, H., Grootenhuis, M. A., & Last, B. F. (2005). The course of life of survivors of childhood cancer. *Psycho-Oncology*, *14*(3), 227-238. doi: 10.1002/pon.839
- Storch, E. A., Larson, M. J., Muroff, J., Caporino, N., Geller, D., Reid, J. M., Morgan, M., Jordan, P., & Murphy, T. K. (2010). Predictors of functional impairment in pediatric obsessive-compulsive disorder. *Journal of Anxiety Disorders*, *24*(2), 275-283. doi: 10.1016/j.janxdis.2009.12.004
- Tait, R. C., Pollard, C. A., Margolis, R. B., Duckro, P. N., & Krause, S. J. (1987). The Pain Disability Index: Psychometric and Validity Data. *Archives of Physical Medicine and Rehabilitation*, *68*(7), 438-441.

- Tanti, C., Stukas, A. A., Halloran, M. J., & Foddy, M. (2011). Social identity change: Shifts in social identity during adolescence. *Journal of Adolescence*, 34(3), 555-567. doi: 10.1016/j.adolescence.2010.05.012
- Towbin, K. E., & Showalter, J. E. (2008). Adolescent Development. In A. Tasman, J. Kay, J. A. Lieberman, M. B. First, & M. Maj (Eds.), *Psychiatry* (3rd ed., pp. 161-180). England: John Wiley & Sons, Ltd.
- Townsend, E. A., & Polatajko, H. J. (Eds.). (2007). *Enabling Occupation II: Advancing An Occupational Therapy Vision For Health, Well-Being, & Justice Through Occupation* (pp. 364-374). Ottawa, ON: CAOT Publications ACE.
- Üstün, B., & Kennedy, C. (2009). What is "functional impairment"? Disentangling disability from clinical significance. *World Psychiatry*, 8(2), 82-85.
- University of Manitoba. *Informed Consent Guidelines*. Retrieved January 26, 2009, from [http://www.umanitoba.ca/faculties/medicine/research/ethics/consent\\_guidelines.htm](http://www.umanitoba.ca/faculties/medicine/research/ethics/consent_guidelines.htm)
- Vallance, A., & Garralda, E. (2008). Anxiety disorders in children and adolescents. *Psychiatry*, 7(8), 325-330. doi: 10.1016/j.mppsy.2008.05.014
- van Lang, N. D. J., Ferdinand, R. F., Oldehinkel, A. J., Ormel, J., & Verhulst, F. C. (2005). Concurrent validity of the DSM-IV scales Affective Problems and Anxiety Problems of the Youth Self-Report. *Behaviour-Research-and-Therapy*, 43(11), 1485-1494. doi: 10.1016/j.brat.2004.11.005
- Van Oort, F. V. A., Greaves-Lord, K., Verhulst, F. C., Ormel, J., & Huizink, A. C. (2009). The developmental course of anxiety symptoms during adolescence: the



- TRAILS study. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 50(10), 1209-1217. doi: 10.1111/j.1469-7610.2009.02092.x
- Verkerk, G. J. Q., Wolf, M. J. M. A. G., Louwers, A. M., Meester-Delver, A., & Nollet, F. (2006). The reproducibility and validity of the Canadian Occupational Performance Measure in parents of children with disabilities. *Clinical Rehabilitation*, 20(11), 980-988. doi: 10.1177/0269215506070703
- Vogels, T., Verrips, E. G. H., Koopman, H. M., Theunissen, N. C. M., Fekkes, M., & Kamphuis, R. P. (2000). *TACQOL manual, parent form and child form LCCHP-01*, Leiden Center for Child Health and Pediatrics LUMC-TNO. Retrieved February 13, 2012 from [http://worlddatabaseofhappiness.eur.nl/hap\\_bib/freetexts/vogels\\_tc\\_2004.pdf](http://worlddatabaseofhappiness.eur.nl/hap_bib/freetexts/vogels_tc_2004.pdf)
- Westenberg, P. M., & Gjerde, P. F. (1999). Ego Development during the Transition from Adolescence to Young Adulthood: A 9-Year Longitudinal Study. *Journal of Research in Personality*, 33(2), 233-252. doi: 10.1006/jrpe.1999.2248
- Wilkinson, L. (2002). Factors Influencing the Academic Success of Refugee Youth in Canada. *Journal of Youth Studies*, 5(2), 173-193.
- Whiteside, S. P., & Brown, A. M. (2008). Exploring the utility of the Spence Children's Anxiety Scales parent- and child-report forms in a North American sample. *Journal of Anxiety Disorders*, 22(8), 1440-1446. doi: 10.1016/j.janxdis.2008.02.006
- Wille, N., Bettge, S., Wittchen, H.-U., & Ravens-Sieberer, U. (2008). How impaired are children and adolescents by mental health problems? Results of the BELLA

study. *European Child & Adolescent Psychiatry*, 17(Suppl 1), 42-51. doi:  
10.1007/s00787-008-1005-0

Williams, P. G., Holmbeck, G. N., & Greenley, R. N. (2002). Adolescent Health Psychology. *Journal of Consulting and Clinical Psychology*, 70(3), 828-842. doi:  
10.1037//0022-006X.70.3.828

Winters, N. C., Collett, B. R., & Myers, K. M. (2005). Ten-Year Review of Rating Scales, VII: Scales Assessing Functional Impairment. *American Academy of Child and Adolescent Psychiatry. Journal*, 44(4), 309-338. doi:  
10.1097/01.chi.0000153230.57344.cd

Yesavage, J. A., Brink, T. L., Rose, T. L., Lum, O., Huang, V., Adey, M., & Leirer, V. O. (1983). Development and Validation of a Geriatric Depression Screening Scale: A Preliminary Report. *Journal of Psychiatric Research*, 17(1), 37-49. doi:  
10.1016/0022-3956(82)90033-4

Zhang, C., McCarthy, C., & Craik, J. (2008). Students as translators for the Canadian Model of Occupational Performance and Engagement. *Occupational Therapy Now*, 10(3), 3-5.

Zigmond, A. S., & Snaith, R. P. (1983). The Hospital Anxiety and Depression Scale. *Acta Psychiatrica Scandinavica*, 67(6), 361-370. doi: 10.1111/j.1600-0447.1983.tb09716.x

## Appendix A

### List of Copyrighted Material for which Permission was Obtained & Access Information for Assessment tools

This Appendix consists of information regarding “proof of written authorization to use copyrighted or commercial questionnaires”, as well as the sources to access for information regarding the assessment tools used in the current study.

#### **Canadian Occupational Performance Measure (COPM)**

Law, M. et al. (2000). Canadian Occupational Performance Measure. CAOT Publications ACE.

Law, M. et al. (2005). *Canadian Occupational Performance Measure* (4th ed.). CAOT Publications ACE.

Copies of this questionnaire were purchased for use in this research study.

#### **Adolescent Stress Questionnaire (ASQ-2)**

Byrne, D. G. (2004). Adolescent Stress Questionnaire – ASQ. The Australian National University.

Byrne, D. G., Davenport, S.C., & Mazanov, J. (2007). Profiles of adolescent stress: The development of the adolescent stress questionnaire (ASQ). *Journal-of-Adolescence*, 30(3), 393-416. doi:10.1016/j.adolescence.2006.04.004

The principal investigator (M. Horkoff) obtained Dr. Byrne’s consent to use this questionnaire (D. Byrne, personal communication, December 21, 2008).

**Appendix A** (continued)

List of Copyrighted Material for which Permission was Obtained and Access Information for Assessment tools

**Children's Depression Inventory (CDI)**

Kovacs, M. (1992a). Children's Depression Inventory (CDI) Manual. Toronto, ON: Multi-Health Systems, Inc.

Kovacs, M. (1992b). Children's Depression Inventory (CDI). Toronto, ON: Multi-Health Systems Inc.

Copies of this questionnaire were purchased for use in this research study.

**Spence Children's Anxiety Scale (SCAS)**

Spence, S. H. (1994). Spence Children's Anxiety Scale. Retrieved from the Spence

Children's Anxiety Scale Website: [http://www.scaswebsite.com/index.php?p=1\\_6](http://www.scaswebsite.com/index.php?p=1_6)

This questionnaire is available for researchers to use free of charge.

Spence, S. H. (1997). Structure of Anxiety Symptoms Among Children: A Confirmatory Factor-Analytic Study. *J Abnorm.Psychol.*, 106(2), 280-297.

**St. Boniface Hospital's name**

The principal investigator (M. Horkoff) obtained consent to use the hospital's name in the thesis from the Office of Clinical Research at St. Boniface Hospital (J. Riddell, personal communication, January 18, 2012).

**Appendix B**

Classification Data Form

**ID Number:** \_\_\_\_\_

**Date:** \_\_\_\_\_

*Collection of Classification Data*

**The contents of this form are absolutely confidential. Information identifying you will not be used under any circumstances.**

**For these questions:**

- \* **Mark your answers with an “X” (unless given other directions)**
- \* **Pick only one answer per question**

**SECTION 1: Family Characteristics**

**These questions ask about your family structure and living arrangements**

<b>1) Do you live:</b>	
<input type="checkbox"/> With both biological parents	<input type="checkbox"/> With a foster family
<input type="checkbox"/> With biological mother	<input type="checkbox"/> Independently
<input type="checkbox"/> With biological father	<input type="checkbox"/> Other (please explain):
<input type="checkbox"/> In a group home	_____
<b>2) Are your biological parents: *If ‘Deceased’ go to Section 2</b>	
<input type="checkbox"/> Married	<input type="checkbox"/> Deceased * (date): _____
<input type="checkbox"/> Separated	<input type="checkbox"/> Mother <input type="checkbox"/> Father <input type="checkbox"/> Both
<input type="checkbox"/> Divorced	
<input type="checkbox"/> Other (please explain):	
_____	
<b>3) How often do you see the biological parent you do not live with?</b>	
<input type="checkbox"/> Once a week or more	<input type="checkbox"/> At least once a year
<input type="checkbox"/> Every second week	<input type="checkbox"/> Less than once a year
<input type="checkbox"/> At least once a month	<input type="checkbox"/> Not at all

**Appendix B** (continued)

Classification Data Form

**SECTION 2: Medications**

**The following question is about current prescribed medications**

1) Are you currently taking any prescription medications? <b>* If 'No' go to Section 3</b>	
<input type="checkbox"/> Yes	<input type="checkbox"/> No*
2) Please list any prescription medications that you are currently taking and state what they are for.	<hr/> <hr/> <hr/>

**SECTION 3: Comorbidity**

**This question asks about your health.**

1) Do you have any medical conditions that you are aware of? If yes please identify them.	<hr/> <hr/>
---	-------------

**SECTION 4: Demographics**

**This last group of questions will help us to group your answers and compare the information that has been collected.**

2) Sex:	<input type="checkbox"/> Male	<input type="checkbox"/> Female
---------	-------------------------------	---------------------------------

3) Today's Date:			
	<b>Day</b>	<b>Month</b>	<b>Year</b>
Example:	13	02	1950
<b>Today's date:</b>			

4) Date of birth:			
	<b>Day</b>	<b>Month</b>	<b>Year</b>
Example:	13	02	1950
<b>Date of Birth:</b>			

### Appendix C

#### Key Points from the Symptom & Occupational Performance Literature Relevant to the Current Study

Article	# of times <i>COPM</i> conducted	<i>Mental health</i> measures used	Symptoms measured <i>one time</i>	Design & Procedures
McNulty and Beplat (2008)	1	Geriatric Depression Scale <sup>a</sup>	√	N = 20
Bailey et al. (1999)	2			N = 149
Brincat (2004)	1		√	N = 10
Carpenter et al. (2001)	3	Beck Anxiety Inventory <sup>b</sup> , & Beck Depression Inventory <sup>c</sup>		N = 87
Corr et al. (2004)	3	Hospital Anxiety & Depression scale <sup>d</sup>		N = 26
Dagfinrud et al. (2005)	1		√	N = 152
Davidson et al. (2009)	3	Hospital Anxiety & Depression scale <sup>d</sup>		N = 27 <sup>e</sup>
Fragala et al. (2002)	Numerous times			N = 7

(continued)

<sup>a</sup> Yesavage et al. (1983). <sup>b</sup> Beck et al., 1988). <sup>c</sup> Beck, Ward, Mendelson, Mock, and Erbaugh (1961). <sup>d</sup> Zigmond and Snaith (1983). <sup>e</sup> Only n = 24 completed the COPM.

**Appendix C** (continued)

## Key Points from the Symptom &amp; Occupational Performance Literature Relevant to the Current Study

Article	# of times <i>COPM</i> conducted	<i>Mental health</i> measures used	Symptoms measured <i>one time</i>	Design & Procedures
Gilbertson and Langhorne (2000)	3			N = 138 Blind randomized control trial
Jenkinson et al. (2007)	2	Hospital Anxiety & Depression scale <sup>a</sup>		N = 34 Randomly divided groups; for part of experiment only
Mead et al. (2007)	2	Hospital Anxiety & Depression scale <sup>a</sup>		N = 31
Rice and Waugh (2009)	3			N = 14
Rochman et al. (2008)	2			N = 29
Sandqvist et al. (2009)	4			N = 31
Schmid et al. (2009)	3	Patient Health Questionnaire <sup>b</sup> , & Generalized Anxiety Disorder – 7 <sup>c</sup>		N = 28

<sup>a</sup> Zigmond and Snaith (1983). <sup>b</sup> Kroenke, Spitzer, and Williams (2001). <sup>c</sup> Spitzer, Kroenke, Williams, and Löwe (2006).



## Appendix D

Letter of Support for Service1

**St. Boniface Hospital  
Child and Adolescent Mental Health Program  
Anxiety Disorders Service for Children and Youth**

Dear Adolescent & Parent/Guardian:

**RE: Research Study**

You are being asked to participate in a research study, “Adolescents, Anxiety & Occupational Performance”, by Michelle Horkoff. Michelle Horkoff is a Master’s of Science (Medical Rehabilitation) student from the University of Manitoba, and you are being offered an opportunity to participate in a research study which she is conducting as part of her educational program.

The purpose of this research is to examine the relationship between anxiety symptoms and an adolescent’s occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure).

To ensure your confidentiality and privacy, the request for your involvement has been forwarded to you by the St. Boniface Hospital Anxiety Disorders Service for Children and Youth directly and not by the researcher. This way no personal information has been disclosed to the researcher. If you want to participate, you may contact Ms. M. Horkoff directly at the contact information included in the attached letter of introduction.

Thank you for your time and consideration of this valuable research study.

Sincerely,

Gary Altman, M.D. FRCP(C)  
Anxiety Disorders Service for Children and Youth  
Child and Adolescent Mental Health Program  
St. Boniface Hospital

## Appendix E

Letter of Support for Service2

**CLINICAL HEALTH PSYCHOLOGY**  
**M1 – 409 Taché Ave.**  
**Winnipeg, Manitoba R2H 2A6**

Date

Dear Adolescent & Parent/Guardian:

**RE: Research Study**

You are being asked to participate in a research study, “Adolescents, Anxiety & Occupational Performance”, by Michelle Horkoff. Michelle Horkoff is a Master’s of Science (Medical Rehabilitation) student from the University of Manitoba, and you are being offered an opportunity to participate in a research study which she is conducting as part of her educational program.

The purpose of this research is to examine the relationship between anxiety symptoms and an adolescent’s occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure).

To ensure your confidentiality and privacy, the request for your involvement has been forwarded to you by the St. Boniface Hospital Anxiety Disorders Program (Child Service, with Clinical Health Psychology) directly and not by the researcher. This way no personal information has been disclosed to the researcher. If you want to participate, you may contact Ms. M. Horkoff directly at the contact information included in the attached letter of introduction.

Thank you for your time and consideration of this valuable research study.

Sincerely,

John R. Walker, Ph.D.  
Clinical Psychologist  
Director, Anxiety Disorders Program  
Professor, Department of Clinical Health Psychology  
University of Manitoba

## Appendix F

### Recruitment Letter for Service1

Date

Dear Parent/Guardian & Adolescent,

Hello, my name is Michelle Horkoff and I am a Master's of Science (Medical Rehabilitation) student from the University of Manitoba. I am writing this letter to offer your son or daughter an opportunity to participate in a research study titled "Adolescents, Anxiety & Occupational Performance" which I am conducting as part of my educational program. This study is targeting adolescents 13-17 years of age, and will be examining the relationship between anxiety symptoms and an adolescent's occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure). The information gathered from this study will provide us with a better understanding of how to help adolescents who are anxious participate in these activities.

This study will require approximately 75 minutes of your son or daughter's time. He or she will be asked to complete 3 questionnaires, one interview, and a classification data form. Meanwhile, you (i.e., parent/guardian) will only need to be present for approximately 5-10 minutes at the beginning of the appointment in order to give your consent.

There is no charge to participate in this study. You do not have to participate in this study and your non-participation will not affect the care you are receiving through the Anxiety Disorders Service for Children and Youth at St. Boniface Hospital. Participating in this study, however, will help us gain a better understanding about how to help adolescents who are anxious participate in activities that are meaningful to them.

Appointment times for this study are flexible and will take place at St. Boniface Hospital, McEwen Building (M-1 South). If you would like, you may inquire about the possibility of coordinating this appointment around one of your son or daughter's next appointments to the Anxiety Disorders Service for Children and Youth.

For their time, and to cover transportation costs, adolescents will receive a cash honorarium of \$15.00. This honorarium will be provided immediately following the completion of the questionnaires.

**Appendix F** (continued)

Recruitment Letter for Service1

Thank you in advance for your time & assistance. I look forward to working with you in the near future.

***If you are interested in participating, or have any questions, please contact me at 237-2627.***

Sincerely,

Michelle Horkoff, O.T. Reg. (MB)  
Master's of Science (Medical Rehabilitation) Student

## Appendix G

### Recruitment Letter for Service2

Date

Dear Parent/Guardian & Adolescent,

Hello, my name is Michelle Horkoff and I am a Master's of Science (Medical Rehabilitation) student from the University of Manitoba. I am writing this letter to offer your son or daughter an opportunity to participate in a research study titled "Adolescents, Anxiety & Occupational Performance" which I am conducting as part of my educational program. This study is targeting adolescents 13-17 years of age, and will be examining the relationship between anxiety symptoms and an adolescent's occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure). The information gathered from this study will provide us with a better understanding of how to help adolescents who are anxious participate in these activities.

This study will require approximately 75 minutes of your son or daughter's time. He or she will be asked to complete 3 questionnaires, one interview, and a classification data form. Meanwhile, you (i.e., parent/guardian) will only need to be present for approximately 5-10 minutes at the beginning of the appointment in order to give your consent.

There is no charge to participate in this study. You do not have to participate in this study and your non-participation will not affect the care you are receiving through the Anxiety Disorders Program (Child Service, with Clinical Health Psychology) at St. Boniface Hospital. Participating in this study, however, will help us gain a better understanding about how to help adolescents who are anxious participate in activities that are meaningful to them.

Appointment times for this study are flexible and will take place at St. Boniface Hospital, McEwen Building (M-1 South). If you would like, you may inquire about the possibility of coordinating this appointment around one of your son or daughter's next appointments to the Anxiety Disorders Program (Child Service, with Clinical Health Psychology).

For their time, and to cover transportation costs, adolescents will receive a cash honorarium of \$15.00. This honorarium will be provided immediately following the completion of the questionnaires.

**Appendix G** (continued)

Recruitment Letter for Service2

Thank you in advance for your time & assistance. I look forward to working with you in the near future.

***If you are interested in participating, or have any questions, please contact me at 237-2627.***

Sincerely,

Michelle Horkoff, O.T. Reg. (MB)  
Master's of Science (Medical Rehabilitation) Student

## Appendix H

### Follow-up Letter for Service1

Date

Dear Parent/Guardian & Adolescent,

Hello, my name is Michelle Horkoff and I am a Master's of Science (Medical Rehabilitation) student from the University of Manitoba. A few weeks ago you received a letter to inviting your son or daughter to participate in a research study which I am conducting entitled "Adolescents, Anxiety & Occupational Performance" as part of my educational program.

As a reminder from my previous letter, this study is targeting adolescents 13-17 years of age and will be examining the relationship between anxiety symptoms and an adolescent's occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure). The information gathered from this study will provide us with a better understanding of how to help adolescents who are anxious participate in these activities.

This study will require approximately 75 minutes of your son or daughter's time. He or she will be asked to complete 3 questionnaires, one interview, and a classification data form. Meanwhile, you (i.e., parent/guardian) will only need to be present for approximately 5-10 minutes at the beginning of the appointment in order to give your consent.

There is no charge to participate in this study. You do not have to participate in this study and your non-participation will not affect the care you are receiving through the Anxiety Disorders Service for Children and Youth at St. Boniface Hospital. Participating in this study, however, will help us to gain a better understanding about how to help adolescents who are anxious participate in activities which are meaningful to them.

Appointment times for this study are flexible and will take place at St. Boniface Hospital, McEwen Building (M-1 South). If you would like, you may inquire about the possibility of coordinating this appointment around one of your son or daughter's next appointments to the Anxiety Disorders Service for Children and Youth.

**Appendix H** (continued)

## Follow-up Letter for Service1

For their time, and to cover transportation costs, adolescents will receive a cash honorarium of \$15.00. This honorarium will be provided immediately following the completion of the questionnaires.

Thank you in advance for your time & assistance. I look forward to working with you in the near future.

***If you are interested in participating, or have any questions, please contact me at 237-2627.***

Sincerely,

Michelle Horkoff, O.T. Reg. (MB)  
Master's of Science (Medical Rehabilitation) Student



## Appendix I

### Follow-up Letter for Service2

Date

Dear Parent/Guardian & Adolescent,

Hello, my name is Michelle Horkoff and I am a Master's of Science (Medical Rehabilitation) student from the University of Manitoba. A few weeks ago you received a letter to inviting your son or daughter to participate in a research study which I am conducting entitled "Adolescents, Anxiety & Occupational Performance" as part of my educational program.

As a reminder from my previous letter, this study is targeting adolescents 13-17 years of age and will be examining the relationship between anxiety symptoms and an adolescent's occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure). The information gathered from this study will provide us with a better understanding of how to help adolescents who are anxious participate in these activities.

This study will require approximately 75 minutes of your son or daughter's time. He or she will be asked to complete 3 questionnaires, one interview, and a classification data form. Meanwhile, you (i.e., parent/guardian) will only need to be present for approximately 5-10 minutes at the beginning of the appointment in order to give your consent.

There is no charge to participate in this study. You do not have to participate in this study and your non-participation will not affect the care you are receiving through the Anxiety Disorders Program (Child Service, with Clinical Health Psychology) at St. Boniface Hospital. Participating in this study, however, will help us to gain a better understanding about how to help adolescents who are anxious participate in activities which are meaningful to them.

Appointment times for this study are flexible and will take place at St. Boniface Hospital, McEwen Building (M-1 South). If you would like, you may inquire about the possibility of coordinating this appointment around one of your son or daughter's next appointments to the Anxiety Disorders Program (Child Service, with Clinical Health Psychology).

**Appendix I** (continued)

## Follow-up Letter for Service2

For their time, and to cover transportation costs, adolescents will receive a cash honorarium of \$15.00. This honorarium will be provided immediately following the completion of the questionnaires.

Thank you in advance for your time & assistance. I look forward to working with you in the near future.

***If you are interested in participating, or have any questions, please contact me at 237-2627.***

Sincerely,

Michelle Horkoff, O.T. Reg. (MB)  
Master's of Science (Medical Rehabilitation) Student

## Appendix J

### Consent Form for Service1

#### RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM

Title of Study: “Adolescents, Anxiety & Occupational Performance”

Principal Investigator: Michelle Horkoff  
 St. Boniface Hospital  
 409 Taché (M1- North)  
 WPG, MB, R2H 2A6 Phone #: 237-2627

Co-Investigator: Gayle Restall  
 Assistant Professor  
 School of Medical Rehabilitation  
 R106-771 McDermot Ave.  
 University of Manitoba  
 WPG, MB, R3E 0T6 Phone #: 975-7736

You are being asked to participate in a research study. Please take your time to review this consent form and discuss any questions you may have with the study staff (i.e., Michelle Horkoff or Robin Jewers). You may take your time to make your decision about participating in this study and you may discuss it with your friends and family before you make your decision. This consent form may contain words that you do not understand. Please ask the study staff to explain any words or information that you do not clearly understand.

#### Purpose of Study

This research study is being conducted to examine the relationship between anxiety symptoms and an adolescent's occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure).

A total of 45 participants, 13-17 years of age, will participate in this study.

**Appendix J** (continued)

## Consent Form for Service1

Study procedures

Aspects of the study which are *Study Specific* (i.e. *not* part of Standard Care):  
As a study participant you will be required to attend one face-to-face appointment, approximately 75 minutes in duration. At this time you will be asked to complete three questionnaires, one interview, and a classification data form:

*Questionnaires*

- 1) Adolescent Stress Questionnaire (ASQ-2)
  - Measures stressors you have experienced over the past year
- 2) Children's Depression Inventory (CDI)
  - Assesses, and grades the severity of, symptoms of depression
- 3) Spence Children's Anxiety Scale (SCAS)
  - Measures anxiety symptoms

*Interview*

- 1) Canadian Occupational Performance Measure (COPM)
  - Assesses your performance in, & satisfaction with, daily activities you want or need to do.
  - Takes 15-30 minutes to complete

*Classification data form*

- This form will allow for the information collected to be compared according to age, gender etc.

This study will not impact the waiting times for you to receive treatment services by the Anxiety Disorders Service for Children & Youth at St. Boniface Hospital.

You can stop participating at any time. However, if you decide to stop participating in the study, we encourage you to talk to the study staff first.

Should you be interested in learning of the results of this study you are encouraged to contact the principal investigator (Michelle Horkoff; see above for contact information).

**Appendix J** (continued)

## Consent Form for Service1

Risks and Discomforts

The SCAS will require you to think about your worries. The COPM may require you to discuss activities which you currently do not participate in because they are anxiety provoking. You will be asked to think about the stressors you have experienced over the past year when filling out the ASQ-2. Meanwhile, the CDI will have you provide information about how you have felt the past two weeks. This discussion may result in you experiencing some distress or anxiety.

Should you experience (or appear to be experiencing) distress or anxiety you will be reminded that you may withdraw from the study at anytime. You will be encouraged to meet with and discuss these topics with your case coordinator on the Anxiety Disorders Service for Children & Youth. Finally, you will be reminded of the emergency crisis services available to you (i.e., the Children's Hospital Emergency Department at Health Sciences Centre, and the Youth Emergency Crisis Stabilization System).

Benefits

There may or may not be direct benefit to you from participating in this study. We hope the information learned from this study will benefit other adolescents with anxiety in the future.

Costs

All the procedures, which will be performed as part of this study, are provided at no cost to you.

Payment for participation

You (i.e., the adolescent participant) will be given \$15.00 as an honorarium.

This honorarium will be to cover transportation costs to/from the appointment (i.e., bus fare or gas), and for your time when you participate in the data collection session. An envelope with the payment enclosed, in the form of cash, will be provided immediately following your face-to-face appointment with the principal investigator (or Robin Jewers), and subsequent completion of the four measures (i.e., the ASQ-2, CDI, COPM, & SCAS) and the classification data form.

**Appendix J** (continued)

## Consent Form for Service1

Alternatives

You do not have to participate in this study to receive treatment for your anxiety. Please talk to your case coordinator about all your treatment options.

Confidentiality

Information gathered in this research study may be published or presented in public forums; however your name and other identifying information will not be used or revealed. All study related documents will bear only your assigned study number. Despite efforts to keep your personal information confidential, absolute confidentiality cannot be guaranteed. Your personal information may be disclosed if required by law. If you identify currently having thoughts of self-harm, thoughts of harming others, or if you identify having experienced abuse study staff will document this information in your St. Boniface Hospital medical record, and speak with your case coordinator on the Anxiety Disorders Service for Children and Youth,

The University of Manitoba Health Research Ethics Board and St. Boniface Hospital may review research-related records for quality assurance purposes.

Medical records that contain your identity will be treated as confidential in accordance with the Personal Health and Information Act of Manitoba. All records will be kept in a locked secure area and only those persons identified will have access to these records. If any of your research records need to be copied to any of the above, your name and all identifying information will be removed. No information revealing any personal information such as your name, address or telephone number will leave St. Boniface Hospital.

Voluntary Participation/Withdrawal from the Study

Your decision to take part in this study is voluntary. You may refuse to participate or you may withdraw from the study at any time. Your decision not to participate or to withdraw from the study will not affect your care at this centre. If the study staff feel that it is in your best interest to withdraw you from the study, they will remove you without your consent.

We will tell you about any new information that may affect your health, welfare, or willingness to stay in this study.

**Appendix J** (continued)

Consent Form for Service1

Questions

You are free to ask any questions that you may have about your treatment and your rights as a research participant. If any questions come up during or after the study contact: Michelle Horkoff at 237-2627.

For questions about your rights as a research participant, you may contact The University of Manitoba, Bannatyne Campus Research Ethics Board Office at (204) 789-3389.

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Statement of Consent

I have read this consent form. I have had the opportunity to discuss this research study with Michelle Horkoff (or Robin Jewers). I have had my questions answered by them in language I understand. The risks and benefits have been explained to me. I believe that I have not been unduly influenced by any study team member to participate in the research study by any statements or implied statements. Any relationship (such as employer, supervisor or family member) I may have with the study team has not affected my decision to participate. I understand that I will be given a copy of this consent form after signing it. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to my participation in this research study.

I understand that information regarding my personal identity will be kept confidential, but that confidentiality is not guaranteed. I authorize the inspection of any of my records that relate to this study by The University of Manitoba Research Ethics Board for quality assurance purposes.

By signing this consent form, I have not waived any of the legal rights that I have as a participant in a research study.

\_\_\_\_\_

Parent/legal guardian's signature \_\_\_\_\_

Date \_\_\_\_\_  
(day/month/year)

Parent/legal guardian's printed name: \_\_\_\_\_

**Appendix J** (continued)

Consent Form for Service1

Child's signature \_\_\_\_\_ Date \_\_\_\_\_  
 (day/month/year)

Child's printed name: \_\_\_\_\_

I, the undersigned, attest that the information in the Participant Information and Consent Form was accurately explained to and apparently understood by the participant or the participant's legally acceptable representative and that consent to participate in this study was freely given by the participant or the participant's legally acceptable representative.

Witness signature \_\_\_\_\_ Date \_\_\_\_\_  
 (day/month/year)

Witness printed name: \_\_\_\_\_

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has knowingly given their consent.

Printed Name: \_\_\_\_\_ Date \_\_\_\_\_  
 (day/month/year)

Signature: \_\_\_\_\_

Role in the study: \_\_\_\_\_



## Appendix K

### Consent Form for Service2

#### RESEARCH PARTICIPANT INFORMATION AND CONSENT FORM

Title of Study: “Adolescents, Anxiety & Occupational Performance”

Principal Investigator: Michelle Horkoff  
 St. Boniface Hospital  
 409 Taché (M1- North)  
 WPG, MB, R2H 2A6 Phone #: 237-2627

Co-Investigator: Gayle Restall  
 Assistant Professor  
 School of Medical Rehabilitation  
 R106-771 McDermot Ave.  
 University of Manitoba  
 WPG, MB, R3E 0T6 Phone #: 975-7736

You are being asked to participate in a research study. Please take your time to review this consent form and discuss any questions you may have with the study staff (i.e., Michelle Horkoff or Robin Jewers). You may take your time to make your decision about participating in this study and you may discuss it with your friends and family before you make your decision. This consent form may contain words that you do not understand. Please ask the study staff to explain any words or information that you do not clearly understand.

#### Purpose of Study

This research study is being conducted to examine the relationship between anxiety symptoms and an adolescent's occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure).

A total of 45 participants, 13-17 years of age, will participate in this study.

**Appendix K** (continued)

## Consent Form for Service2

Study procedures

Aspects of the study which are *Study Specific* (i.e. *not* part of Standard Care):

As a study participant you will be required to attend one face-to-face appointment, approximately 75 minutes in duration. At this time you will be asked to complete three questionnaires, one interview, and a classification data form:

*Questionnaires*

- 1) Adolescent Stress Questionnaire (ASQ-2)
  - Measures stressors you have experienced over the past year
- 2) Children's Depression Inventory (CDI)
  - Assesses, and grades the severity of, symptoms of depression
- 3) Spence Children's Anxiety Scale (SCAS)
  - Measures anxiety symptoms

*Interview*

- 1) Canadian Occupational Performance Measure (COPM)
  - Assesses your performance in, & satisfaction with, daily activities you want or need to do.
  - Takes 15-30 minutes to complete

*Classification data form*

- This form will allow for the information collected to be compared according to age, gender etc.

This study will not impact the waiting times for you to receive treatment services by the Anxiety Disorders Program (Child Service, with Clinical Health Psychology) at St. Boniface Hospital.

You can stop participating at any time. However, if you decide to stop participating in the study, we encourage you to talk to the study staff first.

**Appendix K** (continued)

## Consent Form for Service2

Should you be interested in learning of the results of this study you are encouraged to contact the principal investigator (Michelle Horkoff; see above for contact information).

Risks and Discomforts

The SCAS will require you to think about your worries. The COPM may require you to discuss activities which you currently do not participate in because they are anxiety provoking. You will be asked to think about the stressors you have experienced over the past year when filling out the ASQ-2. Meanwhile, the CDI will have you provide information about how you have felt the past two weeks. This discussion may result in you experiencing some distress or anxiety.

Should you experience (or appear to be experiencing) distress or anxiety you will be reminded that you may withdraw from the study at anytime. You will be encouraged to meet with and discuss these topics with your case coordinator on the Anxiety Disorders

Program (Child Service, with Clinical Health Psychology). Finally, you will be reminded of the emergency crisis services available to you (i.e., the Children's Hospital Emergency Department at Health Sciences Centre, and the Youth Emergency Crisis Stabilization System).

Benefits

There may or may not be direct benefit to you from participating in this study. We hope the information learned from this study will benefit other adolescents with anxiety in the future.

Costs

All the procedures, which will be performed as part of this study, are provided at no cost to you.

Payment for participation

You (i.e., the adolescent participant) will be given \$15.00 as an honorarium.

**Appendix K** (continued)

## Consent Form for Service2

This honorarium will be to cover transportation costs to/from the appointment (i.e., bus fare or gas), and for your time when you participate in the data collection session. An envelope with the payment enclosed, in the form of cash, will be provided immediately following your face-to-face appointment with the principal investigator (or Robin Jewers), and subsequent completion of the four measures (i.e., the ASQ-2, CDI, COPM, & SCAS) and the classification data form.

Alternatives

You do not have to participate in this study to receive treatment for your anxiety. Please talk to your case coordinator about all your treatment options.

Confidentiality

Information gathered in this research study may be published or presented in public forums; however your name and other identifying information will not be used or revealed. All study related documents will bear only your assigned study number. Despite efforts to keep your personal information confidential, absolute confidentiality cannot be guaranteed. Your personal information may be disclosed if required by law. If you identify currently having thoughts of self-harm, thoughts of harming others, or if you identify having experienced abuse study staff will document this information in your St. Boniface Hospital medical record, and speak with your case coordinator on Anxiety Disorders Program (Child Service, with Clinical Health Psychology).

The University of Manitoba Health Research Ethics Board and St. Boniface Hospital may review research-related records for quality assurance purposes.

Medical records that contain your identity will be treated as confidential in accordance with the Personal Health and Information Act of Manitoba. All records will be kept in a locked secure area and only those persons identified will have access to these records. If any of your research records need to be copied to any of the above, your name and all identifying information will be removed. No information revealing any personal information such as your name, address or telephone number will leave St. Boniface Hospital.

**Appendix K** (continued)

## Consent Form for Service2

Voluntary Participation/Withdrawal from the Study

Your decision to take part in this study is voluntary. You may refuse to participate or you may withdraw from the study at any time. Your decision not to participate or to withdraw from the study will not affect your care at this centre. If the study staff feel that it is in your best interest to withdraw you from the study, they will remove you without your consent.

We will tell you about any new information that may affect your health, welfare, or willingness to stay in this study.

Questions

You are free to ask any questions that you may have about your treatment and your rights as a research participant. If any questions come up during or after the study contact: Michelle Horkoff at 237-2627.

For questions about your rights as a research participant, you may contact The University of Manitoba, Bannatyne Campus Research Ethics Board Office at (204) 789-3389.

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Statement of Consent

I have read this consent form. I have had the opportunity to discuss this research study with Michelle Horkoff (or Robin Jewers). I have had my questions answered by them in language I understand. The risks and benefits have been explained to me. I believe that I have not been unduly influenced by any study team member to participate in the research study by any statements or implied statements. Any relationship (such as employer, supervisor or family member) I may have with the study team has not affected my decision to participate. I understand that I will be given a copy of this consent form after signing it. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to my participation in this research study.

I understand that information regarding my personal identity will be kept confidential, but that confidentiality is not guaranteed. I authorize the inspection of any of my records that relate to this study by The University of Manitoba Research Ethics Board for quality assurance purposes.

By signing this consent form, I have not waived any of the legal rights that I have as a participant in a research study.

**Appendix K** (continued)

Consent Form for Service2

Parent/legal guardian's signature \_\_\_\_\_ Date \_\_\_\_\_  
 (day/month/year)

Parent/legal guardian's printed name: \_\_\_\_\_

Child's signature \_\_\_\_\_ Date \_\_\_\_\_  
 (day/month/year)

Child's printed name: \_\_\_\_\_

I, the undersigned, attest that the information in the Participant Information and Consent Form was accurately explained to and apparently understood by the participant or the participant's legally acceptable representative and that consent to participate in this study was freely given by the participant or the participant's legally acceptable representative.

Witness signature \_\_\_\_\_ Date \_\_\_\_\_  
 (day/month/year)

Witness printed name: \_\_\_\_\_

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has knowingly given their consent.

Printed Name: \_\_\_\_\_ Date \_\_\_\_\_  
 (day/month/year)

Signature: \_\_\_\_\_

Role in the study: \_\_\_\_\_

## Appendix L

### Assent Form for Service1

#### ASSENT for Adolescents 13 years old

Study Title: “Adolescents, Anxiety & Occupational Performance”

Investigators: Michelle Horkoff & Gayle Restall

#### Why you are here?

We want to tell you about a study about adolescents (13-17 years old) with anxiety. We want to know if you would like to be in this study. This form will tell you about the study. If there is anything you do not understand, please ask your parent, guardian or myself.

#### Why am I doing this study?

We want to see if there is a relationship between anxiety symptoms and an adolescent’s occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure).

#### What can you expect to happen?

The part of the study that is *new* (i.e. is *Study Specific*):

As a study participant you will attend one face-to-face appointment about 75 minutes long. At this time you will be asked to complete three questionnaires, one interview, and a classification data form:

#### *Questionnaires*

- 1) Adolescent Stress Questionnaire (ASQ-2)
  - Measures stressors you have experienced over the past year

**Appendix L** (continued)

## Assent Form for Service 1

## 2) Children's Depression Inventory (CDI)

- Measures, and grades the severity of, symptoms of depression

## 3) Spence Children's Anxiety Scale (SCAS)

- Measures your anxiety symptoms

*Interview*

## 1) Canadian Occupational Performance Measure (COPM)

- Will look at your performance in, & satisfaction with, daily activities you want or need to do (e.g., school, sports etc.).
- Takes 15-30 minutes to complete

*Classification data form*

- This form will allow for the information collected to be compared according to age, gender etc.

Will the study hurt?

No, this study will not hurt.

The study will have you think about your worries and identify your feelings the past few weeks; therefore you might feel more anxious or sad for a little while.

Will you get better if you are in the study?

This study may or may not be helpful to you, but the information we get might help other adolescents experiencing anxiety in the future.

What if you have any questions?

You can ask questions any time, now or later. You can talk to me, or your family.





**Appendix L** (continued)

Assent Form for Service1

I confirm that I have explained the study to the participant to the extent compatible with the participants understanding, and that the participant has agreed to be in the study.

_____	_____	_____
Printed name of Person obtaining assent	Signature of Person obtaining assent	Date

## Appendix M

### Assent Form for Service2

#### ASSENT for Adolescents 13 years old

Study Title: “Adolescents, Anxiety & Occupational Performance”

Investigators: Michelle Horkoff & Gayle Restall

#### Why you are here?

We want to tell you about a study about adolescents (13-17 years old) with anxiety. We want to know if you would like to be in this study. This form will tell you about the study. If there is anything you do not understand, please ask your parent, guardian or myself.

#### Why am I doing this study?

We want to see if there is a relationship between anxiety symptoms and an adolescent’s occupational performance (i.e., *meaningful* occupations in the area of self-care, productivity, and leisure).

#### What can you expect to happen?

The part of the study that is *new* (i.e. is *Study Specific*):

As a study participant you will attend one face-to-face appointment about 75 minutes long. At this time you will be asked to complete three questionnaires, one interview, and a classification data form:

#### *Questionnaires*

##### 1) Adolescent Stress Questionnaire (ASQ-2)

- Measures stressors you have experienced over the past year

**Appendix M** (continued)

## Assent Form for Service2

## 2) Children's Depression Inventory (CDI)

- Measures, and grades the severity of, symptoms of depression

## 3) Spence Children's Anxiety Scale (SCAS)

- Measures your anxiety symptoms

*Interview*

## 2) Canadian Occupational Performance Measure (COPM)

- Will look at your performance in, & satisfaction with, daily activities you want or need to do (e.g., school, sports etc.).
- Takes 15-30 minutes to complete

*Classification data form*

- This form will allow for the information collected to be compared according to age, gender etc.

Will the study hurt?

No, this study will not hurt.

The study will have you think about your worries and identify your feelings the past few weeks; therefore you might feel more anxious or sad for a little while.

Will you get better if you are in the study?

This study may or may not be helpful to you, but the information we get might help other adolescents experiencing anxiety in the future.

What if you have any questions?

You can ask questions any time, now or later. You can talk to me, or your family.

**Appendix M** (continued)

## Assent Form for Service2

Who will know what I did in the study?

Any information you give to the study staff will be kept private. Your name will not be on any study paper and no one but the study staff will know that it was you who was in the study.

If you identify currently having thoughts of self-harm, thoughts of harming others, or if you identify having experienced abuse study staff will write this information in your St. Boniface Hospital medical record, and speak with your case coordinator on the Anxiety Disorders Program (Child Service, with Clinical Health Psychology).

Do you have to be in the study?

You do not have to be in the study. No one will be mad at you if you do not want to do this. If you do not want to be in this study, just say so. We will also ask your parents if they would like you to be in the study. Even if your parents want you to be in the study you can still say no. You will still receive treatment for your anxiety.

Even if you say yes now you can change your mind later. It is up to you.

Do you have any questions?

What questions do you have?

---

Assent

I want to take part in this study. I know I can change my mind at any time.

\_\_\_\_\_  
Print name of child

Verbal assent given Yes

**Appendix M** (continued)

Assent Form for Service2

Written assent if the child chooses to sign the assent.

Signature of Child	Age	Date

I confirm that I have explained the study to the participant to the extent compatible with the participants understanding, and that the participant has agreed to be in the study.

Printed name of Person obtaining assent	Signature of Person obtaining assent	Date