PARENT AND CHILD FACTORS ASSOCIATED WITH PARENTAL INTEREST TO PARTICIPATE IN ACE: A PARENT-ADMINISTERED, INTERNET-DELIVERED CBT INTERVENTION FOR CHILD ANXIETY

Honours Thesis

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Abstract

If left untreated, anxiety could translate its harmful effects onto later development, making it crucial to treat it in its earlier stages, where it often begins in childhood (Kessler et al., 2007). However, very few children with mental illnesses utilize mental health services (Shanley, Reid & Evans, 2008). This service gap needs to be addressed. A relatively novel yet promising therapeutic intervention that could potentially reduce the service gap is parent-administered, Internet-delivered cognitive behavioural therapy (PA-iCBT) interventions, with the Anxiety treatment for Children through online Education course (ACE) being an example. ACE was designed to reduce child anxiety in particular.

Since this promising type of intervention is in its infant stages, it is important to build on its literature by determining which parent and child factors are associated with parental interest to participate in this type of program. To measure parental factors, 165 Canadian parents who have 7 to 12 year old children with anxiety were surveyed about their demographics, mental health, self-efficacy levels, Internet proficiency and prior experiences of seeking mental health services for their child. Questions regarding their child’s factors, such as their anxiety levels and gender, were also asked. Correlational analyses were conducted to determine that increasing parental education, stress, self-efficacy, Internet proficiency, and child anxiety levels were associated with parental interest to participate in ACE. Hierarchical multiple regression analyses determined that parental self-efficacy, Internet proficiency, and child’s anxiety severity had the strongest associations with interest. Recruiting highly efficacious and Internet-proficient parents for PA-iCBT is therefore recommended.

Keywords: parental factors, parental interest, iCBT, child anxiety
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Introduction

Mental illness often begins in childhood (Kessler et al., 2007). Anxiety, in particular, affects a considerable number of children with statistics indicating that 8 to 22% of North American children suffer from an anxiety disorder (Briesch, Hagermoser Sanetti & Briesch, 2010). As rates of anxiety disorders are profound in children, rates of just elevated anxiety that have not yet reached the disorder level may be even higher.

Anxiety can negatively impact almost every area of a child’s life, such as their social, emotional and academic life (Boulter & Rickwood, 2013; Thirlwall et al., 2013). If left untreated, anxiety can translate its harmful effects onto later development (Copeland, Shanahan, Costello & Angold, 2009), leading to potential consequences such as mood disorders and substance abuse (Thirlwall et al., 2013), aggressive behaviour, suicide and involvement with the justice system (Boulter & Rickwood, 2013). Therefore, to prevent these later more severe issues from occurring, it is crucial to treat anxiety and detect it in its early stages where it often begins in childhood (Kessler et al., 2007).

Service gap. Although targeting anxiety symptoms in its early stages is critical, only 5% of children with mental illnesses get the treatment they need (Shanley, Reid & Evans, 2008). This is an issue Stefl and Prosperi (1985) named the ‘service gap’; a disparity between people needing mental service help and actually utilizing it, in that the numbers of recipients who need the services are much lower than those who utilize it. Possible reasons for this service gap could be lack of awareness of services, inaccessibility, cost, and stigma associated with going to a mental health clinic (Păsăreanu & Dobrean, 2016).
In order to reduce the service gap problem, especially amongst child populations, different types of therapeutic interventions have been put into effect with cognitive behavioural therapy (CBT) being the most currently recommended (Thirlwall et al., 2013). Although CBT is effective in reducing symptoms of anxiety, it is resource, time, and cost-intensive (Thirlwall et al., 2013). A way of making CBT more accessible, cost-effective, and resource-effective is to deliver it through the Internet, on an online service (Păsăreanu & Dobrean, 2016). This type of dissemination is called internet-delivered cognitive behavioural therapy (iCBT).

**iCBT.** Although iCBT may not be as intensive as traditional, face-to-face CBT, numerous studies have confirmed that iCBT produces comparable treatment effects to traditional CBT (Andersson, Cujpers, Carlbring, Riper & Hedman, 2014; Donovan & March, 2014; Păsăreanu & Dobrean, 2016). Additionally, iCBT is shown to be more accessible, cost-effective, and resource effective than traditional CBT (Păsăreanu & Dobrean, 2016), further strengthening the support to use iCBT as a promisingly effective and resource-friendly intervention.

**Parent-administered CBT.** iCBT is one form of low intensity CBT, but another noteworthy form of low-intensity CBT is parent-administered CBT. Parent-administered CBT teaches the parents the CBT techniques needed to help train their child in managing their anxiety symptoms (Păsăreanu & Dobrean, 2016). The parents are essentially trained to become the child’s own at-home therapist. Studies have found that parent self-administered CBT may be as effective as standardized, therapist-led CBT (Cartwright-Hatton et al., 2011; Creswell et al., 2010; Thirlwall et al., 2013). In fact, these studies have shown that CBT interventions that are delivered via parents have demonstrated to
have significant reductions in child anxiety. In addition, an advantage that parent-administered CBT has over traditional CBT is that there is minimal disruption to the child’s activities since they do not have to travel to a therapist’s office (Thirlwall et al., 2013). Furthermore, majority of the participants from Thirlwall et al., (2013) study that had not recovered post-therapy reported having recovered at the 6-month follow-up. This demonstrates the continued efficacy of this parent-guided treatment as the parents sustain the skills being taught in the therapy to help their child sustain their skills too.

Parent-administered CBT is a promising type of intervention that could potentially aid in reducing the service gap problem. There is a scarcity in the availability of mental health professionals (Păsărelu & Dobrean, 2016), which may impede on the dissemination of therapeutic interventions. At a time when mental health problems are arising at an alarming rate (Olfson, Druss & Marcus, 2015), this scarcity in mental health professionals amplifies the service gap problem. However, involving the parents within the administration of the interventions would provide a large leap into reducing the service gap by increasing the number of disseminators – the parents.

Moreover, parents are a child’s primary caregivers. This means that parents are the ones responsible for regulating whether their child gets the help they need, making them responsible for their child’s service gap (Raviv, Raviv, Edelstein-Dolev & Silberstein, 2003). Parents could be affected by multiple factors that could influence their attitudes towards seeking help for their child, but whatever the reason – involving the parents within the child’s therapeutic experiences are shown to be associated with better outcomes in terms of remission rates (Păsărelu & Dobrean, 2016).
**PA-iCBT.** A relatively novel and promising type of intervention is to therefore incorporate both iCBT and parent-administered CBT into a single intervention style: parent-administered iCBT (PA-iCBT). Combining both effective techniques into one would amplify the effects of each technique. This amplification can further reduce the service gap problem because it combines the advantageous dissemination of parent-administered interventions with the cost-effective, accessible and resource-effective iCBT intervention into a single intervention style.

Although PA-iCBT is a promising type of intervention, it is limited in its research with only a few other published studies using it (Breitenstein, Fogg, Ocampo, Acosta & Gross, 2016; Comer et al., 2017). Because of its promising effects, it is important to build on this limited area of research. Since this is a relatively new type of intervention, little is known about whether parents would be interested in participating in this dual type of intervention, and which factors relating to the parents and their children are associated with the parents interest to participate in it.

Anxiety-reducing PA-iCBT programs, such as the Anxiety treatment for Children through online Education course (ACE), teaches parents simple yet effective CBT techniques that help their child manage their anxiety symptoms. ACE provides the education, training, and guidance on CBT techniques – namely a key technique called systematic exposure therapy. Systematic exposure therapy includes the process of gradually and intentionally being exposed to increasingly anxiety-provoking encounters as one becomes increasingly comfortable with each encounter (Chiu et al., 2013). This component of CBT is demonstrated to be effective in decreasing symptoms of anxiety in children (Ollendick et al., 2009). Additionally, the ACE program consists of seven
modules to be completed over the span of nine weeks. Along with the educational materials, it also includes homework activities and a presence of an online coach. The coach addresses any comments or concerns the parents may have via email and responds once a week. ACE is a brand new pilot program that launched in November 2018 and was developed by graduate student, Katherine Mazenc and supervised by Dr. Lynn Loutzenhiser from the University of Regina. The pilot study on ACE is still in progress, so citations on this study is not yet available. ACE is the only PA-iCBT program designed for parents of children with anxiety and so will be the focus PA-iCBT intervention for this current study.

Factors

Parents are the ones who regulate whether their child gets the help they need, and often times, there are multiple factors that could influence their attitudes and intentions towards getting involved in these types of interventions for their child. For this current study, it would be interesting to know which factors are the most associated with parental interest to participate in PA-iCBT programs like ACE. In reviewing the literature on parent-administered CBT, iCBT, and child anxiety, factors that may potentially be associated with parental interest to participate in PA-iCBT programs can be classified as parent factors and child factors. The parent factors include the parents’ demographics, mental health, self-efficacy levels, Internet proficiency and experience of seeking mental health services for their child. The child factors include the child’s gender and level of anxiety.

Parental Factors
**Parent demographics.** Certain aspects of a parent’s demographics may be associated with parental interest to participate in a PA-iCBT program like ACE. March et al. (2018) found that being older predicted being more open to participating in therapist-assisted, internet-delivered therapy. The parent’s gender is also associated with seeking mental health services for the child, with mothers often being the ones responsible for doing so than fathers are (Boulter & Rickwood, 2013). Additionally, higher levels of education are linked to increased openness to using mental health services (Steele, Dewa, Lin & Lee, 2007).

**Parent mental health.** Parents’ mental health is another factor that may be associated with parental interest to participate in ACE. Boulter and Rickwood’s (2013) study showed that the more a child’s illness impacts the parent’s well-being, or mental health, the more likely parents will seek help for their child. However, highly distressed parents may not be willing to participate in such a program that places significant responsibility on them to administer if the parent themselves are facing their own mental challenges.

**Parent self-efficacy.** Parents’ self-efficacy is another factor that may be associated with parental interest to participate in ACE. Parents’ self-efficacy, in this case, is defined by how confident the parents are of being able to help their child manage their anxiety. High self-efficacy in parents have been linked with reluctance to seek mental health services (Boulter & Rickwood, 2013), as these parents believe that they are capable of handling situations on their own. However, since ACE places a heavy dependence on the parents’ skills and abilities, it is predicted that parents with greater
self-efficacy may be more willing to participate in ACE, as this program could provide these self-efficacious parents a challenge they might be interested in.

**Parent Internet proficiency.** Parents’ Internet proficiency may also be associated with parental interest to participate in ACE. March et al. (2018) found that more confidence in using computers and the Internet was found to predict increased intentions to use internet-delivered CBT and even preference for online services, versus face-to-face options.

**Experience of mental health services.** Parents’ experience of mental health services may also be associated with parental interest to participate in ACE. Boulter and Rickwood (2013) defined positive experiences of mental health services as ones that provided helpful advice, sufficient support, and sufficient information to learn from. Negative mental health experiences were defined as providing unhelpful advice, insufficient support, and insufficient information. Positive experiences may be more associated with parental interest to participate in PA-iCBT programs.

**Child Factors**

**Child’s anxiety levels.** The child’s level of anxiety may also be associated with parental interest to participate in ACE. Parents are more likely to seek mental health services for their child if their child exhibits severe mental health symptoms (Boulter & Rickwood, 2013). However, parents may not be willing to participate in a PA-iCBT program if their child experiences severe anxiety, as their choice of intervention may be to seek professional help first rather than use an online, parent-administered program. Instead, mild to moderate levels of anxiety may be more suitable for PA-iCBT programs.
Child’s gender. The child’s gender may also be an associative factor with parental interest to participate in ACE. Research shows that mothers are more likely to seek professional help for their sons than for their daughters (Koot & Verhulst, 1992; Zahner & Daskalakis, 1997). This may be because males tend to exhibit more overtly aggressive behaviours than females do when displaying their problems, whereas females retrieve to a more subtle behaviour like withdrawal (Raviv et al., 2003). This may cause parents to notice, and therefore seek help for, their son’s problems more so than for their daughter’s problems.

Although PA-iCBT interventions are promising in its resource-effectiveness and efficacy, it is a relatively new type of intervention. So, little is known about whether parents would be interested in participating in it and which factors are associated with their interest. Knowing which parent and child factors are associated with parents being interested in participating in PA-iCBT programs like ACE would allow researchers to know which types of parents to recruit for ACE and other PA-iCBT programs.

Research Questions and Hypotheses

The aim of this current study was to examine parent and child factors associated with parental interest to participate in a PA-iCBT intervention for reducing child anxiety, such as the ACE program. More specifically, it examined the following research questions and hypotheses:

1. Are Canadian parents of children with anxiety interested in participating in a parent-administered iCBT program like ACE to reduce their child’s anxiety?

Since there have already been numerous successful studies that had parents participate in parent-administered interventions (Thirlwall et al., 2013) and
iCBT interventions (Breitenstein, Fogg, Ocampo, Acosta & Gross, 2016; Comer et al., 2017), it was hypothesized that parents would be interested in participating in a PA-iCBT program like ACE. Additionally, there have already been a few pilot studies of PA-iCBT interventions, such as Comer et al. (2017) study on managing child disruptive behaviour disorders, so interest in a PA-iCBT program for child anxiety like ACE is also likely.

2. What parent and child factors were associated with parental interest to participate in this type of intervention? It was hypothesized that parents who reported being older, who were mothers, who were more educated, had lower levels of distress, higher levels of self-efficacy, higher Internet proficiency, and those who had positive mental health service experiences to be the most associated to wanting to participate in ACE. It was also hypothesized that parents were more likely to participate in this intervention if their child were males and had only mild to moderate levels of anxiety.

Method

Participants

165 Canadian parents (127 mothers; 38 fathers) who had children aged 7 to 12 with anxiety (86 daughters; 79 sons). The children’s’ average age was 10 years old. The average parental age was 38 years ($SD = 7.20$). Majority of the parents were married or in common-law relationships (71%), were predominantly Caucasian (87%), and were above-average educational level (24% with a Bachelors degree; 27% with an Associates degree). The parents’ average annual income was $60,000.

Procedure
Following the approval from the University of Regina Research and Ethics Board, parents were recruited through Qualtrics, using crowd-sourcing. Parents completed a 15-minute survey that included a battery of questions and measures that assessed their parent factors, child factors, and their interest level to participate in ACE.

**Measures**

**Demographics.** Parents were asked to identify their age, gender, ethnicity, marital status, education level, province of residence and annual household income level. Parents were also asked to identify their child’s age and gender.

**DASS-21.** The parents’ mental health was assessed using the Depression Anxiety Stress Scale-21 (DASS-21). This measure has 21 items and parents were asked to rate each item on a Likert scale from 0 to 3, with “0” = ‘does not apply to me at all’ to “3” = ‘applied to me very much’. An example item is “I felt down-hearted and blue this past week”. The DASS-21 has three subscales measuring depression, anxiety, and stress. Each subscale was scored by multiplying the sum score of each subscale by two, giving a final score of each subscale that can be compared to the severity rating given by Lovibond and Lovibond (1995). The total score of the DASS-21 was simply the sum of all the final scores from each subscale. The DASS-21 has demonstrated to have good reliability and validity (Gloster, 2009).

**PCQ-14.** Parents’ self-efficacy has been measured using the Parent Confidence Questionnaire-14 (PCQ-14, Walker). The PCQ-14 is a 14-item Likert-scale questionnaire used to measure how confident the parents were in terms of their abilities to help their child manage their anxiety. An example item is, “it is difficult to know how best to help my shy/fearful child”, with “1” = ‘not at all agree’ to “5” = ‘strongly agree’. This
measure included six items that were reverse coded. The PCQ-14 was scored by adding the six reverse scores of each reverse item with the scores of the remaining eight items to get a final PCQ-14 score.

**Internet proficiency.** Parents’ Internet proficiency has been measured using a single-item questionnaire: “how proficient are you in using the Internet?”, with “1” = ‘not at all’ to “5” = ‘very’ (March et al., 2018).

**Experience with mental health services.** Parents were asked three questions about their past experiences of seeking mental health services for their child. They were asked Likert-scale questions pertaining to their experiences, such as “overall, how helpful were the services?”, “overall, how supportive were the services?” and “overall, how much did you learn from the services?”, with “1” = ‘not at all’ to “5” = ‘very’. The total scores of each subscale were added together to form a final score of experience with mental health services.

**SCAS-P.** The children’s anxiety symptoms were measured using the Spence Child Anxiety Scale-Parent version (SCAS-P), which is an 8-item Likert-scale questionnaire measuring the child’s anxiety level based on their parent’s view. An example item is, “my child worries about things”, which is rated from “0” = ‘never’ to “3” = ‘always’. The scores from each item were added together to form a final SCAS-P score. The SCAS-P is reported to have acceptable reliability and validity (Wang et al., 2016).

**Measuring interest in ACE.** To assess the parents’ interest to participate in ACE, a single-item questionnaire that reflected the components of ACE was developed for this study: “How interested are you in participating in a therapist-guided, parent-administered
online therapy program that teaches you techniques to help your child manage their anxiety?”. The item was measured on a 7-point Likert scale, ranging from “1” = ‘extremely disinterested’ to “7” = ‘extremely interested’.

**Results**

On average, parents reported being interested in participating in ACE, with a mean of 5.47 ($SD = 1.59$) on a 7-point Likert scale.
Table 1

*Parent and Child Factors Significantly Associated With Parental Interest*

<table>
<thead>
<tr>
<th></th>
<th>Interest</th>
<th>DASstress</th>
<th>Education</th>
<th>Self-efficacy</th>
<th>Internet proficiency</th>
<th>Child anxiety level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest</td>
<td>Pearson</td>
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<td>.230**</td>
<td>.271**</td>
<td>.255**</td>
<td>.252**</td>
</tr>
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<td></td>
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<td></td>
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<td>165</td>
<td>145</td>
<td>165</td>
</tr>
<tr>
<td>DASstress</td>
<td>Pearson</td>
<td>.211**</td>
<td>1</td>
<td>-.005</td>
<td>.203**</td>
<td>.143</td>
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<td></td>
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<td>Pearson</td>
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<td>.203**</td>
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<td>Child anxiety</td>
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<td>.263**</td>
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</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).
Parental Factors

**Demographics.** Only education was significantly associated with parental interest to participate in ACE, with higher education levels associated with higher interest, $r = 0.23^{**}$, $p < 0.003$ (see Table 1). There was no significant association with parent age or parent gender on interest level.

**Mental health.** There was no significant association between total DAS score with interest level, however, there was a significant association between the DAS’s Stress Subscale and interest, in that higher parental stress associated with higher interest, $r = 0.211^{**}$, $p < 0.007$ (see Table 1). The anxiety and depression subscales were not significantly associated with interest.

**Mental health service experience.** There was no significant association between total mental health service experience scores with interest level. There was also no significant association between the helpful, supportive, or learning subscales with interest level.

**Self-efficacy.** High self-efficacy scores were significantly associated with high interest, $r = 0.271^{**}$, $p < 0.001$ (see Table 1).

**Internet proficiency.** High Internet proficiency scores were significantly associated with high interest, $r = 0.255^{**}$, $p < 0.002$ (see Table 1).

Child Factors

**Gender.** There was no significant difference in parental interest to participate in ACE for their sons versus for their daughters.
**Anxiety level.** Higher child anxiety levels were significantly associated with higher interest, $r = 0.252^{**}$, $p < 0.001$ (see Table 1). The average score for the children’s anxiety levels was 13.42 on a 24-point scale (56%).
Hierarchical Multiple Regression Analyses

Table 2

Model Summary of Hierarchical Multiple Regression Analyses

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
<th>Change Statistics</th>
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<td>R Square Change</td>
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<td>F Change</td>
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<td>.190</td>
<td>.161</td>
<td>1.45671</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Sig. F Change</td>
</tr>
</tbody>
</table>

- a. Predictors: (Constant), DASstress, Education, Internet proficiency, Self-efficacy
- b. Predictors: (Constant), DASstress, Education, Internet proficiency, Self-efficacy, Child anxiety level
- c. Dependent Variable: Interest
### Table 3

**ANOVA**

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
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a. Dependent Variable: Interest  
b. Predictors: (Constant), DASstress, Education, Internet proficiency, Self-efficacy  
c. Predictors: (Constant), DASstress, Education, Internet proficiency, Self-efficacy, Child anxiety level
A hierarchical multiple regression was conducted to test which significantly associated parent and child factors were the most associated with parental interest to participate in ACE. The four parent factors (parent’s education, stress, self-efficacy and Internet proficiency) were entered on Step 1 and the children's anxiety scores were entered on Step 2. The overall model was statistically significant, $F(5, 139) = 6.53, p < 0.001$, accounting for 19% of the variance. Statistically significant predictors in the final step were parent self-efficacy ($\beta = 0.207, p < 0.01$), parent Internet proficiency ($\beta = 0.184, p < 0.02$), and child anxiety level ($\beta = 0.161, p < 0.046$) (see Table 2 and Table 3).

**Discussion**

This study aimed to determine which parent and child factors were associated with parental interest to participate in parent-administered, Internet-delivered CBT interventions that reduce child anxiety, such as the ACE program. Although novel, this dual type of intervention is promising in its effects as it combines two efficacious and resource-efficient interventions (parent-administered therapy; iCBT) into one. Training the parents CBT techniques on how to teach their child ways to manage their own anxiety symptoms also increases the number of mental health intervention disseminators. This is essential because there is currently a scarcity in the availability of mental health professionals (Păsărelu & Dobrean, 2016), so training the parents to become their child’s own at-home therapist would target this issue and therefore reach more children in need of anxiety-reducing interventions. Additionally, training these parents through the Internet would reduce the service gap problem even further because iCBT is more accessible, cost-effective, and resource effective than traditional CBT is (Păsărelu & Dobrean, 2016), while also being comparable in its effects to traditional CBT.
FACTORS ASSOCIATED WITH PARENTAL INTEREST IN ACE

(Andersson, Cujpers, Carlbring, Riper & Hedman, 2014). PA-iCBT interventions like the ACE program is therefore promising in reaching and helping more children suffering from anxiety. However, because PA-iCBT interventions are relatively new, little was known about whether parents would be interested in participating in it and which parent and child factors were associated with their interest, so this current study resolved those research questions. Knowing which parent and child factors are associated with parental interest to participate in this type of program is beneficial for knowing which types of parents to recruit for this type of program, and which areas of the program could be enhanced to better serve these associated factors.

Parent Factors

Demographics. Consistent with our hypothesis, parents with higher levels of education were more interested in participating in ACE. This is also consistent with Steele et al. (2007) where they found that higher levels of education were associated with openness to using mental health interventions. This may be because parents with higher education levels have been associated with having more insight about mental disorder symptoms and better attitudes towards mental health treatment (Yen et al., 2005). It is therefore recommended to recruit parents who have occupations related to higher education levels, such as academics, specialists or professionals of the like, in order to attract the suitable parents for this type of program.

Although inconsistent with my hypothesis and March et al. (2018) findings, parental age were not found to be associated with interest to participate in ACE. In addition, contrary to my hypothesis and Boulter and Rickwood’s (2013) findings, there was no difference in the interest levels between mothers or fathers either. Although
inconsistent with my hypotheses, these finding are encouraging nevertheless, as it can be expected that recruiting for ACE would not be limited to attracting only mothers or older parents, but for both mothers and fathers of any age.

**Mental health.** Contrary to my hypothesis, higher stress, instead of lower mental health problems, were associated with higher interest, although it is important to note that overall mental health (depression, anxiety and stress) were not found to be associated with interest levels – just stress levels were. This is interesting because depression, anxiety, and stress scores were highly correlated with one another, with $p < 0.001$, yet not significantly associated with interest levels. This indicates that stress is in fact its own domain, separate from anxiety and depression (Gloster, 2009).

Boulter and Rickwood (2013) found that the more a child’s illness impacts the parent’s well-being, or mental health, the more likely parents will seek help for their child. Although not entirely consistent with this finding, this current study did find that stress, and not all depression, anxiety and stress (DAS) together, were associated with parents being more interested in seeking mental health services, such as the ACE program, for their child. Highly stressed parents being interested in participating in ACE makes sense because these parents could be stressed due to wanting to seek help for their child’s anxiety symptoms. It can be expected to attract highly stressed parents when recruiting for ACE, so perhaps ACE can be modified to put more focus on alleviating the parents’ stress as well. A way to do this is can be through incorporating mindfulness exercises into the program for the parents. Mindfulness has been shown to reduce stress (Call, Miron & Orcutt, 2014). There are brief and simple mindfulness exercises, such as the short body scan meditation, which can easily be incorporated into ACE to help reduce
the parents’ stress. Doing so may also reduce parental attrition rates, as they learn to
manage their own stress through mindfulness practices, which ultimately enables them to
better manage their child’s anxiety. Since ACE is expected to attract the interest of highly
stressed parents, it is recommended to include a stress-reducing component into ACE for
the parents.

**Self-efficacy.** Boulter and Rickwood (2013) found that high self-efficacy in
parents were associated with reluctance to seek mental health services because these
parents prefer to manage their problems themselves before relaying them to a
professional. However, consistent with our hypothesis, our results indicate that higher
parental self-efficacy is more associated with higher levels of interest in ACE. This
makes sense as ACE, a parent-administered intervention, places a heavy emphasis on the
parents’ individual role to administer the intervention themselves, which highly self-
efficacious parents would see as an interesting challenge to test their skills on, rather than
as an overwhelming task beyond their abilities. This relates to Bandura’s (2010) self-
efficacy model that describes highly self-efficacious people to undertake more challenges
and persevere through them than those who were less self-efficacious. Given this model,
it can be expected to attract and keep highly self-efficacious parents when recruiting for
ACE, as they may like to undertake the challenging role of administering the intervention
themselves. Before the parents start ACE, it is encouraged to measure their self-efficacy
levels using the PCQ-14 to see whether highly self-efficacious parents are in fact more
interested in participating in ACE, and to see whether their self-efficacy scores are related
to how long they stay in the ACE program. If future studies do find that higher self-
efficacy rates are found to be associated with higher intervention completion rates, more
focus should be placed on building parents’ self-efficacy levels before and during the ACE program to increase completion rates and therefore reduce attrition rates.

**Internet proficiency.** Consistent with my hypothesis, higher parental Internet proficiency was associated with high interest in ACE. March et al. (2018) found that more confidence in using the Internet was associated with increased intentions to use Internet-delivered CBT and even prefer online services over face-to-face options, so high Internet proficiency made sense to be associated with interest in participating in an online-delivered intervention. A focus on recruiting for parents via online sources, such as social media, versus non-online sources is therefore recommended, as ACE is expected to attract the interest of parents who are already proficient in the Internet. Additionally, if Internet proficiency is the only barrier that is keeping parents from participating in ACE, then future interventions can focus on building a brief tutorial on how to use ACE’s online resources so that parents lacking confidence in using the Internet would become more comfortable using ACE. Although it may be commonly believed that majority of the people know how to use the Internet, especially in this day and age, not everyone does. This, however, should not be the only factor in keeping parents from participating in ACE, especially since this could easily be resolved by including a brief yet informative tutorial on how to use ACE’s online resources.

Although we found highly correlated results with parental Internet proficiency and parental interest, it is also important to note a limitation on the Internet proficiency measure, as it is a single-item measure. Measuring the parents’ overall Internet proficiency may not have been best captured through this single-item measure. Instead, using the Technology Proficiency Self-Assessment Questionnaire for 21st Century
(TPSA-21) would have been a more accurate measure of overall technology and Internet proficiency. The TPSA-21 has been shown to have respectable reliability and validity (Christensen & Knezek, 2016) as well. However, because we were limited in space within our survey, we were unable to fit all 21 items from this measure, and instead took March et al. (2018) method of measuring technology confidence with a single-item measure.

**Mental health service experience.** Inconsistent with my hypothesis, there was no association between parents having positive experiences of seeking mental health services for their child with interest to participate in ACE. The lack of association between mental health service experience with interest indicates that prior experience of mental health services do not impact whether parents would be interested in participating in PA-iCBT interventions. Researchers and therapists conducting PA-iCBT interventions need not to be concerned about whether the parents they are dealing with have had pleasant or unpleasant mental health service experiences in the past, as it seems that these do not affect their interest to participate in PA-iCBT interventions.

**Child Factors**

**Gender.** Inconsistent with our hypothesis, there was no difference in parental interest to participate in ACE for their sons versus for their daughters. Although males tend to be more overtly aggressive than females are in expressing their problems (Raviv et al., 2003), resulting in parents to seek professional help more for their sons than for their daughters (Koot & Verhulst, 1992; Zahner & Daskalakis, 1997), the results of this study shows that there is no difference between the two.
Anxiety level. Boulter and Rickwood (2013) found that parents are more likely to seek mental health services for their child if they exhibit severe mental health symptoms. Although this finding was inconsistent with our hypothesis that only mild to moderate anxiety symptoms would associate with parental interest, our findings were consistent with Boulter and Rickwood’s (2013) finding, in that higher levels of child anxiety associated with higher parental interest. This is an interesting finding because we predicted that severe anxiety symptoms would have parents wanting to seek professional help first before wanting to participate in a parent-administered intervention, yet it seems that parents are willing to participate in parent-administered interventions for their child’s anxiety, regardless of their child’s severity of symptoms. This is encouraging because PA-iCBT programs like ACE can expect to attract parents of children with wide ranges of symptom severity instead of only mild to moderate symptoms, which can mean that PA-iCBT programs can reach even more children with varying ranges of symptom severity.

Age. Although the children’s age was not part of our hypotheses, it was found that increasing child age associated with increased child anxiety levels. Although child’s age was not found to be associated with parental interest, it was interesting to find that older children were more anxious than younger children. This finding is consistent with Jarrett, Black, Rapport, Grills-Taquechel and Ollendick (2015), where they found that older children who were 10 to 13 years old with generalized anxiety disorder (GAD) were slightly more anxious than the 7 to 9 years old children with GAD. This increasing of anxiety could be because of increased school commitments that come with higher grade
levels (Jarrett et al., 2015), or because of the emerging of pubescence and the anxiety that comes with it.

**Conclusion**

Although parental education, stress, self-efficacy, Internet proficiency and child’s anxiety severity were the only factors significantly associated with parental interest to participate in ACE, out of the five, parental self-efficacy, parental Internet proficiency and child anxiety severity had the strongest correlations. So overall, PA-iCBT interventions like ACE are associated with an emphasis on the parent’s individual role (efficacy; proficiency), as expected. A focus on recruiting for this type of population is recommended for PA-iCBT interventions, as future PA-iCBT interventions can expect to attract highly efficacious, internet-proficient parents who want to help their child suffering from a mental illness like anxiety. However, it is important to note that although PA-iCBT interventions like ACE seem to be most suited for highly efficacious, Internet-proficient parents with children having high levels of anxiety, other parents who may not be as efficacious or proficient are welcome to participate in ACE. Again, if parents are reluctant to participate in ACE because of their lower self-efficacy and/or lower Internet proficiency, it is encouraged to target this barrier by providing parents with reassurance in themselves and their Internet confidence so that more parents would be interested in participating in ACE. Although not all interventions are designed to suit everyone, it is important to know what types of parents are suitable for this one in order to obtain successful recruitment and program commitment. And although not all interventions can suit everyone, it is still important to know how to develop future PA-iCBT interventions so that it can better suit parents who may not be the most suitable for them now, but can
be with some extra modifications and support. After all, the purpose of developing mental health interventions are for them to be used and benefited from those who need it, so knowing which parents to recruit and which parts of the program to improve on would target in reaching more parents for this promising type of intervention.
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Appendix A

Participant Consent Form

**Project Title:** Exploring Parental Intentions to Engage in Parent-Delivered Internet-Cognitive Behavioural Therapy

**Researchers:** Kailey DeLucry, Graduate Student, Faculty of Arts, University of Regina, kjd328@uregina.ca, 306-551-3014
Farhat Mohammadi, Undergraduate Student, Faculty of Science, University of Regina, farhat.m321@gmail.com, 306-581-9662

**Supervisor:** Dr. Lynn Loutzenhiser, lynn.loutzenhiser@uregina.ca, 306-585-4078

**Purposes and Objectives of the Research:**

The aim of this research project is to contribute to the development of a parent-delivered ICBT program for children with anxiety. This is a student project and the data collected may be used in thesis publications and/or presentations.

**Procedures:**

We are seeking your consent to participate in an online survey that investigates your intention and interest in the use of an online, parent-administered cognitive behavioural therapy program for your child with anxiety. To measure this, you will be asked to answer questions about you and your child, as well as your perceptions of therapy and online therapy for childhood anxiety.

Your participation is voluntary. It is up to you to decide whether or not you wish to take part. If you decide to participate, you are still free to withdraw at any point. If you do choose to withdraw, you do not have to give any reasons for your decision and all you need to do is close your browser.

We anticipate the questionnaire will take approximately 15 minutes to complete. Please feel free to ask the researchers any questions regarding the procedures and goals of the study or your role.

**Potential Risks:**

There may be some discomfort in discussing the nature of your child's experiences with anxiety.

**Potential Benefits:**
This research will not likely result in any direct benefits to you. However, it will inform the design of intervention programs aimed at improving access to mental health treatment for children suffering from anxiety.

**Confidentiality:**

Participants’ identities will remain confidential. No identifying information will be published or otherwise shared in the dissemination of results. Electronic data from the study will be stored on password-protected systems and hard copies will be stored in secure locations at the University of Regina. All data will be retained for a minimum of 5 years and will ultimately be deleted and/or destroyed.

**Follow up:**

A summary of results from the study will be posted to the website http://uregina.ca/~loutzlyn/

**Questions or Concerns:**

If you have any questions or concerns, please contact the researcher(s) using the information at the top of the page.

This project has been approved on ethical grounds by the University of Regina Research Ethics Board on March 11th, 2019. Any questions regarding your rights as a participant may be addressed to the committee at 585-4775 or research.ethics@uregina.ca. Out of town participants may call collect.

Please print a copy of this consent form for your records.