

**I love my children but, if I could go back in time, I would never have chosen to be a parent:**

**Regretful parents and their concept of self**

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A DISSERTATION TO  
THE FACULTY OF GRADUATE STUDIES  
IN FULFILLMENT OF THE REQUIREMENTS  
FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

GRADUATE PROGRAM IN PSYCHOLOGY

YORK UNIVERSITY

TORONTO, ONTARIO

JANUARY 2026

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## Abstract

Parental regret is a largely unexamined topic. As a result, little is known about the prevalence of parental regret, what factors might be related to experiencing such regret, and the implications for well-being. What research exists has almost exclusively used a single dichotomous item, removing the ability to capture nuance in the study of regretful parents. The current package of studies aimed to explore these issues by (1) understanding the experiences of regretful parents, (2) looking at factors that could help us understand if someone is likely to regret becoming a parent, (3) examining the specific things parents regret, (4) exploring the mental health of regretful parents, (5) developing a Parental Regret Scale, and (6) determining the prevalence of regret in Canada. To do this we conducted 3 studies. In Study 1 we performed a thematic analysis on data collected from regretful parents ( $N = 38$ ) to better understand their experiences, with 5 themes identified: (1) Anxiety & Fear; (2) Difficulties of Motherhood; (3) Difficulties of Parenthood; (4) Lack of Support; and (5) Loss of self. In Study 2 ( $N = 59$ ) we looked at the relationship between antecedents, current regrets, and the mental health of a sample of regretful parents. This study was also used to begin developing the Parental Regret Scale. This study demonstrated the importance of losing one's familiar self-concept in driving parents' feelings of regret, in addition to the relationship between regret and poor mental health. Finally, in Study 3 ( $N = 462$ ), we aimed to validate the Parental Regret Scale, look more closely at the unique impact regret plays on mental health over and above previous experiences, and determine the prevalence of this regret in Canada. Based on this study, the prevalence of regret in Canada is estimated to be around 10%, with little difference between mothers and fathers. Further, regret seems to play a unique role in predicting depression and anxiety. Overall, the results of this work

provide a clear path forward for research on regretful parents by establishing baseline relationships and a validated scale allowing for nuanced examination of the phenomenon.

## Acknowledgements

Firstly, I would like to thank my Supervisor, Dr. Raymond Mar. I am forever grateful that you accepted me into the MAR lab and provided such amazing guidance over the years. You've not only taught me to be a better researcher but also about what it means to be a thoughtful and intentional person, and a good leader. Thinking back over my time in the MAR lab I feel privileged to have been able to learn from you, both in academia and life. The value of ethics, humility, and academic rigor have always been front of mind and I'm truly appreciative to have been able to learn from you.

I would also like to extend my sincere gratitude to my committee, Dr. Maxwell Barranti and Dr. Amy Muise. I am so grateful for the feedback and insights you've provided over the years to get to this point. Your theoretical and methodological input has been especially valuable. Also, to Alice MacLachlan, Dillon Browne, and Michaela Hynie who graciously agreed to make up my examining committee. I appreciate you taking the time to review my work and provide your feedback.

None of this would have been possible without the friends I've been so lucky to have in my corner. To Stephanie Raposo, Emily Cross, Miranda Too and the many others who listened to me complain, cry, and celebrate. I could not have gotten here without you providing prospective and feedback, and just making sure we took nights off. I am also especially appreciative of the members of the MAR Lab, particularly Joshua Quinlan and Rebecca Dunk as well as the many research assistants who provided feedback and input throughout the design of this project.

To my family, my parents and grandparents, thank you for your unwavering support throughout this process. Lastly, I would like to thank Boo who got me through the first half of

this adventure, and Pip who took on the role after Boo was no longer able to. I would not have made it through without you both.

### **Dedication**

To all the women in my family whose support, lessons, and love has shaped me – I am here  
because of everything you gave me.

And to 22-year-old me, who didn't know where I would end up, but took the leap anyways.

## Table of Contents

Abstract.....	ii
Acknowledgements.....	iii
Dedication.....	iii
Table of Contents.....	iv
List of Tables.....	vii
List of Figures.....	viii
Chapter 1: Introduction to Parental Regret.....	1
What is parental regret?.....	2
Theories of general regret.....	4
Does parental regret exist?.....	6
Parental identity, discrepancy, and regret.....	8
Need frustration and parental regret.....	9
Mothers versus fathers.....	10
Other demographic differences.....	12
Initial work: Listening to the regrets of parents.....	13
The current research.....	14
Chapter 2: Qualitative examination of regretful parents' experiences.....	17
Study 1 Introduction.....	17
Study 1 Method.....	24
Participants.....	24
Materials.....	25
Procedure.....	26
Study 1 Results.....	27
Anxiety and Fear.....	28
Difficulty of motherhood.....	29
Difficulties of parenthood.....	31
Lack of Support.....	33
Loss of self.....	34
Study 1 Discussion.....	35
Limitations.....	37

Conclusion .....	39
Chapter 3: Characterizing parental regret .....	40
Study 2 Introduction.....	40
Study 2 Method.....	46
Participants .....	46
Materials .....	48
Procedure.....	53
Study 2 Results.....	54
Dimensions of the Antecedents .....	54
Structure of the Parental Regret scale.....	57
Correlations .....	57
Bayesian regression .....	61
Comparing antecedents and current mental health.....	62
Study 2 Discussion .....	63
Limitations.....	65
Conclusion.....	66
Chapter 4: Regret in Canadian Parents .....	67
Study 3 Introduction.....	67
Study 3 Method.....	72
Participants .....	72
Materials .....	74
Procedure.....	79
Study 3 Results.....	80
Prevalence of parental regret in Canada .....	80
Development and Validation of the Parental Regret Scale .....	80
Antecedents .....	94
Hypothesized and Exploratory Correlations.....	99
Mediation Models.....	102
Depression and Anxiety among regretful parents .....	104
Study 3 Discussion .....	106
Limitations.....	108
Conclusion.....	109

Chapter 5: General Discussion.....	110
Loss of Identity.....	114
Self Determination Theory.....	115
Won't people regret it more if they do not have children? .....	117
Clinical Implications .....	119
Education.....	120
Limitations .....	121
Conclusion.....	123
Appendices.....	124
Appendix A .....	124
Appendix B .....	127
Appendix C .....	131
Appendix D.....	149
Appendix E.....	154
Appendix F .....	157
Appendix G .....	158
References.....	161

## List of Tables

Table 1	Study 1 Demographic Information.....	25
Table 2	Study 2 Demographic Information.....	47
Table 3	Study 2 Parental Regret Scale items with means and standard deviations.....	49
Table 4	Study 2 Antecedents with means and standard deviations.....	50
Table 5	Study 2 Mental health items with means and standard deviations.....	52
Table 6	Study 2 Factor loadings of antecedents.....	56
Table 7	Study 2 Means, standard deviations, and correlations with confidence intervals for variables of interest.....	59
Table 8	Study 2 Bayes Factors and coefficients with credible intervals.....	62
Table 9	Study 3 Participant demographic information.....	73
Table 10	Study 3 Antecedents with means and standard deviations.....	74
Table 11	Study 3 Parental Regret scale items with means and standard deviations.....	75
Table 12	Study 3 Item fit in IRT model.....	82
Table 13	Study 3 Discrimination and difficulty of items on PRS.....	85
Table 14	Study 3 Factor correlations for the PRS.....	89
Table 15	Study 3 Factor loadings for the 4-factor model of the Parental Regret Scale.....	90
Table 16	Study 3 Means, standard deviations, and correlations with confidence intervals for PRS and Subscales.....	92
Table 17	Study 3 Means, standard deviations, and correlations with confidence intervals for validity measures with PRS.....	95
Table 18	Study 3 factor loadings of antecedents.....	96
Table 19	Study 3 factor correlations of antecedents.....	97
Table 20	Study 3 Means, standard deviations, and correlations with confidence intervals for preregistered variables of interest.....	100
Table 21	Study 3 Means, standard deviations, and correlations with confidence intervals for demographic variables of interest and neuroticism.....	101
Table 22	Study 3 Moderation models for parental regret predicting depression and anxiety.....	105

## List of Figures

Figure 1	Study 2 Scree plot identifying the number of factors for antecedents.....	55
Figure 2	Study 2 Scree plot identifying the factors for the Parental Regret Scale.....	57
Figure 3	Study 2 Graph of posterior coefficients for model variables with 95% credible intervals.....	62
Figure 4	Study 3 IRT test information with standard errors.....	83
Figure 5	Study 3 Study 3 Expected total score for PRS.....	83
Figure 6	Study 3 Graphs of item difficulty on PRS.....	86
Figure 7	Study 3 Expected score and scale estimate for “Loss of freedom to choose how I spend my time”.....	87
Figure 8	Study 3 Expected score and scale estimate for “Bodily changes in my partner”.....	88
Figure 9	Study 3 Scree plot identifying the factors for the Parental Regret Scale.....	89
Figure 10	Study 3 Scree plot identifying the factors for the antecedents.....	97
Figure 11	Study 3 Mediation model with regret mediating the relationship between antecedents and depression.....	103

## **Chapter 1: Introduction to Parental Regret**

The anonymity of the internet has created a space where parents can open up about an important issue that has previously been unacknowledged and not discussed: regret over becoming a parent. This is far from a niche problem. As an example of its prevalence, the “I Regret Having Children” Facebook page has over 86 000 likes (Facebook, n.d.), indicating just how much this topic resonates with some parents. In parallel to these online admissions, numerous popular media articles have been written in recent years highlighting the issue of parental regret (e.g., Treleaven, 2016; Kingston, 2018; Davis, 2019). Despite growing awareness of the issue of parental regret, empirical research on this topic remains minimal, and is often limited to large surveys with few relevant questions. The little research that does exist, however, suggests that this is a serious issue that needs to be addressed. For example, a YouGov survey in Germany found that 19% of mothers and 20% of fathers reported that if they could go back in time, they would not have children (Shtrauchler, 2016). Similar surveys, using a similar item, have subsequently been done in Poland, the UK, and America. In Poland, 9.8% of mothers and 12.2% of fathers would choose to not have children if they could go back and do it all over again (Piotrowski, 2021). In the UK, 8% of parents reported some degree of regret around having children (Nolsoe, 2021). And an earlier poll of American parents in 2013 found that 7% of parents would choose not to have children if they could go back in time (Newport & Wilke, 2013). Combined, this work suggests that parental regret is not uncommon. Unfortunately, very little research has been done to fully understand the nature of parental regret. The goal of this dissertation is to begin to fill this gap in the literature by, (1) gaining a better understanding of the experience of people who regret becoming parents; (2) examining the potential antecedents of parental regret; (3) identifying the specific things these parents regret; (4) examining their

mental health; (5) creating a validated measure of parental regret that improves upon the yes/no question most often used to date; and (6) estimating the prevalence of parental regret in Canada. Before describing the research, this introduction provides an overview of parental regret, addresses key concerns regarding this topic, and highlights the relevant studies.

### **What is parental regret?**

Research on parents and regret in general is not new. In fact, it has been found that parenting forms the basis for the fourth most common life regret (Roese & Summerville, 2005). However, in this research regrets are characterized by specific parenting experiences or choices, rather than regret over becoming a parent. This work has examined regrets such as not spending enough time with one's child (Roese & Summerville, 2005), not teaching children more about money (LeBaron et al., 2018), or anticipating regret over giving children vaccines (Hamama-Raz et al., 2016). Although this research has established that parents can experience regret related to *how* they parent, none of it considers whether one might regret becoming a parent at all. Instead, the focus of past work implies that it is the specific decisions, or choices people make as a parent, which are sometimes regrettable. It was not until very recently that researchers began to investigate whether people might regret becoming a parent. As a result, research in this area is still in its infancy.

It is estimated that approximately 1 in 10 parents will regret their decision to have children (Piotrowski, 2021). This is perhaps a surprisingly high number given that the idea of parental regret has remained relatively hidden and outside of public discourse. Experiences of parental regret are largely invisible, as found by the sociologist Orna Donath (2017), who published a seminal book on the topic based on interviews with regretful mothers. As one of her participants explained:

When I tried to let my friends know, I was immediately silenced. [They said,] ‘Be thankful for what you have.’ What a blow, I thought to myself. Be quiet, so they won’t hospitalize you. Accept it and continue to live this fictitious happiness. Wear a mask like everyone else and go on with the game. Probably some of them, if not all, are experiencing the same things but wouldn’t dare to talk about it. (pg. 162)

This quote, provided by a mother of two adult children, demonstrates how regretful parents feel that they will be judged, or even hospitalized (as something must be wrong with them), if they express their regret. These are powerful forces pressuring them to keep their thoughts to themselves. Sadly, parents who experience regret are often criticized as being selfish or abusive, and not loving their children (Donath, 2017). As a concrete example of this societal censure, the highest rated comment on a popular media article about a regretful mother described her as an “utterly miserable, cold-hearted and selfish woman,” and went on to describe feeling sorry for her children and husband (Dutton, 2013). As a result of these kinds of comments, many regretful parents may not feel safe admitting to their experiences of regret. This in turn may make it seem as though it is far less common than it is, which could create a vicious cycle wherein each new regretful parent feels like they are alone in having this experience.

Many of the criticisms of regretful parents seem to stem from a false dichotomy, in which regretting becoming a parent necessarily means that one does not love their child. Although it may seem paradoxical, the majority of regretful parents emphasize that this is not the case: they love their children and would never want them to disappear. It is only adopting the role of a parent that they regret (Donath, 2017). To clarify, more often than not, it is not that they wish their child did not exist; regretful parents simply wish that they had not become parents.

## **Theories of general regret**

Regret theory suggests that feelings of regret are particularly distressing when the decision is irreversible (Zeelenberg, 1999), which applies to having a child. According to Decision Justification Theory, there are two likely causes of this: (1) continual rumination (i.e., imagining what life could have been like without children), and (2) blaming oneself for making the wrong choice (i.e., to have children; Connolly & Zeelenberg, 2002).

An important distinction regarding regret is between making an action and not making one. When people think about their regrets they often frame them around “what might have been” (i.e., counterfactual thinking; Gilovich et al., 1994). Reacting to the possibility of a different account is an important factor in how people conceptualize regret. For example, two people die in a plane crash. One had bought the ticket months ago, the other switched last minute to get on an earlier flight. In such a scenario, the death of the person who switched their ticket to take the flight is often seen as more tragic than the one who had this ticket all along. This thought experiment explains the process of counterfactual thinking. It is easier to think of an alternate action for the person who switched compared to the person who did not (Miller et al., 1990), and the perceived likelihood of this alternative elicits different levels of emotional response. Furthermore, what this example demonstrates is that the process that leads to the outcome also contributes to the regret one feels (Gilovich et al., 1994).

Contrary to the example of the plane crash, however, some research suggests people are more likely to experience regret about things they did not do versus the things they did. In some of the seminal work on this topic, 75% of participants reported more regret around inaction versus action (Gilovich et al., 1994). The authors go on to explain that this effect is rooted in temporal differences, finding that in the short term it is action that people regret more whereas in

the long-term inaction becomes more regretful. People are able to see the silver linings of their decision over the long term that they often cannot see in the short term. In addition, people may forget the competing factors that led to inaction in the long term (Gilovich et al., 1994). Follow up research that looked at age as a moderator suggests that as people age their ability to change their inactions in the past likely leads to more regret. That is, young adults report less regret when they feel like they have control over the situation whereas older adults feel less regret when they feel they have little control (Wrosch & Heckhausen, 2002). This suggests that younger adults feel better when they believe they can change a decision whereas older adults feel comfort in knowing there was nothing they could do differently.

It is easy to see how the irreversibility of the situation, combined with rumination, self-blame, and thoughts of what might have been can create a particularly distressing situation for regretful parents. Such regret is likely complicated by the fact that for many parents having a child does not feel like a choice they can make freely. For many, especially women, having children is the natural progression of life following getting married (another normative experience expected of women; Donath, 2017). This likely results in a complex mix of emotions wherein people experience strong pressures but also recognize that parenthood is supposedly a personal decision. Outside of societal obligations, there are other barriers to people deciding not to have children. For example, people may be barred from getting an abortion either legally or by family members (e.g., see Hampson, 2022). These societal norms and cultural expectations around childrearing further complicate many people's feelings around parenthood.

Research looking specifically at mothers has found that feelings of regret are related to depression, anxiety, continual worry, and parenting stress. Regretful mothers also report that, though they love their children, the loss of freedom, identity, and income they experience is

particularly distressing (Donath, 2015; East et al., 2012). This distress is often kept private, however, as parents are criticized harshly for expressing such feelings. It is perhaps not surprising that the public often does not empathize with admissions of parental regret as many people are parents themselves. And among those who are not parents, some may want to become parents, or might balk at imagining their own parents regretting their decision to have them. As a result, discussions of parental regret can bring up difficult and complicated emotions for other parents and children, both young and old. Perhaps because of the silence around parental regret in general, and the seemingly complicated paradox regretful parents often experience, many people continue to disbelieve that the phenomenon actually exists.

### **Does parental regret exist?**

The experience of parental regret is commonly denied by others. This makes it difficult to establish the phenomenon because when parents explicitly state that they experience regret their feelings are discounted, denied, and undermined. Rather, it is argued, every parent has bad days and if you ask these parents again, they would change their answer and in fact are glad to be a parent. Or, perhaps, these parents are in the depths of a depressive episode caused by other, unrelated factors. Perhaps, if it is a mother, they are simply experiencing post-partum depression. All of these represent real arguments levelled against regretful parents (R/regretfulparents, n.d.). These comments are highly patronizing in nature as they imply that regretful parents do not understand their own feelings. As one parent on a forum for regretful parents said, “I am miserable, it's not PPD [post-partum depression]. It's me.” (R/regretfulparents, n.d.). Another stated, “Nearly 9 years on people still tell me it's just depression” (R/regretfulparents, n.d.). Given how commonly this experience is reported (i.e., around 10% of parents will experience regret; Piotrowski, 2021), these attempts to deny and undermine these experiences are a bit

shocking. Although there may be underlying risk factors that can contribute to feelings of regret, this does not negate the validity of parental regret. Further, denying these feelings and ascribing them to something else can act to dismiss these parents, once again forcing them into silence and failing to help them cope with their regret. In addition, there may be parents who do regret the experience without any comorbid issues, and these experiences should not be ignored.

A related argument against the phenomenon of parental regret is that these parents do not actually regret having children but are experiencing ambivalence. What is often described as ‘maternal ambivalence’ is the experience of mothers who both love their child, but also experience negative emotions directed towards them (e.g., anger, guilt; Ruggeri, 2022). Although maternal ambivalence is a very real experience, and the current project does not aim to ignore it (or paternal ambivalence, though this term does not seem to exist in the literature), we argue that parental ambivalence is distinct from parental regret because the latter lacks negative emotions directed toward the child. Indeed, based on online discourse, regretful parents do not necessarily bear ill feelings towards their own children: they would just choose not to become parents if given the choice to do it over. In contrast, maternal ambivalence, by definition, entails negative feelings directed toward the child. The idea that parents are confusing their ambivalence for regret seems to stem from a misunderstanding of both terms. This clarification is important for the same reason it is important not to deny parents their experience of regret. We argue that telling parents that they do not regret having children, but are actually ambivalent, is potentially both inaccurate and patronizing, perhaps making it difficult for parents to get the help they need. Dismissing or denying the issue of parental regret is unlikely to make it go away: it only increases the likelihood that it will be harder to prevent, diagnose, and treat. By shining a light directly on parental regret, this dissertation hopes to support the development of interventions to

both prevent prospective parents from experiencing regret, and aid parents currently regretting their role.

### **Parental identity, discrepancy, and regret**

A key trait that is likely to impact someone's experience as a parent is the degree to which they incorporate parenthood into their self-concept. Self-concept refers to how people see themselves. In lay terms, it refers to how people answer the question, "Who am I?" A stable self-concept helps individuals maintain a sense of self and influences how they process information and experiences (Oyserman, 2001). Discrepancies between one's self-concept and actual self are described by Self-Discrepancy Theory, which posits that a person has three specific selves: (1) their actual self, (2) their ideal self (i.e., who they would ideally be), and (3) their ought to self (i.e., characteristics they feel they should have; Higgins, 1989). When a person's self-concept does not match their actual self, symptoms of depression increase (Higgins, 1989). It is possible that part of the distress felt by regretful parents is due to a mismatch between their self-concept (tied to their past self-identity) and their actual self (as a parent). That is, the inability to update their self-concept to include their new reality as a parent might be one of the driving forces behind parental regret. To support this idea, many parents report how dramatically their lives have changed since having children (e.g., different priorities; Dunlop, n.d.). However, to our knowledge, very little work has examined the updating of identities for mothers and fathers. As emphasized by Kluwer (2010), most literature on transitioning into parenthood completely ignores the impact of this change on identity. Transitioning into parenthood is considered to be one the largest shifts in roles that a person can undertake (Kluwer, 2010). At the same time, a disconnect between a new parent's role and their identity (i.e., parental role incongruence) can have negative consequences such as poor well-being (Cast, 2004). If a person is not able to

embrace the shift to parenthood, it is easy to see how being a parent would cause distress and regret. Thus, in this dissertation, we examined whether the degree to which a person has incorporated parenthood into their identity is associated with regret.

### **Need frustration and parental regret**

Regret has also been linked to self determination and identity at a broad level. Self Determination Theory (SDT) posits that people have three core needs that must be met in order to lead a satisfying life: (1) autonomy (i.e., being independent), (2) competence (i.e., capable of doing tasks you need to do), and (3) relatedness (i.e., feeling close to others; Deci & Ryan, 2008). As mentioned, there is a distinction between regrets of omission and regrets of commission, with acts of omission generally being more regretted over the long term (Gilovich et al., 1994). This is directly in line with self-determination and the frustration of the need for autonomy. If regret tends to stem from a failure to act, it follows that the people with such regret feel a frustration of the lost opportunity and their autonomy over the situation.

In addition to a failure to incorporate parenthood into one's identity, Parental regret may also emerge due to an inability to meet the core need of autonomy after becoming a parent. Not surprisingly, after having a child that child becomes the main priority for any family, which means a necessary loss of individual independence. The frustration of this need for autonomy may lead to regret for parents. Reading forums for regretful parents highlights that a loss of a sense of self seems to be a key contributor to parental regret (details below). This is also observed in the available literature. New parents report feeling "constrained autonomy" (i.e., that independence has been stripped away, without their control or consent), which is exacerbated by a mismatch between expectations about parenthood and reality (Stamp & Banski, 1992). In contrast, however, there are some who argue that autonomy is increased when one becomes a

parent as it signifies the passage into adulthood and the ability to make one's own choices (Nelson et al., 2014). Feelings of autonomy is thus a central construct in this dissertation.

### **Mothers versus fathers**

The scant work studying parental regret has largely focused on the experiences of mothers, with little research on fathers. This discrepancy is likely due to the differences in the experience of parenting for mothers and fathers, with women still undertaking the majority of parenting responsibilities despite progress in gender equality (Kolita et al., 2013; Kerr et al., 2021).

In her book on parental regret, Orna Donath (2017) mentions collecting data from fathers, but not how many, and states that she chose not to include these interviews in the final work. Her decision to focus solely on mothers is attributed to the difficulty of comparing the two groups. Similarly, work by East and colleagues (2012) also focused on the experience of mothers, collecting data when they were pregnant and after the baby was born.

Although gender equality has progressed substantially in Canada over the last 50 years (Government of Canada, 2024), women still contribute to, and are expected to contribute to, the majority of parenting responsibilities. Women take on more responsibility in caring for their home by engaging in “feminine” labour (Cerrato, 2018). This includes general upkeep of the home, such as shopping and cleaning, and general care for the family, including driving children around, playing with kids, providing support with schoolwork, and managing family schedules (Cerrato, 2018). Societal expectations mean that mothers are also more likely than fathers to be criticized if their child has any problems or difficulties and receive more criticism if they work outside of the home (Offer, 2014). The differences in parenting responsibilities between mothers and fathers was especially prominent during the COVID-19 pandemic, when families had to

quickly adapt to children attending school from home. During this time, women were more likely to be disrupted during work, and less likely to have a designated, and separate, workspace compared to men (Kerr et al., 2021). Mothers were also much more likely to experience stress, anxiety, and parental burnout, compared to fathers during this time (Kerr et al., 2021; Graham et al., 2021). Though it was well established that women were doing more household work and childcare and had less personal time during the COVID-19 pandemic, men tended to underestimate just how large this difference in workload was (Waddell et al., 2021).

Women also face the pressure of the ‘biological clock,’ compelling them to have children before they are biologically less likely to be able to carry a child, with data suggesting that women tend to see the age of 40 as the “deadline” (Diaz, 2021; Billari et al., 2011). More recently, data suggests that this timeline is changing, identifying that there was a 6 month increase in the “cutoff” age for women from 2007 to 2019 (Lazzari et al., 2025). Although some people believe there is also a cutoff for men, this belief is much less common and less discussed (Billari et al., 2011), even though there is evidence that fertility declines with age for men as well (Thacker, 2004).

Altogether, we can see that mothers are still completing the majority of parenting and household tasks and bearing the majority of the burden of societal expectations regarding parenthood. It is possible that this unequal division of labour results in mothers experiencing more regret than fathers. Indeed, the mass media reports, blog posts, and online forums all seem to focus almost exclusively on mothers, creating an image of mothers as the ones who primarily experience regret. However, when asked if they regret becoming a parent, there is very little difference between mothers and fathers (19% versus 20% in Germany, Shtrauchler, 2016; 9.8%

versus 12.2% in Poland, Piotrowski, 2021). This suggests that a gender difference in prevalence might not exist, or even, perhaps, fathers might be slightly more likely to experience regret.

To contextualize this gender difference, we can examine life regrets in general; a systematic review of 31 studies on life regrets found mixed results (Rutledge et al., 2024). In conclusion, the authors argue that “Inconsistent measures and excessive variance in the results make it challenging to understand how life regret manifests differently across genders, highlighting the need for updated research” (Rutledge et al., 2024). That said, women did tend to be more likely to experience regret related to romantic relationship, family, and education, whereas men experienced increased regret related to their career and education (Rutledge et al., 2024). Without more research, it is impossible to know if there are any actual differences in the level of regret for mothers and fathers.

### **Other demographic differences**

In addition to mothers and fathers experiencing parenthood differently, other factors can play a role in a person’s experience of parenting. For example, people who come from high socioeconomic backgrounds have a different parenting experience than those struggling to get by. In one qualitative study, 91% of parents discussed how poverty impacted their parenting (e.g., shiftwork, overwhelm, negative impacts on parent-child relationships; Ho et al., 2022). Indeed, income is positively related to happiness and negatively related to distress among parents (Gao et al., 2022). Similarly, whether one is parenting alone or with a co-parent also impacts the difficulty of raising a child. Single parenthood brings on the dual role of caregiving and providing, which can easily lead to stress, anxiety and becoming overwhelmed (Stack & Meredith, 2018). Unsurprisingly, these emotions can result in depression, especially for mothers (Kareem et al., 2023).

Other factors are also likely influential, including political orientation and religious identity. For example, republican mothers and fathers are more likely to be married than mothers who identify as democrats (Elder & Greene, 2016). Democratic fathers are also more likely to report challenges balancing work and childcare, compared to republican fathers. Further, republican fathers are more likely to see themselves as doing a good job as a parent compared to democratic fathers (Elder & Greene, 2016). Given the influences parents report on their experiences of regret it is not clear what impact political orientation will play. For example, having support, and support from the child's other parent especially, is likely an important factor for parents experiencing regret. In this case, it could be that those who are more right leaning will report less regret given the likelihood of being married. Alternatively, the egalitarian division of labour reported by more left leaning parents (Elder & Greene, 2016) may result in less regret as this entails more support and potential autonomy.

Similar to political orientation, religiosity is likely an important factor in parenting experiences. In a 2018 study of parents in the United States, religious parents were found to be more satisfied as a result of the social support provided by religious communities (Nelson & Uecker, 2018). It is possible that parents high on religiosity could experience more regret than their non-religious counterparts, given that parenthood is a stronger norm in religious communities, increasing the likelihood of someone with doubts moving forward with having children. Alternatively, religiosity could also result in less regret, as a function of the greater support religious parents receive from their community.

### **Initial work: Listening to the regrets of parents**

In order to better understand the complicated relationship between parenthood and regret, we began with an initial, informal investigation into the reports of regretful parents online. This

involved reading online forums (i.e., Reddit, Facebook, Quora), in addition to comments on mass media articles about parental regret (e.g., in *Maclean's* magazine). After reading many of these posts and comments, we categorized them into the themes that consistently emerged, organized into 3 groups: (1) antecedents, experiences before having children that could potentially result in later regret; (2) specific regrets, aspects of parental life that people regret; and (3) current mental health, the mental well-being of parents. Potential antecedents of regret included not wanting children to begin with, having a problematic partner (e.g., unsupportive, absent, abusive), lack of information about the reality of parenting, and lack of parental instinct. The specific regrets parents reported included a loss of freedom, loss of self, lack of support from others, relationship deterioration, and parenting not being as expected. Finally, the current mental health struggles related to regret included depression, anxiety, exhaustion, guilt, loneliness, and anger/resentment. This informal analysis was built upon when conducting the qualitative analysis presented in Study 1. With a better understanding of the experiences of regretful parents, we designed this dissertation to delve deeper into the phenomenon in order to start to fill in the gaps in the research literature on this topic.

### **The current research**

At present there is a dearth of research on the experiences of regretful parents. However, the research that does exist suggests there are some profound negative consequences of this regret that are not being addressed, likely as a result of the taboo associated with admitting to such regret. The purpose of the current research is to begin to fill this gap by pursuing six related goals. First, we aimed to gain a better understanding of who regretful parents are and what their experiences are like. Second, we wanted to understand what factors predict if someone is going to regret becoming a parent. For example, do low-income parents experience more regret than

high earners? Are parents who had childcare experience before becoming a parent buffered against feelings of regret? To better understand these issues, we included a list of possible antecedents that grew out of the initial reading of forums described above. We also collected rich demographic information, to examine whether any of these factors predict parental regret (e.g., year at which first child was born).

Third, we aimed to better understand parental regret by examining the specific things that parents regret about adopting this role. Our goal here was to gain a better understanding of why parents experience regret by understanding what it is they regret. Past work has described parental regret in a vague and monolithic fashion, by talking purely about “regret over becoming a parent,” with no nuance as to what precisely is being regretted. Understanding the nature of parental regret will hopefully provide insight into the kinds of support that regretful parents might need. For example, if it is the case that parents experience regret because they do not feel sufficiently supported by society, recommendations could be made along these lines to improve support and reduce the potential for regret.

The fourth goal of this project was to examine the mental health of regretful parents and compare it to non-regretful parents. Previous research suggests that regretful parents feel a great deal of anxiety, depression, and parenting stress (Donath, 2015; East et al., 2012). Thus, we wanted to confirm this finding and also examine other possible relationships between mental health and regret.

Our fifth goal deals with measurement. The little quantitative work on parental regret measures this construct using a single dichotomous item, simply asking parents whether they would have children again if they had the opportunity to do it over (a yes or no question). It is highly unlikely that regret is dichotomous. Instead, it is much more likely that parents experience

a range of regret, with parental regret best measured using a continuum. Thus, the fifth goal of this project was to develop a questionnaire measure of parental regret that captures this continuum and provides more nuance than the single item used thus far.

Finally, our sixth goal was to estimate the prevalence of parental regret in Canada, based on a large sample of Canadian parents. Although estimates of parental regret exist for several countries—including the U.S., Germany, the UK, and Poland—we do not yet know what proportion of Canadian parents experience regret.

To achieve these aims, we conducted 3 studies. In Study 1 we collected and analyzed qualitative data from parents in online forums dedicated to regretful parents. We then analyzed these qualitative responses using thematic analysis. This study provides a nuanced understanding of the experiences and regrets of regretful parents, providing a foundation for the subsequent research in this dissertation.

The main goal of Study 2 was to characterize parental regret, understand the potential antecedents of parental regret, and the mental health struggles of regretful parents. To do this we collected quantitative data from regretful parents inspired by what we learned from our initial investigation of online forums. We also used this study to examine whether failing to include parenthood in one's self-concept is associated with regret. Lastly, we used this study to develop the Parental Regret Scale.

Finally, the primary goal of Study 3 was to validate the Parental Regret Scale and develop a theoretical model of parental regret. This theoretical model will allow us to begin to map the relationship between the different antecedents, specific things parents regret, and mental health struggles experienced by regretful parents. By collecting a gender representative sample of Canadian parents, we were also able to estimate the prevalence of parental regret in Canada.

## **Chapter 2: Qualitative examination of regretful parents' experiences**

### **Study 1 Introduction**

The primary aim of Study 1 was to empirically corroborate our preliminary interpretations of the online posts of regretful parents. To this end, we conducted a qualitative study wherein regretful parents from online forums were asked, as part of a larger data collection effort (detailed in Study 2), if there was anything about their experience of parenthood they wanted to share. Collecting these data allowed us to fill in any gaps of experience that we may have missed when developing the initial themes based on reading forum posts. Parents were able to use this space to elaborate on their experiences and provide more detail as to why certain aspects of parenting may have been difficult. By giving parents the space to tell us about their experiences in their own voice, we are able to contextualize the factors that may impact experiences of regret. In this way, hearing directly about the experiences of regretful parents is closely tied to our understanding of regret and the role of parenthood in society, while leveraging the advantages of a formal qualitative approach.

#### **General experiences of regret**

Regret emerges when one believes that they could have experienced a better outcome if they had made a different choice. It is believed, therefore, that regrets come from a decision; people cannot regret something they did not decide (Zeelenberg et al., 1998). The strength of this association between regrets and decisions is illustrated by the finding that approximately 95% of things people regret are within their own control (Gilovich & Medvec, 1994). This provides an interesting paradox for parental regret, as many people, especially women, do not *feel* that they have a choice in having children. For women, having children is often portrayed as the “default” path, and what is part of a “normal” progress in life (e.g., Locke, 2023; Donath, 2017). In fact, in

2021 the World Health Organization faced substantial criticism after they proposed that women of childbearing age should avoid alcohol altogether, in case they are to become pregnant (implying that this is an inevitable goal for women; Javed, 2021). Societal expectations, religion, and a lack of birth control options, for example, all help to chip away at the freedom of choice when it comes to parenthood (Donath, 2017). Not surprisingly, many people may end up having children in order to satisfy societal expectations. After having the child, a regretful parent may reflect on this ‘natural progression’ and end up feeling distress at the possibility of having made a different choice. In short, it is this illusion of choice that could lead to some parents struggling to accept the outcome of having become a parent, resulting in stressful rumination.

There are two main ways people deal with feelings of regret: (1) through Primary Control, which is an attempt to change the outcome; or (2) through Secondary Control, which is an attempt to change one’s feelings about the outcome (Wrosch & Heckhausen, 2002). Given that parenthood is a decision that cannot be reversed, exercising secondary control is likely the most effective path forward for regretful parents. This is a promising strategy as those who enact secondary control are more likely to experience higher well-being compared to those who do not. However, to be successful, secondary control needs to include feelings of acceptance of the situation (Swift & Chipperfield, 2013), which is particularly difficult for those experiencing rumination. Rumination is common for those living with regret, who often revisit their decision time and again wishing they had made a different choice (Zeelenberg et al., 1998). For parents experiencing regret, there is a constant reminder of their decision in the form of their child, which could make it difficult to avoid ruminating about their decision. Accordingly, this rumination may make secondary control difficult to enact, impeding any improvements in mental

health. The rumination was often mentioned in the initial examination of online posts and was of keen interest throughout the research presented herein.

### **Expectations regarding parenthood**

It remains an expected norm that people— especially women—will have children. This is evidenced in the fact that the terms used to denote those who choose not to have children positions parenthood as the norm (e.g., “childless” or “childfree”; Agarwal, 2024). Given that parenthood is seen as an implicit natural progression in life and the corresponding illusion of choice adults face, understanding the impact of these expectations on regret is paramount.

Despite the fact that having children is the societal ‘default’, there is also a societal expectation that parents perform at the same level as their non-childbearing counterparts. This means working just as long, and just as hard, as someone without family responsibilities (Williams, 2000). Likely as a result, most new parents report feeling “inadequate,” which results in stress and relationship dissatisfaction (Kushner et al., 2014). This can be explained in part by ‘role strain’: the difficulty people may have when navigating multiple roles (Nomaguchi & Milkie, 2021).

It is easy to understand how having children could result in role strain when parents are expected to be top performing employees, full-time parents, devoted partners, and so forth. Because parents take on the additional role of raising children, it is no surprise that they report worse well-being in comparison to their childfree counterparts (Nomaguchi & Milkie, 2021). Further, the negative consequences of parenthood in terms of well-being seem to compound when people did not expect to have children prior to having them (Carlson & Williams, 2011).

Beyond this, people often feel in the dark about the realities of parenting. Parents are often only told the good parts of parenting without being given adequate information about its

difficulties. A quick Google search on “what it is like being a parent”, for example, brings up articles about how most people love being parents and find it enjoyable (Dalrymple, 2023), the “50 most amazing things about being a parent” (LeFere, 2024), and how parenting can make life feel like it has meaning (Cosslett, 2023). When the difficulties are shared, they are almost always centered within the larger message that it is worth it (e.g., Schrader, 2013). This is not to say that parenting is not, or cannot be, enjoyable: of course it can. Rather, it is likely problematic that the information given to potential parents—and current parents—is so often one-sided.

Taken together, the perceived lack of choice, societal norms, high expectations, and lack of accurate information provided to parents make it unsurprising that some may end up regretting the decision. Given the lack of research in the area, however, little is known about how these various factors may relate. Hearing directly from regretful parents is an important first step in learning more about this important phenomenon.

### **Advantages of qualitative work**

When studying a topic that has been previously under-researched and often overlooked, a valuable first step is to conduct a qualitative study to gain a clearer understanding of the topic and help to generate research questions and hypotheses (Price et al, 2015). The value of this approach comes from learning about a new topic without limiting the scope as a function of one’s own biases or preconceptions. Qualitative approaches also provide nuanced information that can help inform the kinds of quantitative data that should be gathered moving forward. Qualitative research has long been seen as having the most value when conducting exploratory research and can also be useful for developing new theories (Sofaer, 1999). The benefits of the qualitative approach lie in the richness with which people are permitted to express themselves,

describing events and experiences with nuanced details that allow for an in-depth understanding of an issue.

To date, there have been two major qualitative studies conducted on regretful parents. In the first, Donath (2015) interviewed 23 Israeli mothers between 2008 and 2011. Participants were recruited through online forums for Israeli parents, word of mouth, and media interviews. Each interview lasted between 1.5 and 2.5 hours and data was analyzed using Grounded Theory and Standpoint Theory. The results of this study formed two articles published in 2015 as well as a book published in 2017. The participants ranged from new mothers to grandmothers and the results were largely consistent. Motherhood was considered a normative act and regretting it is unacceptable. In fact, more than being normative it is an “obligation.” This was exemplified by one mother who reported that although she knew from a very young age that she did not want to be a mother, she never believed she had a choice (Donath, 2015). This theme is consistent across the findings in our initial investigation. Further, many of the mothers acknowledged that there are some positives to having children (e.g., personal growth), however, this did not outweigh the negatives. Importantly, these mothers also expressed that they loved their children, it was the experience of motherhood that they regretted (Donath, 2015).

In the second major qualitative study, Bodin (2022) examined online forums, specifically looking for posts about regretful parents. The study was conducted by reviewing online forums in Sweden — a country selected because of its gender parity. One of the forums was specifically for people to discuss family issues while the other was without a specific focus. Only threads related to parental regret were included in the study, which consisted of a thematic analysis of the posts (using the thematic analysis approach proposed by Braun & Clarke, 2006). Despite the importance of egalitarianism in Sweden, mothers were more likely to post online

about their regret than fathers (Bodin, 2022). The authors provide a possible explanation for this discrepancy by pointing out that women are more likely to seek out support than men, which means that this should not be taken as evidence that mothers experience more regret than fathers (Bodin, 2022). When fathers do post online, there are distinct differences in the content. For example, mothers are more likely to write about the social expectation that women should have children, whereas fathers write more about being ‘tricked’ into parenthood (while not taking responsibility for failing to use contraceptives; Bodin, 2022). The differences in the degree to which mothers and fathers discuss parental regret, and how they discuss it, highlight that they might experience differences in regret between these two groups.

Although there have been two previous qualitative studies on regretful parents it was important for us to conduct our own research for several reasons. First, the earliest study of this type focused solely on Israeli mothers and was conducted distantly enough in the past that it is necessary to examine if these experiences have changed (Donath, 2015). That is, in the 9-12 years between the collection of data in the 2015 study and the collection of our data, the world experienced a global pandemic, worsening climate change, global political unrest, and a worsened economy among other things, all of which would have an impact on the experience of parenting. Additionally, because all parents can experience regret, not just mothers, it was important for us to provide an opportunity for both mothers and fathers to share their experiences, rather than narrowing the pool. Further, there has been a rapidly growing awareness of the issue of parental regret, and so it seems likely that experiences and opinions on the topic may have changed since 2017.

The second qualitative study involved an analysis of online posts but did not involve asking parents to talk about their experiences (Bodin, 2022). Thus, it is similar to our initial

investigation of forums. The current study adds a novel contribution, building on past qualitative work by allowing parents to tell us, in their own words, about their experiences. Importantly, the current study differentiates itself from past work because of how it was conducted. This study resulted from developing themes from the initial investigation taken from online forums. Then, extending on the research done by Bodin (2022), parents were presented with these themes as part of the larger data collection and then asked if there was anything else they wanted to share. It is these responses that we analyze for this study. As a result, participants were pushed to think deeper about their experience than they may have previously, given that the ‘standard’ answers were already listed. Participants were therefore able to answer questions about the themes already discussed in the forum and also given space to expand and reflect on whether there was anything else that may have been missed. Given the exploratory nature of the study, it was not preregistered.

### **Positionality Statement**

As the primary author in this work, before discussing the qualitative study conducted, it is important that I acknowledge my positionality as it relates to this topic. I am an unmarried cis-gendered white woman with no children and no plans to have children in the future. I would, therefore, fit the description of being “childfree.” My parents are divorced and did not initially plan on having children before having them, though neither could be described as regretting becoming parents. Being in a PhD program, I am fortunate to have received a great deal of education and come from a place of privilege: a middle-class Canadian background. Although participants were not made aware of my full background, they were aware that I was a graduate student researcher, and this may have shaped their responses. In addition, my position in the world inevitably plays a role in how I view parenthood. Attempts were made to not have these

views impact the work described below, including having a second reader review the themes derived from the data. That said, the potential for bias remains and could have influenced how I interpreted these data.

## Study 1 Method

### Participants

Participants from Study 1 came from a subset of those who participated in Study 2, and included those who answered an open-ended question, “is there anything else [they] want to tell us about [their] feelings around being a parent?” ( $N = 37$ ). Participants were recruited from online communities dedicated to people who regret having children.

Participants were, on average, 36.82 years old ( $SD = 9.12$ ) and the majority identified as women (89.47%,  $n = 34$ ). The sample was relatively well-educated and financially stable, with most having at least some post-secondary education ( $M_{years\ of\ education} = 15.46$ ,  $SD = 3.81$ ) and a family income over \$100 000 (39.47%,  $n = 15$ ). Just under half of the sample was married (47.37%,  $n = 18$ ) and over half worked full time (55.26%,  $n = 21$ ). Participants were, on average, 27.74 ( $SD = 6.53$ ) years old when their first child was born, with most having just one child (60.53%,  $n = 23$ ) or two children (36.84%,  $n = 14$ ). One participant (2.63%) reporting having five children. On average the first child was 8.13 years old ( $SD = 7.24$ ) at the time of responding, with a range from under 1 to 21 years old. For more detailed demographics, please see Table 1.

Table 1.

Study 1 Demographic Information

	Percent ( <i>n</i> )		Percent ( <i>n</i> )
Gender		Income	
Male	7.89% (3)	Less than \$25, 000	13.16% (5)
Female	89.47% (34)	\$26,000-\$30,000	7.89% (3)
Genderqueer	2.63% (1)	\$31,00-\$35,000	7.89% (3)
		\$36,000-\$40,000	2.63% (1)
Relationship Status		\$41,000-\$45,000	7.89% (3)
Single, never married	7.89% (3)	\$46,000-\$50,000	2.63% (1)
In a serious relationship	15.79% (6)	\$56,000-\$60,000	2.63% (1)
Married	47.37% (18)	\$61,000-\$65,000	0% (0)
Separated	7.89% (3)	\$71,000-\$75,000	2.63% (1)
Divorced	13.16% (5)	\$76,000-\$80,000	7.89% (3)
Other	7.89% (3)	\$81,000-\$85,000	0% (0)
		\$86,000-\$90,000	2.63% (1)
Working Status		\$91,000-\$95,000	0% (0)
Working full time	55.26% (21)	\$96,000-\$100,000	2.63% (1)
Working part time	15.79% (6)	over \$100,000	39.47% (15)
Stay at home parent	28.95% (11)	NA	2.63% (1)

## Materials

### *Study Advertisement*

Potential participants saw a short advertisement posted in various online communities for people who regret becoming parents, asking if they would be willing to participate in a 10-minute survey about their experiences. It was emphasized that all data collected would be anonymous.

## *Survey*

The current study used one question in the survey, asking parents “Is there anything else you want to tell us about your feelings around being a parent?” in addition to a standard battery of demographic questions. There are both positives and negatives to using this single question. The broadness of the question, without any leading prompts or suggested responses, allows us to be confident that the participants that responded did so because they felt they had important information to share. Indeed, of those who that shared responses most provide detailed accounts of their parenting experiences that both reiterated what had been asked previously and provided new information.

At the same time, because the question was included as a final prompt as part of a larger study it is possible that some participants did not respond because they felt that their responses had already been sufficiently captured or were fatigued from having completed the study. In total, 64% of participants from the broader survey answered this question. However, it is still possible that more would have responded if the question was worded differently or appeared earlier in the study.

## **Procedure**

Interested individuals saw an ad for this study in online communities specifically for people who regret becoming parents (e.g., on Reddit and Facebook). If interested, they could click the link to read more about the study and provide consent to participate. The item used for this study was the near the end of the survey. Participants were given the option to write as much as they would like or to leave the item blank. Only those who answered the open-ended question were included in the current study. Participants were not provided with compensation in an effort

to ensure anonymity so that people would feel comfortable being honest, given the taboo nature of the topic.

### **Study 1 Results**

A thematic analysis was conducted on the results following the guidelines of Braun and Clarke (2006). The process began with gaining familiarity with the data by reading through the responses several times (step 1), before beginning to group responses based on common features (step 2) and reducing these into themes (step 3). From here, themes were reviewed, with input from a second coder (step 4), before naming and characterising each theme (step 5). The final step (step 6), writing the report, makes up the body of these results. By progressing through all the steps, five main themes were identified: (1) Anxiety and Fear; (2) Difficulties of Motherhood; (3) Difficulties of Parenthood; (4) Lack of Support; and (5) Loss of self. Most of the themes contained subthemes within, with some sub-themes appearing in more than one theme. For example, the effects of parents' own childhood trauma were an aspect of both Anxiety and Fear, and Difficulties of Parenthood.

A pervasive motif present in all of the themes were issues with poor mental health. Because this was omnipresent, it was not included as its own category. Rather, it should be emphasized that mental health concerns were very common among these participants. It was often discussed explicitly, in both broad terms (e.g., “No one cared when I had mental health problems or birth trauma.” [Respondent 9]) and specifically (e.g., “I was at times depressed and suicidal. My psychologist did not help.” [Respondent 2]). In some cases, mental health struggles were indicated implicitly (e.g., “I knew life will suck but my partner was so happy... I was in between a rock and a hard place...” [Respondent 21] and “Therapy should be included in aftercare for mothers after childbirth” [Respondent 25]). Although not every participant brought

up mental health concerns explicitly, these concerns were consistently prevalent in some form or another across respondents. All forms of regret cause stress and threaten mental health, but mental health issues might also predispose one towards regret. That said, this comorbidity seems an important and intuitive feature of parental regret.

### **Anxiety and Fear**

The first theme that emerged for parents was that of anxiety and fear, specifically about their children and their children's future. In some cases, this presented when their child had a disability:

I think the universe is playing a cosmic karmatic [sic] joke on my life for giving me a son with extreme disabilities as a result of saying I don't want children all these years then going back on myself and having one. This is not the life I wanted for me and this is not the life I wanted for my son. I am in constant worry about his future, his care the quality of life he'll have or worse. It breaks my heart I carried life into this hard cold world and that my son will never know independence, never see my face (he's blind on top of everything else), never fall in love or "be normal" and have "those (neurotypical) life experiences". My heart breaks and yearns for his normality. It probably would be so bad if he was "typical" like everyone else's baby but he's not. I wish I wanted him, my husband, and this life but I don't and now I'm stuck. I'm stuck in constant regret and the secrecy is eating me up alive. [Respondent 12]

Parents also wrote about their fear of passing on their own childhood trauma (e.g., "I feel guilty all the time as I fear I have traits of my mum, who was incredibly emotionally unavailable." [Respondent 29]). Dealing with their own childhood trauma and their children having disabilities were both common subthemes that also appeared in other themes (e.g., Difficulties of Parenting). However, because parents often discussed struggling to deal with the effects of these issues, they contribute to this theme of worry and concern.

A subtheme related to parental anxiety was concern about the future of the world that the child would grow into. For example, "I love him a lot, and the regret isn't as strong as it was

when he was younger but I do feel guilt constantly for bringing him into a world that seems to be in a state of decline.” [Respondent 18] This fear exemplifies the love that these parents have for their children with a major concern being the current state, and future, of the world. In fact, what all these subthemes have in common is that they demonstrate how deeply these parents care for their children, despite regretting having adopted the role of a parent. Indeed, multiple parents who discussed these themes, made a point to emphasize that they love their child; rather, it is the experience of being a parent that they regret:

I love my children but I am sure that they would be better off with someone else. Someone who actually Feels like a parent. I have never felt like anything but an overworked babysitter, doing their best and wondering when their Real parents are going to come and pick them up. Quite frankly, it's heartbreaking. Why can't I even Feel like a mum? [Respondent 16]

This is an important feature to highlight as it helps to break down that taboo belief that regretful parents are ‘bad parents’ who do not love their children. Indeed, it seems to highlight the opposite—in some cases it may be because parents love their children so much that the fear and anxiety they have for their children causes them to regret being a parent.

### **Difficulty of motherhood**

Given that the majority of participants were mothers, it is perhaps unsurprising that many spoke about the specific difficulties that mothers face. For example, it was emphasized that being a mother is worse than being a father, with Respondent 11 saying, “It will always be harder for women, I wish I was a father.” Some of the mothers in our sample felt like they only had children because their partner wanted them to: “It was just an agreement with my husband I made because I love him, or so I thought I did. I live my life in regret and should have left when I had the chance.” Respondent 12 and others reported not feeling like they had a choice:

Fuck this country that only cares about money, but takes away women's choice when they don't educate them about what motherhood usually looks like, and when they take away a woman's choice not to abort. [Respondent 25]

Interestingly, the difficulties that surround motherhood—and womanhood in general—also translated into concern about the future for their daughters:

I also cried when I learned I was having a girl. I wanted a boy. It wasn't until a lot later that I realized it was because I know what it is like to be a girl and I don't want that for my kids. I am regretful because of society's expectations and how they treat moms. I hate it. [Respondent 14]

This unfairness towards mothers was often associated with the lack of choice that women face when it comes to becoming a parent. This lack of choice was either tied to practical reality, such as the inability to get an abortion (e.g., “I wanted an abortion but was denied one.” [Respondent 30]), or a perceived lack of choice due to societal pressure to have children. As one mother described:

More women need to know the truth about becoming a parent. I want them to understand that it's not your only goal in life. We are conditioned as children to believe that it is our only purpose. There is so much more to explore about yourself as a woman. "Mother" doesn't have to be your only title. [Respondent 3]

The unique challenges of motherhood came up many times in participant responses. Mothers in our sample were quick to highlight the different experiences that mothers and fathers have as parents which, for them, highlighted why being a mother is so difficult. This theme also bled into feeling a lack of support, with multiple mothers writing about not getting enough support from various sources from which they either anticipated support or would have appreciated it. Though there were some difficulties mentioned that are specific to mothers, there were also others that apply to parents in general.

## Difficulties of parenthood

There were multiple subthemes that comprised the overall theme of Difficulties of Parenthood, including the cost of raising children (e.g., “Forgot to mention cost. The cost of raising a child is staggering and I had no idea the true cost until after my child was born.” [Respondent 27]). Regretful parents mentioned the unique difficulties of parenting in the 21<sup>st</sup> century. For example, how family court is handled:

I think there should be research conducted on the court systems being complicit in children’s neglect. How is it possible that I am able to support a child on such a little financial support as well as emotional or physical support from the person who appropriated with me. It is like the courts purposefully uphold putting more weight on one person. [Respondent 8]

Another issue tied to modern parenting was how children treat their parents: “Children this day in age challenge single mom’s, fight discipline and even laugh in our faces.” [Respondent 4].

Part of the difficulties of modern parenting were related to how parents felt judged by others, both specific family members and society in general. As one parent said:

If I had my time again I would have given her up and everyone would have been happier. Societal stigma and familial pressure/control despite ironically being outcast prevented this. [Respondent 22]

Another common subtheme was the difficulties of having a child with a disability, or being a parent with a disability their own. For example, Respondent 30 said, “I am mildly autistic, and a major introvert so the constant interaction and socialization of a child was very difficult for me and overwhelming.” Similarly, Respondent 20 said of their child,

I am an autistic parent on the “functional” side of the spectrum, to a severe autistic daughter with ADHD.....My daughter is too strong and tall to control in public; that plus her oppositional defiance disorder, lack of awareness of her surroundings and sense of danger, force me to be confined with her and only get out with her in a carrier.

The difficulties of raising a child with a disability also appeared as part of the theme of Anxiety and Fear. This demonstrates how parents struggle with both raising a child with a disability from a practical perspective, as well as fearing for their future.

In a similar vein, participants also brought up the difficulties of their own childhood trauma resurfacing after they had children. Again, parents discuss both the practical difficulties of dealing with their own trauma, and wanting to break the cycle of trauma for their own children:

Dealing with trauma from your own childhood GREATLY effects your parenting skills. All my trauma didn't completely surface until I had a child. Which is good and bad, because now I can face the trauma, but what about the guilt I feel that I'm bestowing this passed down trauma to my child because it's what I learned as a child. [Respondent 3]

Another parent also highlighted this issue, stating:

I also am breaking a lot of abusive cycles that aren't going to be passed down. The worst I ever do is yell and even then I constantly do better the next day and apologize to her. My parents always said I would understand when I have a kid, but honestly, I understand them even less. The thought of, say, hitting my kid is so foreign to me that I legitimately can't understand why anyone, including my parents, hit their kids. [Respondent 14]

This subtheme, like the previous, also contributed to the theme of Anxiety and Fear with parents concerned about the impact their own experiences of trauma may have on their child.

Another subtheme within the difficulties of parenthood centered around possessing unrealistic expectations of what being a parent would look like, before having children. These erroneous expectations were often a result of not being fully educated about the reality of parenting. For example:

...people are not being made to do parenting classes BEFORE they have kids. Parenting should be taught in school and also the dire consequences on all levels of self and other relationships. It is a blatant lie and myth that parenthood is a fulfilling and rewarding job. [Respondent 2]

Overall, the difficulties of being a parent was a common theme that manifested in a variety of different ways. Difficulties of Parenthood had the highest number of subthemes and shared many of these with the other themes. The subthemes that appeared in both Difficulties of Parenthood and Anxiety and Fear help to demonstrate the paradoxical nature of regretting parenthood. Participants expressed their regret due to the difficulty of caring so deeply for their child, and in the same sentence wished that they could do better by them. Respondent 15 summed up this paradox well when they said, “And hope that you don't mess them up too much so they have a better life and make better choices.”

### **Lack of Support**

The difficulties of parenthood can also be linked to a feeling like one does not have a support system in place. Participants discussed feeling like they do not have support at both micro- (i.e., from individuals) and macro-levels (i.e., from society). This included a lack of support from the child's other parent, both when in a relationship (e.g., “...my husband could have been more emotionally and financially supportive, but I guess he did not know how.” [Respondent 2]) and as a single parent (e.g., “I wouldn't wish becoming a single parent on my worst enemy.” [Respondent 3]).

Outside of the child's other parent, participants also wrote about a lack of support from their community, which entailed their family and friends. For example, Respondent 5 said, “I should have settled in close to my family, friends and their children so that a community would help raise children.” Another wrote about lack of support from society at large, “Society lies and I regret ever having children.” [Respondent 19]

Society was also a major reason why parents had struggled with their feelings of regret. Parents reported feeling that they needed to keep their regret a secret, with one parent reporting,

“I feel the need to keep my feelings towards parenthood and motherhood a secret. I am ashamed of myself as a person for not wanting my baby.” [Respondent 12] This secrecy means that these parents are not able to ask for support to help them cope with these difficult feelings of regret. It is easy to see how not having support could contribute to regret, increased difficulties of parenting, and especially of being a mother. This is exemplified well by Respondent 26 who wrote: “I really wish people were more open about how difficult and exhausting parenthood is.” Ideally, there would be support both for the feelings of regretful parents, and a community willing to share the difficulties of parenting.

### **Loss of self**

A number of participants reported feeling like they lost their own identity and no longer feel that their life is their own (e.g., Respondent 2 wrote, “The total loss of self identity.”). This idea was articulated in multiple cases using the analogy of parenthood feeling like ‘being in a prison’:

[It’s] a trap where you are stuck in prison. Your life is never yours again, all you do is for your children, your time, money, energy. I can’t leave my partner, I can’t travel or enjoy the things I used to enjoy. [Respondent 6]

Even when not using the prison analogy, this idea of losing the self and that loss being permanent, was an important theme in these responses. This was also linked to feelings of depression:

The permanence of having children is what keeps me depressed. Even as they age, they will always need things and be a source of stress and worry. Knowing that this is pretty much forever keeps me chronically depressed. [Respondent 7]

In this example, although the parent does not explicitly cite a loss of self, they write about feeling trapped in the permanence of parenthood, similar to the prison analogy mentioned by other parents. The discussion of the continual, never ending, work that results in a loss of self is also

mirrored in this response “We live in a very individualistic society but parenting is putting yourself aside all the time” (Respondent 29).

Loss of Self was the only theme that did not have other subthemes contained within. This was also the only theme that did not have clearly defined links to other themes. However, feeling a loss of self could contribute to the difficulties of parenting broadly speaking, and motherhood specifically (given that mothers take on the majority of parenting responsibilities; Kolita et al., 2013; Kerr et al., 2021).

### **Study 1 Discussion**

Overall, the themes that were discussed by our participants paint a picture of people who are struggling with their mental health and see very few positives in being a parent, even though they love their children deeply. Themes of regret centered around feeling a loss of self or identity, a lack of support from those around them, anxieties and fears for the future of their children, and struggles with the difficulties that come with parenting in general and being a mother specifically. A common thread running throughout all of these themes was the mental health struggle that regretful parents face, with some participants writing about feeling depressed and even experiencing suicidal ideation. In broad strokes, these results mirror what we found in our initial investigation of online forums.

A central proposal of this dissertation is that one of the reasons why parents might feel regret is a mismatch between one’s pre-child self-concept and their current life. This idea is present in our results for Study 1, with one of the five main themes centering around a Loss of Self. It is important to note that this theme had no subthemes contained within it. Loss of self-concept was enough of an issue, in and of itself, for parents to bring it up in multiple contexts and using different examples. This may speak to the centrality of this issue and its homogenous

nature. As further evidence of its centrality, self-concept was also highlighted outside of this particular theme, especially in the context of the experiences of mothers. Mothers face unique difficulties, given the societal demands placed on them compared to fathers.

Interestingly, though there is ample research on how parents can influence their child's self-concept, there is substantially less work on how having a child can impact the self-concept of a parent. Much of the research that does exist focuses specifically on the transition to parenthood. Having a child forces parents to adopt a new role quite quickly (Doss & Rhoades, 2017). Transitioning to parenthood can be a mixed experience, with many adapting well and others struggling with the new role (Lévesque et al., 2020). New parents report that it is difficult to balance their multiple intersecting roles and satisfy social expectations to both be dedicated parents and not lose themselves at the same time (Lévesque et al., 2020). However, this does not tell us what happens when parents are not able to adapt and take on this new, permanent role over the long term. We would benefit from more research on how challenges to the self-concept impact individuals beyond the period of new parenthood. The current research provides evidence that some parents struggle with updating their self-concept, which may result in experiences of regret.

The struggle experienced by parents in our sample also appear to be in concord with the central concept of Regret Theory. For one, regret is especially troubling when the decision cannot be undone (Zeelenberg, 1999). Further, many people dream about becoming parents and imagine what it will be like when they have children. These scenarios may end up setting expectations about what parenting will be like that are inaccurate, resulting in a disappointing violation of expectations. This is supported by the current research, which finds that regretful parents did not have realistic expectations of parenthood. Regret theory posits that when reality

does not meet these expectations, either by being worse than expected or by being worse than the perceived outcomes of a different decision, people will likely experience negative emotions (Zeelenberg et al., 2000). Thus, when parental expectations differ from reality, regret and other negative emotions are likely to result. Related research has found supportive evidence for this idea, with unmet expectations tied to less sexual and relationship satisfaction (Rosen et al., 2023; Mitnick et al., 2021). Unmet expectations regarding parental and infant sleep are also associated with increased depression (Rudzik et al., 2023). This might help to explain the poor mental health seen in these parents. Multiple respondents described parenthood as a “prison,” both explicitly and through implication. This suggests that parenthood is not what they expected given the massive adjustments in lifestyle (e.g., time and financial commitments). Given that parenting is often presented as being a positive experience with few downsides, and those downsides being worth it in the long run (e.g., Cosslett, 2023; LeFevre, 2024), it is not surprising that parents may feel trapped when the reality does not match.

### **Limitations**

A central tenant of qualitative analyses is being able to confirm that enough data has been collected such that no new themes are being introduced (i.e., saturation; Bowen, 2008). Because the current study involved analyzing data already collected for a larger study, we cannot guarantee that new themes would not have emerged had more data been collected. However, the results largely confirmed our initial investigation, which examined a great many more responses from forums. Additionally, there were substantial similarities between responses, with few highlighting points that had not previously been mentioned. There were also many similarities between our results and previous qualitative work (e.g., Donath, 2017). Despite these similarities, however, the current work provides a novel contribution by including the

opportunity for both mothers and fathers to contribute. Though very few fathers eventually participated, giving them space to do so allowed us to understand the potential landscape more fully. Perhaps mothers do experience more regret, since they are more likely to participate, for example. Or perhaps fathers are less willing to discuss and disclose difficult feelings. Additionally, the results of this study were part of a larger data collection effort in which participants were presented with themes developed from reading online posts. The current study was a result of asking if there was anything else they wished to share. By presenting it in this way, we gave participants an opportunity to review a succinct list and reflect on their experiences and proffer anything that may have been missed.

Though there are benefits to the way these data were collected, our method also poses a potential limitation. In an ideal scenario, there would be multiple questions with a variety of prompts, giving participants more opportunity to provide detailed responses. Or, we would have interviewed regretful parents in a semi-structured fashion, allowing us to adapt and develop questions based on their responses. Relatedly, because the single item asked about “anything else” the participants wished to tell us, it implied that they should not elaborate on topics already covered in the study. Thus, it is possible that some participants may not have written about issues important to them because they felt it had already been covered (i.e., participants were asked about loss of freedom and income, bodily changes in self and partner, support received, etc. For a full list see Study 2). For example, given that none of the questions in the overall study specifically discussed the issues specific to motherhood, it is conceivable that participants highlighted these issues in the qualitative responses in an attempt to fill in this missing piece. In other words, had questions regarding motherhood been included in the study, the theme specific to motherhood might not have emerged. However, in contrast to this idea, many people used the

space to re-emphasize things that were already brought up in the main study (e.g., lack of support), suggesting that people were not solely raising new topics.

## **Conclusion**

Collecting qualitative data during the early stages of research into an understudied topic, like parental regret, is especially important as it provides nuance and ensures that the people who are impacted have a voice. Study 1 allowed us to hear from parents in their own words what it is about being parent that they regret and expand on any experiences that were not addressed by our questions. The goal of Study 2 was to use these data, combined with our initial investigation of forums, to develop a Parental Regret Scale. This scale will then allow us to look at the relationship between regret and possible antecedents, specific regrets, and the mental health of regretful parents.

## **Chapter 3: Characterizing parental regret**

### **Study 2 Introduction**

Previous research on parental regret has almost exclusively measured this construct with a single question and a dichotomous response option. Specifically, people are asked something along the lines of, “If you could go back in time and do it all over again, would you still have children?”, with the only options available “Yes” or “No” (e.g., Shtrauchler, 2016; Piotrowski, 2021; Newport & Wilke, 2013). However, it is our belief that parental regret likely falls on a continuum, wherein parents can be entirely regretful, not at all regretful, or fall somewhere in the middle. This is supported by other research on regret in general, which is assessed on a continuum and not dichotomously (e.g., Buchanan et al., 2016; Marcatto & Ferrante, 2008; Brehaut et al., 2003; Fergus & Hiraoka 2025). Therefore, we developed the Parental Regret Scale (PRS), building on what we learned from our initial investigation of forum posts by regretful parents. The scale has been developed to measure various facets that people are likely to regret, allowing for a nuanced understanding of parents’ experiences. In the course of developing this scale, we also examined possible antecedents of regret, the specific regrets parents feel, and the mental health of regretful parents. In developing this study, our close reading of forum posts was immensely helpful for developing relevant questions (regarding antecedents, specific regrets, and mental health). Items related to regret formed the Parental Regret Scale, with questions about antecedents and mental health allowing us to examine how regret relates to these factors. Given that self-concept was expected to be a key aspect of regret, we included multiple measurements of this construct. Finally, we also included neuroticism in order to determine its relationship to parental regret and ensure that there is a distinction between a general tendency toward negative affect and the negative emotions felt by regretful parents.

## **Characterizing and measuring parental regret**

Until now, research on parental regret has measured it as a dichotomous experience wherein one either regrets, or does not regret, having children. However, we believe this is unlikely to be the case for regretful parents. Consider the Sorites Paradox (Hajek, 2003). In this thought experiment you have a heap of sand and remove individual grains one at a time. Removing one grain does not result in it no longer being considered a heap, neither does removing two grains, and so on. It follows, therefore, that there is no point at which removing sand stops it from being a “heap.” Therein lies the paradox, at some point the pile ceases to be such, but by definition this cannot occur (Hajek, 2003). This is directly related to the continuum fallacy (Hajek, 2003), whereby the belief is held that there either is or is not a heap of sand. Or, in this case, that a parent either is or is not regretful. Regret regarding parenthood is likely to come in different forms, and to different degrees, and so forcing parents to declare that regret either exists or does not almost certainly fails to capture their full experience. In order to fully understand the experiences of these parents, it will be helpful to assess the degree of regret that parents feel.

Categorizing parents as being either regretful or not may also help to explain the strong negative reactions people have towards this group. When viewing parental regret with an absolutist mindset, one likely fails to consider the nuances of these experiences, resulting in categorical judgements (Donath, 2017). Such a mindset may lead to the conclusion that regretful parents must also possess negative qualities like being selfish, neglectful, and so forth.

Although this categorical approach is limited, it has supported fundamental initial investigations into this phenomenon. Asking this yes or no question provided a valuable starting point to establish whether or not parental regret even exists, and get a sense of its prevalence.

However, in order for this understanding to develop, research needs to expand beyond this dichotomy. To allow for a nuanced consideration of regretful parents, we developed the Parental Regret Scale, wherein a person can be entirely regretful, entirely non-regretful, or fall somewhere in between. This tool will aid us in understanding the roots of parental regret, which may be linked to the transition to parenthood roles and changes in identity.

### **Social/self-identity and life transitions**

Social-identity and self-identity refer to different forms of identity rooted in the idea that identities based on social categorization are different from those based on individual identification (Walker, 2022). Importantly, this dichotomy leaves little room for the complex interplay between individual and social experiences. People often hold multiple self-identities that can differ based on context. For example, “parent” can be used as both a self and social identity that will have different implications if one is at work or at home. To reconcile this, Walker (2022) proposes that the two forms of identity exist together. As an example of this interplay, research on life transitions in international students demonstrates that one’s loss of identity can decrease life satisfaction and lead to depression (Praherso et al., 2017). Transitioning to parenthood, and motherhood specifically, has also been shown to result in changes to both social- and self-identity (Seymour-Smith et al., 2017; Kluwer, 2010). When it comes to parenthood, one’s identity often changes dramatically after having a child (Kluwer, 2010). In fact, it has been proposed that the transition to parenthood is one of the largest identity changes a person can go through (Cast, 2004). Parents (and particularly women) have to contend with issues they previously had not, such as childcare, lost wages, and decreases in self-esteem. The difficulties of parenthood, it has been argued, have only increased over time as childrearing has

become more independent in Western cultures in comparison to the collective support parents were likely to have in the past (Lyubomirsky & Boehm, 2010).

The more one identifies with an individual role, the more likely one is to integrate it with other roles. Although the presence of multiple roles tends to reduce negative emotions (Desrochers et al., 2002), when this integration is difficult, it can lead to depression, as one struggles to navigate their different identities (Praharsso et al., 2017). The transition to parenthood is especially difficult for a variety of reasons. A thematic analysis of parents who made this transition in the previous 18 months identified four main areas of struggle, with identity loss being right at the top (i.e., loss of individuality and couplehood). This change in role also brought up issues of inequality in parenting responsibilities, particularly in relation to childcare, societal judgements and norms, and environmental or contextual challenges (e.g., lack of sleep; Lévesque et al., 2020). Combined, both the role and identity change parents must undergo is complicated. This might help explain the complex relationship between parenthood and well-being.

#### *Mental health and parenthood*

As established, becoming a parent means updating one's identity and role. This update can lead to 'role strain', wherein the multiple identities a person holds require different demands resulting in increased pressure and decreased well-being (Ruppanner et al., 2019). For example, after having children, working mothers experience conflicting demands in their work-life, parenting, and household responsibilities. The expectations are that they be experts in child rearing and housework while also working outside the home (Sayer, 2005). After becoming a parent both mothers and fathers report increased pressure on their time and, therefore, increased stress (Ruppanner et al., 2019). Although it is often thought that the pressure parents feel will decrease after the child ages, this is not always the case. Even after the initial changes following

childbirth settle, the pressure felt by parents with conflicting roles remains, resulting in “chronic strain” (Ruppanner et al., 2019). Thus, the transition to parenthood is difficult, and does not necessarily become easier as the child ages.

Empirically, there has been related research on the well-being of parents compared to their childfree/childless counterparts. Perhaps unsurprisingly, the results in this area are complex and often mixed. Some research, for example, found that parents experience greater well-being, more positive emotions, and greater meaning from life compared to their non-child having counterparts (Nelson et al., 2013). However, these effects were only found for fathers, parents who had children at an older age, and those who were in committed relationships (Nelson et al., 2013). Comparatively, there is also a substantial body of work which suggests the opposite, that parenting is related to lower levels of well-being compared to not having children (for a full review of both sides, see Nelson et al., 2014). There is a complex interplay of factors that help to explain the mixed results. For example, people who are already happier are more likely to have children compared to those who report being less happy. If this is case, it could be that parents are inherently happier at the outset (before children), rather than having children making them happy (Luhmann et al., 2013). Similar research has also found that parents are happier once their children move out, especially mothers (Gorchoff et al., 2008). However, for mothers, this increase in well-being depends on the nature of their relationship with their adult child (Fingerman et al., 2008). It has also been found that parenting satisfaction increases when having a second child, but only when the first child is older (i.e., in the teens; Pertold-Gebicka & Spolcova, 2022).

One theory that has been proposed to explain these conflicting results compares parenting to running from an attacking tiger. Although the experience is not pleasant at the moment, once

one makes it out and is on the other side, they are filled with joy and happiness (Nelson et al., 2014). The dissonance of needing to justify the effort put into parenting is exemplified by a study in which it was found that increasing the costs of raising children also increased the idealization of parenting (Eibach & Mock, 2011).

### **Neuroticism**

Outside of this dissonance, it is also possible that personality can play a role in one's experience of parental regret. Indeed, this has been a largely unexamined aspect of the experience, despite some obvious connections to trait neuroticism. People high in neuroticism tend to be emotionally volatile and anxious (DeYoung et al., 2007), and previous research on consumer regret has found a positive association between post-purchase regret and neuroticism (Novliadi et al., 2018). This link is explained by the negative emotions those higher in neuroticism are likely to feel. Someone experiencing negative emotions is not likely to consider all options and instead make a more impulsive, risky decision which results in later regret (Novliadi et al., 2018). As we saw in Study 1, regretful parents appear to experience a wealth of negative emotions. This is consistent with past studies linking regretful mothers with anxiety (Donath, 2015; East et al., 2012). Given this past work, it is expected that there will be a positive association between regret and neuroticism. That said, we wished to rule out the idea that parental regret is entirely explained by high neuroticism (i.e., parental regret is “merely” a symptom of this trait).

### **Conclusion**

Study 2 was a preregistered quantitative study (<https://osf.io/3hdfz>) using a sample of parents who exclusively report feeling regret. The goal of the study was to begin to develop the Parental Regret Scale. This study was also designed to examine whether there were any common experiences regretful parents had before having children (i.e., antecedents), and how these

antecedent experiences relate to the specific regrets of parents and their mental health. Although we preregistered the study, many of the analyses were explicitly exploratory, because so little research has been done on this topic.

## Study 2 Method

### Participants

Participants for Study 2 were recruited from online communities dedicated to people who experience regret over becoming a parent. The majority of our participants came from the ‘Regretful Parents’ subreddit, and the ‘I Regret Having Children’ Facebook page. We preregistered a goal of collecting 400 participants. However, likely due to the taboo nature of the topic, we were only able to recruit a far smaller sample of 107 parents. We removed 2 participants who confirmed that their data was not truthful and should, therefore, not be used. We also preregistered that we would remove any participant who was missing more than 10% of their data (i.e., 51 participants). However, given the difficulty we experienced recruiting participants, and the taboo nature of the topic which may have contributed to the lack of responsiveness to questions, we decided to adopt a more liberal criterion. In the end, we chose to remove those who were missing more than 25% of their data (more than 21 missing items). This decision was made prior to analyzing the data, and resulted in the removal of 45 participants. Finally, we removed 1 person who reported having no children. Thus, our final sample size consisted of 59 parents. It is important to note that the small sample size results in low power for statistical tests, making it difficult to detect moderate to large effects and increasing the likelihood of observing false negatives. To account for this, we deviated from our preregistered analysis, foregoing the SEM and favouring simpler approaches. The mean age of participants was 35.84 years old ( $SD = 8.79$ ). On average, participants had 4 years of post secondary

education ( $SD = 3.38$ ) and were 28.11 years old ( $SD = 6.38$ ) when their first child was born. Just under two thirds of the sample had one child (62.71%,  $n = 37$ ), with another 33.90% having 2 children ( $n = 20$ ). One participant also reported having 3 children, and another reported having 5 children. The first child was, on average, 7.12 years old ( $SD = 6.38$ ), with the youngest child under 1 year old and the oldest at 21 years old. Just over 50% of the sample was married ( $n = 30$ ), 56% worked full time ( $n = 33$ ), and 37% made more than \$100,000 ( $n = 22$ ). For detailed demographics, please see Table 2.

Table 2.

Study 2 Demographic Information

	Percent ( <i>n</i> )		Percent ( <i>n</i> )
Gender		Income	
Male	13.56% (8)	Less than \$25, 000	10.17% (6)
Female	79.66% (47)	\$26,000-\$30,000	5.08% (3)
Genderqueer	1.69% (1)	\$31,00-\$35,000	5.08% (3)
NA	5.08% (3)	\$36,000-\$40,000	1.69% (1)
Relationship Status		\$41,000-\$45,000	5.08% (3)
Single, never married	6.78% (4)	\$46,000-\$50,000	1.69% (1)
In a serious relationship	16.95% (10)	\$56,000-\$60,000	1.69% (1)
Married	50.85% (30)	\$61,000-\$65,000	1.69% (1)
Separated	6.78% (4)	\$71,000-\$75,000	6.78% (4)
Divorced	8.47% (5)	\$76,000-\$80,000	5.08% (3)
Other	5.08% (3)	\$81,000-\$85,000	1.69% (1)
NA	5.08% (3)	\$86,000-\$90,000	5.08% (3)
Working Status		\$91,000-\$95,000	1.69% (1)
Working full time	55.93% (33)	\$96,000-\$100,000	5.08% (3)
Working part time	18.64% (11)	over \$100,000	37.29% (22)
Stay at home parent	20.39% (12)	NA	8.47% (5)
NA	5.08% (3)		

## **Materials**

### ***Study Advertisement***

A short advertisement was posted in various online communities asking individuals who regret becoming parents if they would be willing to participate in a short, 10-minute survey to tell us about their experiences. It was emphasized that all data collected would be anonymous.

### ***Overall Regret***

In order to establish regret, we asked participants “If you could go back in time and do it all over again, would you choose to become a parent?” Participants were able to respond either *Yes* or *No*. Forty-one participants reported that they would not have children if they could go back in time (69.49%), compared to 18 parents who said they would still have children (30.51%). Although this question has previously been used to define regretful parents, it is important to note that all were recruited from forums for self-espoused regretful parents. Moreover, including all individuals in our analyses provide valuable variability for our scale development project.

### ***Parental Regret Scale***

Participants were shown a list of 18 items that were developed based on a prior examination of these online communities, with respondents asked to rate each item based on how much it contributed to their regret around becoming a parent. Each item was rated on a 5-point scale ranging from 0 (*Not a contributor*) to 4 (*A major contributor*) with the midpoint being (2) *A moderate contributor*. Example items include “Loss of self/identity” and “Parenting is not what I expected” ( $\alpha = 0.83$ ). A full list of the items can be seen in Table 3.

Table 3.

Parental Regret Scale items with means and standard deviations

Item	Mean (SD)	Median	Item	Mean (SD)	Median
Loss of freedom	3.54 (0.97)	4	Loss of Career	2.22 (1.51)	2
Loss of income	2.25 (1.49)	2	Lack of emotional/practical support from partner	2.36 (1.37)	2
Loss of freedom to choose how I spend my money	2.63 (1.54)	3	Lack of emotional/practical support from family/friends	2.78 (1.37)	3
Loss of self/identity	2.95 (1.33)	3	Relationship with partner has deteriorated	2.54 (1.52)	3
Parenting is not what I expected	2.73 (1.28)	3	Less time for intimacy with partner	2.12 (1.49)	2
Lack of connection/closeness with my child(ren)	1.49 (1.41)	1	My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	1.92 (1.48)	2
Unable to fulfill personal goals and dreams	3.17 (1.21)	4	Reliving my own childhood difficulties through my child (e.g., racism, bullying, etc.)	1.80 (1.48)	2
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	2.03 (1.43)	2	Bodily changes in myself	2.00 (1.55)	2
Lack of parental instincts	1.90 (1.54)	2	Bodily changes in my partner	0.53 (1.07)	0

*Note.* Scale ranges from 0-4. Scale prompt: “To what degree do each of the following contribute to your regret over becoming a parent?”

### *Antecedents*

To better understand what common experiences regretful parents have before having children, participants were asked to think back to before they were a parent and rate the degree to which a series of statements applied to them. Participants saw 15 items (e.g., “Before becoming a parent, I did not want to have children” and “Before becoming a parent, I experienced depression”; see Table 4 for the full list), each rated on a 5-point scale from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*), with 3 described as *Neither agree nor disagree*.

*Table 4.*

Antecedents with means and standard deviations

Item			Item		
Before becoming a parent...	Mean (SD)	Median	Before becoming a parent...	Mean (SD)	Median
I did not want to have children	2.93 (1.53)	3	I experienced depression	3.36 (1.59)	4
I only had children because of my partner’s wishes	2.47 (1.56)	2	I experienced anxiety	3.47 (1.51)	4
I thought having a child would fix my relationship with my partner	1.63 (1.08)	1	I was often exhausted	2.25 (1.29)	2
I did not like children	2.75 (1.43)	3	I was often lonely	2.61 (1.59)	2
I felt obligated to have children	3.2 (1.48)	4	I sometimes felt suicidal	2.27 (1.55)	1
I had a poor relationship with my child’s mother/father	1.88 (1.29)	1	I had experience in childcare (e.g., babysitting)	2.93 (1.78)	3
I did not know what parenting was really like	4.1 (1.03)	4	I always wanted to have kids	2.73 (1.52)	2
I had very little patience	2.76 (1.43)	3			

*Note.* Scale ranges from 1-5

### ***Mental health items***

In order to understand the current mental health of the parents in our sample, we gave participants a list of 18 emotions/mental health items and asked them to report the degree to which they were currently experiencing each. Responses were made on a 5-point scale from 1 (*Not at all*) to 5 (*Very much*) with example items including “depressed” and “content” (Table 5). These items were then separated into 2 subscales, one made up of negative emotions ( $\alpha = .81$ ) and the other, positive emotions ( $\alpha = .77$ ).

### ***Identity***

**Adapted Inclusion of the Other in the Self Scale.** To measure how much participants identified with being a parent we used an adapted version of the Inclusion of the Other in the Self Scale (IOS; Aron et al., 1992). The scale uses two circles with varying degrees of overlap, one which we labelled “Parent” and the other, “Self.” Participants were able to select how much they identify as a parent by selecting how much overlap they see between themselves and parenthood, based on how much the circles overlapped.

Table 5.

Mental health items with means and standard deviations

Item	Mean (SD)	Median	Item	Mean (SD)	Median
Sadness	4.12 (0.81)	4	Like my life is ruined	3.73 (1.23)	4
Depression	3.81 (1.17)	4	Anger	3.78 (1.07)	4
Overwhelmed	4.51 (0.75)	5	Resentment towards my child	2.90 (1.41)	3
Exhaustion	4.41 (0.85)	5	Resentment towards my partner	3.71 (1.33)	4
Guilt	3.81 (1.27)	4	Resentment towards society	3.98 (1.21)	4
Anxiety	4.07 (1.19)	5	Happiness*	2.51 (0.92)	3
Worry	4.14 (0.97)	4	Content*	2.22 (0.89)	2
Suicidal thoughts	2.73 (1.31)	3	Hopeful*	2.36 (0.80)	2
Loneliness	3.71 (1.45)	4	Satisfied*	2.07 (0.83)	2

Note. Scale ranges from 1-5. Items denoted with a \* are positively coded emotions

**Adapted 20 Statements Test.** To further examine parental identity, we used a shortened version of the 20 Statements Test (TST; Kuhn and McPartland, 1954). Participants were asked to complete 6 statements, each of which began with “I am...”. How participants complete the statements gives insight into how they see themselves. In the present study, we were looking for how early participants would use words related to parenthood when describing themselves, if at all (e.g., “Parent,” “Mother,” or “Father”). Participants were given a score of 6 if they placed one of these identities in the first spot, followed by 5 if it was in the second spot, down to 1 if they reported some variation in the sixth spot. If they did not list any words related to parenthood, they were given a score of 0. In addition, if parenthood was mentioned more than once, they were given one extra point. For example, if someone put mother in the 1<sup>st</sup> spot, followed by

parent in the 2<sup>nd</sup>, they would receive a score of 7 (6 for the first spot plus 1 for an additional mention).

### ***Neuroticism***

A shortened version of the Neuroticism subscale of the Big Five Aspects Scale (DeYoung et al., 2007) was used to look at the level of neuroticism in our sample. Four items were included, each rated using a 5-point scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Example items include “I get upset easily” and “I am filled with doubt about things.”

### ***Demographics***

In order to characterize our sample, we asked participants several demographic questions. Specifically, participants were asked about their gender, age, relationship status, how many years of education they have, their annual household income, working status, age when their first child was born, how many children they have, and the age of each child.

### **Procedure**

Participants saw an ad to participate in a study specifically for parents who regret having children posted on various social media sites. If interested, they could click a link to access the survey, beginning with a consent form which provided more information about the study. Those who provided consent then completed the actual study. To begin, participants were given the 6-item version of the 20 Statements Test (Kuhn and McPartland, 1954) followed by the Parental Regret Scale, antecedents, and mental health items. From here, participants were shown the adapted version of the Inclusion of The Other in The Self Scale (Aron et al., 1992) and asked to use the overlapping circles to report on how much they identify as a parent. Next, they responded to the shortened version of the Neuroticism subscale (DeYoung et al., 2007) before finally completing the demographic items. Finally, participants were asked to confirm that their

responses were truthful and accurate before being debriefed and asked to provide post-debriefing consent. The entire study took on average 27 minutes to complete ( $SD = 76.63$ ), and participants were not provided any compensation for participating.

## Study 2 Results

Though primarily an exploratory study, we preregistered that we would (1) use item-response theory to test different models for the Parental Regret Scale (PRS); (2) look at the relationship between this scale, mental health items, and subscale factors of the antecedents using structural equation modeling (SEM); and (3) examine the correlations between identity and the PRS. Although there are no clear rules regarding how many observations are needed for SEM (Wolf et al., 2013), we were not confident in the reliability of this approach given our small sample size and the large number of indicators. Instead, we used an exploratory factor analysis to look at the structure of the PRS and Bayesian linear regression to examine the relationship between the PRS, mental health items, and antecedents, in addition to examining the correlations between all variables of interest.

### Dimensions of the Antecedents

As preregistered, we conducted an exploratory factor analysis to examine the structure of the antecedents. A scree plot suggested that either a 3 or 4 factor model would best fit the data (Figure 1). To evaluate all relevant models, we generated models with 1 through 5 factors and determined that the 4-factor model had the best fit and was most interpretable ( $RMR = .05$ ,  $RMSEA = .00$ ,  $TLI = 1.00$ ,<sup>1</sup>  $R^2 = .41$ ; see Table 6 for factor loadings and Appendix A for the fit of models with 1-3 and 5 factors). Our factor analysis used unweighted least squares with an oblimin rotation, allowing factors to correlate. For all future analyses, the antecedents were

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<sup>1</sup> Given the small sample size, we report the truncated TLI.

separated into 4 subscales based on these factors: (1) attitudes people held about having children before having them (Antecedent Attitudes), (2) emotions regarding children prior to having them (Antecedent Emotions), (3) expectations about parenthood (Expectations), and (4) prior relationship quality (Prior Relationship). The item “I only had children because of my partner’s wishes” cross-loaded on two factors (i.e., factors 1 and 4) and was therefore not included in any of the factors. Additionally, the two items “I felt obligated to have children” and “I had very little patience” did not load strongly on any factor. These three items are analyzed individually going forward.

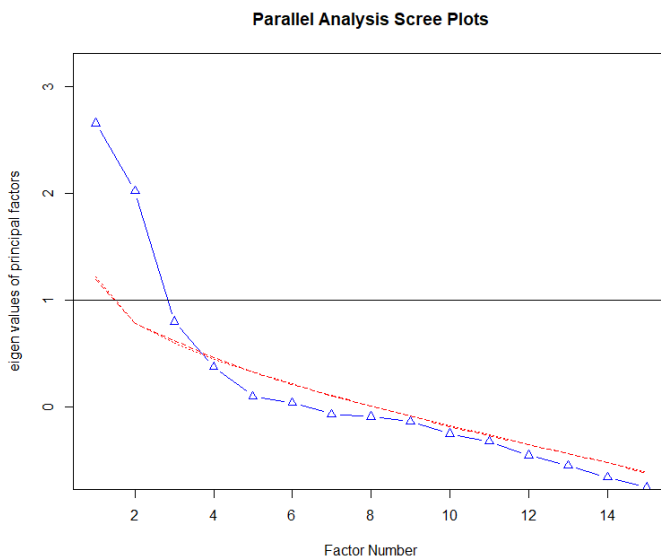


Figure 1. Scree plot identifying the number of factors for antecedents

Table 6.

Factor loadings of Antecedents

Item	Factor 1 Antecedent Attitudes	Factor 2 Antecedent Emotions	Factor 3 Expectations	Factor 4 Prior Relationship
I did not want to have children	<b>.96</b>			
I did not like children	<b>.64</b>		.29	
I always wanted to have kids (r)	<b>.88</b>			
I experienced depression		<b>.86</b>		
I experienced anxiety		<b>.65</b>		
I was often exhausted		<b>.59</b>		
I was often lonely		<b>.55</b>		
I sometimes felt suicidal		<b>.64</b>		
I did not know what parenting was really like			<b>.87</b>	
I had experience in childcare (e.g., babysitting) (r)			<b>.56</b>	
I thought having a child would fix my relationship with my partner		.23	.21	<b>.52</b>
I had a poor relationship with my child's mother/father		.21		<b>.37</b>
I only had children because of my partner's wishes	<b>.56</b>	-.25		<b>.45</b>
I felt obligated to have children	.24			
I had very little patience		.28		

Note. Bolded values represent the factor that item loads on. Loadings less than .2 have been removed.

## Structure of the Parental Regret scale

To explore the structure of the Parental Regret Scale we conducted an exploratory factor analysis. The scree plot indicated that a 1 factor model best fit the data (Figure 2), and we examined models with 1, 2, and 3 factors to evaluate all possible options. Looking at both fit statistics and the theoretical interpretability of the different models, the 1 factor model emerged as the best option (RMR = .11, RMSEA = .09, TLI = 0.71,  $R^2 = .25$ ; Models with 2 and 3 factors are reported in Appendix B). Thus, we created a total score of parental regret for each participant, which was used in all analyses going forward.

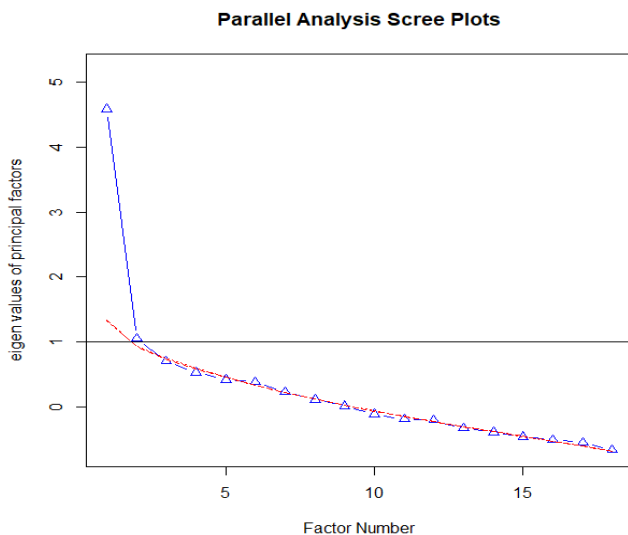


Figure 2. Scree plot identifying the factors for the Parental Regret Scale

## Correlations

In order to examine how our antecedents, current emotions, parental identity, and personality traits relate to parental regret, we calculated zero-order Pearson correlations (Table 7). Correlations related to our main hypotheses are interpreted below.

### ***Overall Regret.***

The single-item measure of parental regret was positively correlated to scores on the PRS, demonstrating that those who score higher on our new scale are also more likely to report that they would not have children if they could do it all over again ( $r = .62$ ). This serves as an important validation of our scale. This regret item was also positively correlated to the antecedent subscales, namely Antecedent Attitudes ( $r = .42$ ), Expectations ( $r = .34$ ), and Prior Relationship ( $r = .26$ ). The single items, “I only had kids because of my partners wishes” ( $r = .41$ ) and “I felt obligated to have kids” ( $r = .45$ ) were also correlated with this item. These unmet expectations, negative attitudes toward having children, and poor relationship quality prior to becoming a parent could help to explain how parents end up experiencing regret.

Table 7  
Means, standard deviations, and correlations with confidence intervals for variables of interest

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. PRS	0.23	0.35														
2. Overall Regret	0.17	0.33	.62*													
			[.16, .86]													
3. Attitudes	0.19	0.29	.56*	.42												
			[.07, .83]	[-.12, .77]												
4. Emotionality	0.09	0.31	-.33	-.15	-.24											
			[-.72, .22]	[-.61, .39]	[-.67, .31]											
5. Expectations	0.09	0.28	.27	.34	.29	-.29										
			[-.28, .69]	[-.21, .73]	[-.26, .70]	[-.70, .26]										
6. Relationship	0.21	0.24	.25	.26	.02	.27	.08									
			[-.30, .67]	[-.29, .68]	[-.50, .53]	[-.28, .69]	[-.45, .57]									
7. I only had kids because of partner's wishes	0.18	0.31	.58*	.41	.73**	-.55*	.15	.16								
			[.09, .84]	[-.13, .76]	[.36, .91]	[-.83, -.05]	[-.39, .62]	[-.38, .62]								
8. I felt obligated to have kids	0.17	0.29	.67**	.45	.45	-.34	.21	.12	.44							
			[.25, .88]	[-.08, .78]	[-.08, .78]	[-.72, .21]	[-.34, .65]	[-.42, .59]	[-.09, .78]							
9. I had very little patience	0.15	0.25	-.23	.01	.06	.35	-.04	.12	-.17	-.26						
			[-.67, .32]	[-.51, .52]	[-.46, .56]	[-.19, .73]	[-.54, .48]	[-.42, .60]	[-.63, .37]	[-.68, .29]						
10. Negative Mental Health	0.27	0.35	.83**	.71**	.40	.05	.30	.29	.31	.54*	-.03					
			[.55, .94]	[.30, .89]	[-.14, .76]	[-.47, .55]	[-.25, .70]	[-.26, .70]	[-.24, .71]	[.04, .82]	[-.53, .49]					
11. Positive Mental Health	-0.12	0.38	-.80**	-.83**	-.56*	.18	-.43	-.22	-.56*	-.55*	.03	-.88**				
			[-.93, -.48]	[-.94, -.56]	[-.84, -.07]	[-.37, .63]	[-.77, .11]	[-.66, .32]	[-.83, -.06]	[-.83, -.06]	[-.49, .53]	[-.96, -.68]				
12. Suicidal thoughts	0.17	0.31	.48	.58*	.31	.12	.02	.19	.31	.25	.04	.74**	-.73**			
			[-.04, .80]	[.09, .84]	[-.24, .71]	[-.42, .59]	[-.50, .53]	[-.36, .64]	[-.24, .71]	[-.30, .68]	[-.48, .54]	[.37, .91]	[-.90, -.34]			
13. Identity Circles	0.00	0.31	-.39	-.51	-.45	-.31	-.39	-.26	-.04	-.43	-.18	-.54*	.41	-.36		
			[-.75, .15]	[-.81, .01]	[-.78, .08]	[-.71, .24]	[-.75, .16]	[-.68, .29]	[-.54, .48]	[-.77, .11]	[-.63, .37]	[-.82, -.03]	[-.13, .76]	[-.74, .19]		
14. I am statements	0.13	0.27	-.04	-.55*	-.30	-.06	-.29	-.18	-.29	-.05	-.03	-.12	.35	-.30	.43	
			[-.54, .48]	[-.83, -.06]	[-.70, .25]	[-.56, .46]	[-.70, .26]	[-.64, .36]	[-.70, .26]	[-.55, .48]	[-.53, .49]	[-.59, .42]	[-.20, .73]	[-.71, .25]	[-.11, .77]	
15. Neuroticism	0.24	0.30	.59*	.57*	.24	.39	.15	.41	.05	.39	.19	.76**	-.60*	.41	-.61*	-.12
			[.11, .85]	[.09, .84]	[-.31, .67]	[-.15, .75]	[-.39, .62]	[-.14, .76]	[-.47, .55]	[-.16, .75]	[-.36, .64]	[.41, .92]	[-.85, -.13]	[-.12, .76]	[-.85, -.14]	[-.59, .42]

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

### ***Parental Regret Scale***

As expected, higher PRS scores predicted worse mental health ( $r = .83$ ) and less positive mental health ( $r = -.80$ ). The more that parents experience regret, the more they report a range of mental health concerns, highlighting the importance of addressing this issue and supporting these parents.

The PRS was positively correlated with 3 of the 4 antecedent subscales: (1) Antecedent Attitudes ( $r = .56$ ), Expectations ( $r = .27$ ), and Prior Relationship ( $r = .25$ ). Parents who had more negative attitudes around children before having them, poorer relationship with their partner, and unclear expectations about what being a parent entails tend to report higher levels of regret. Negative antecedent attitudes towards parenting were also the strongest predictor of regret. In addition, two of our individual antecedent items were also related to greater regret: “I only had children because of my partners wishes” ( $r = .58$ ) and “I felt obligated to have kids” ( $r = .67$ ). Thus, extrinsic pressures to become a parent are also strong predictors of parental regret, equivalent in strength to negative attitudes towards children before having them.

In comparison, there was a negative correlation between parental regret and Antecedent Emotions ( $r = -.33$ ) and the single item “I had very little patience” ( $r = -.23$ ). One potential explanation for this is that experiencing negative emotions prior to having children could create a protective buffer, wherein these parents are accustomed to feeling bad and so the stresses of becoming a parent do not result in regret. For example, if people already felt that they did not enjoy their time they might not feel a loss of freedom as acutely. These results also speak against the possibility that parents reporting regret are simply people who are likely to complain about their condition in general (e.g., these are not people who were depressed prior to becoming a parent, now also reporting depression as parents). However, these data are the result of a

retrospective evaluation, and we cannot make any inferences regarding causal direction. It is possible that people who regret having children simply have a more positive view of their life before children, compared to after.

### **Bayesian regression**

Next, we constructed Bayesian regression models to examine the relationship between the antecedents, current mental health, and scores on the PRS. Parental regret scores served as the dependant variable with the positive and negative emotions and 4 antecedent subscales included as predictors. Bayesian analyses were conducted in JASP with uniform priors (JASP, 2023). In Bayesian linear regression, prior and posterior distributions are used to determine which in a series of possible models is the best fit for the data. A Bayes Factor is calculated for each to determine which model has the best fit (van den Bergh et al., 2021).

The model including negative emotions and the Antecedent Attitudes and Antecedent Emotions subscales best predicted parental regret with a Bayes factor of 16.7, suggesting that this model is nearly 17 times as likely as the null ( $R^2 = .53$ ). Thus, a person's attitudes about children prior to having them, emotions prior to having a child, and their current mental health best predict their regret around having children, accounting for 53% of the variance (See Table 8 and Figure 3 for model coefficients). This model was better than the next best fitting model by a factor of 1.32, which included the same variables with the addition of the Prior Relationship subscale (BF = 11.88,  $R^2 = .55$ ). The first model was also a better fit of the data by a factor of 1.98 compared to the third best model, which only included the negative mental health items and the Antecedent Emotions subscale (BF = 7.48,  $R^2 = .48$ ).

Table 8.

Bayes Factors and coefficients with credible intervals.

Coefficient	P(include Data)	BF <sub>inclusion</sub>	Posterior Mean (SD)	95% Credible Interval	
				Upper	Lower
Negative Emotions	1.00	12209.84	0.65 (0.12)	0.434	0.903
Antecedent Emotions	0.94	16.21	-0.17 (0.07)	-0.29	0.00
Antecedent Attitudes	0.69	2.21	0.07 (0.06)	0.00	0.20
Prior Relationship	0.44	0.77	0.05 (0.07)	-0.02	0.22
Expectations	0.27	0.38	-0.01 (0.04)	-0.13	0.02
Positive Emotions	0.20	0.26	-0.01 (0.06)	-0.14	0.14

Posterior Coefficients with 95% Credible Interval

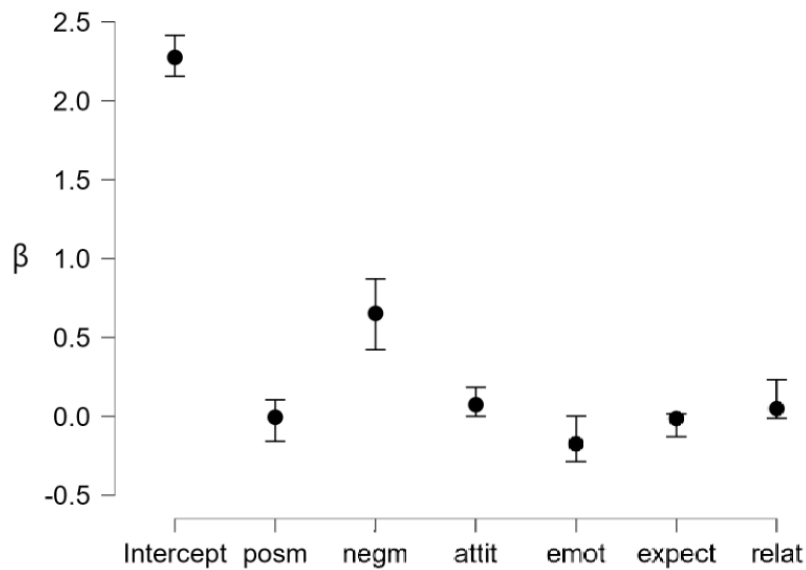


Figure 3. Graph of posterior coefficients for model variables with 95% credible intervals

### Comparing antecedents and current mental health

Finally, there were 4 mental health items that participants were asked about prior to having children and regarding their current state. Specifically, participants were asked if, prior to having children, they experienced depression, anxiety, exhaustion, and suicidal thoughts. They

were then asked if they were *currently* experiencing any of the same 4 emotions. As an exploratory analysis we examined the effect sizes in the differences between these ratings. The mean rate of depression prior to having children was 3.36 compared to 3.81 after having children ( $d = 0.33$ , 95% CI [-0.04, 0.69]). Similarly, mean anxiety prior to having children was 3.47 compared to 4.07 after having kids ( $d = 0.44$ , 95% CI [0.07, 0.81]). Suicidal thoughts also saw a slight increase between pre- and post-children measures (means of 2.27 and 2.73 respectively,  $d = 0.32$ , 95% CI [-0.05, 0.69]). Finally, the largest difference was seen between exhaustion before having children (mean = 2.25) and after (mean = 4.41,  $d = 1.96$ , 95% CI [1.52, 2.41]). In each case, therefore, we see that participants reported mental health worsening after having children, although they did experience each before having children as well.

### **Study 2 Discussion**

Study 2 demonstrates the value in the development of the PRS. The scale had a strong positive relationship with the individual item previously used to measure regret, providing good criterion validity. The scale itself measures regret in a nuanced way by examining various contributors (rated from “not a contributor” to “a major contributor”). The more factors identified as a contributor indicate greater regret, based on a larger number of ways in which having children has caused regret (across different aspects of one’s life). In this way, the scale captures both variability and severity of parental regret.

We found that parents experiencing regret tend to have poor mental health and concerning rates of suicidal thoughts. The exploratory analyses showing that when asked to reflect on their feelings prior to having children, our parents reported more depression, anxiety, exhaustion, and suicidal thoughts after having children. These results are in line with previous

research demonstrating that mothers who regret having children experience depression, anxiety, and parenting stress (East et al., 2012; Donath, 2015).

The mean scores observed for the specific regrets suggest that regrets around ‘loss’ are likely common, with both ‘loss of self/identity’ and ‘unable to fulfill personal goals’ being strongly endorsed. Similarly, the relationship between the identity measures and both the PRS and overall regret suggest that regret is higher when people do not identify as a parent. This is consistent with the idea that conflicts regarding self-concept are likely an important feature of parental regret. Given the substantial shift in identity that occurs after becoming a parent (Kluwer, 2010), it is not surprising that a mourning the loss of one’s old self, or not being able to give it up, is likely to result in regret.

This finding is directly in line with Self-Discrepancy Theory. If the actual self of regretful parents is not in line with their self-concept, then mental health worsens (Higgins, 1989). Further, the lack of autonomy ( Self Determination Theory; Deci & Ryan, 2008) is likely to result in negative emotions. Combined, the inability to update their self-concept and meet their need for independence can result in profoundly negative consequences. A clinical intervention to support these parents, therefore, could include working with parents to update their self-concept to include parenthood, and also looking for ways to increase feelings of autonomy, both as a parent and more broadly. At the same time, such education should focus on the mental health of the parent. It may also be helpful to begin such an intervention prior to the child being born. If parents-to-be had more time to make this adjustment in self-concept and more education on what to expect, they may be less likely to experience regret.

## Limitations

The major limitation to this work was the small sample size. Despite our best efforts, regretful parents willing to participate in research without compensation proved to be a difficult sample to recruit. As a result, this small sample has many implications for the interpretability of the results. We tried to mitigate this concern by using Bayesian analyses which are less sensitive to issues related to small samples compared to NHST. Nevertheless, these results should be interpreted with caution and ideally replicated. The small sample size also meant that we were not able to do the analyses planned in our preregistration, controlling for neuroticism, in order to rule it out as the main contributor to parental regret. Small samples also lead to inflated effect-size estimates, so we may have over-estimated some of the associations reported. Future research will need to explore this more thoroughly. In addition, it is important to point out that this research is cross-sectional, and we therefore cannot speak to causal direction.

A second limitation is that the Expectations subscale of the antecedents included only two items, “I did not know what parenting was really like” and “I had experience in childcare (e.g., babysitting) (reversed)”. In general, factors should have a minimum of 3 items and ideally 5 or more in order to be considered stable, especially with small samples (Costello & Osborne, 2005). Given that this factor is likely unreliable, we revisit the factor structure in Study 3 with a larger sample.

A third limitation of this work is where we recruited participants. We collected participants from online communities dedicated to regretful parents in order to ensure that our sample was, indeed, regretful. However, there is a self selection bias in this sample as those who participated are likely to be more outspoken in general, given that they were already seeking support in these communities. It is possible that had data been collected from more reserved set

of regretful parents, who are not part of these communities, different results would be found. Participants reading the posts and comments in these communities could influence how people feel, with common themes emerging regularly resulting in a sort of group think (Janis, 1971). It is, therefore, important to replicate this work in a less self-selected sample.

## **Conclusion**

This study provides valuable insight into the characteristics and specific regrets of parents who would not have children if given the chance to do it over again. In addition to developing the PRS, the study also helps to demonstrate the importance of self-concept in the experience of regretful parents. However, without a comparison group it is difficult to isolate what experiences differ between regretful parents and parents who do not experience such regret. Thus, for Study 3 we recruited a large sample of Canadian parents in order to allow us to make such comparisons.

## **Chapter 4: Regret in Canadian Parents**

### **Study 3 Introduction**

Studies 1 and 2 provided a foundation from which to better understand parental regret. However, there are limitations of each that we aimed to address in Study 3. Although both studies provided detailed information about the experiences of regretful parents, it is impossible to say whether these are unique to regretful parents or are universal experiences of parenthood. For example, it is possible that all parents feel an immense loss of self regardless of whether or not they experience regret. Without collecting data from a broad sample of parents, it is not possible to make conclusions about regretful parents, in specific. Additionally, the small sample sizes and focus on regretful parents in Studies 1 and 2 mean that it is not possible to generalize these results to other parents, or understand the full variability of parental regret. To address these concerns, and further validate the parental regret scale, we conducted a preregistered study using a gender-representative sample of Canadian parents.

### **Parenting in Canada**

To our knowledge, no research to date has examined the nature and prevalence of parental regret in Canada. Despite the many similarities across western countries, Canada has its own culture, norms, and government policies that are all likely to impact the parenting experience. Thus, it is important to examine whether and how parental regret manifests in the Canadian context.

#### *Parenting education in Canada*

Although Canada prides itself as a successful first-world nation, it certainly has room for improvement when it comes to supporting parents. For example, when surveyed, many parents report that there are no formal parenting education programs available and/or accessible to them

(Devolin et al., 2012). When they are available, they tend to focus on medical issues for newborns. The few courses that exist for older children are directed towards dealing with problems (e.g., misbehaviour) rather than providing general guidance about the challenges and experiences of parenting (Matusicky & Russell, 2009). They also tend to be short and often targeted specifically towards mothers. Combined, this demonstrates a lack of available and relevant support for Canadians in terms of the implications of becoming a parent, and the experiences of parenthood, especially for fathers. Although there are signs that things are improving (Matusicky & Russell, 2009), it remains likely that new parents in Canada are entering unknown territory with little formal access to vetted information.

In terms of support for those who are already parents, even when such support exists, over a third report barriers to accessing these resources (e.g., no childcare access, lack of time; Devolin et al., 2012). Despite these challenges, about two thirds of parents report that they would take parenting classes, if they were available. At present, much of the knowledge about parenthood that parents learn tends to come from informal sources like peers and the internet (Devolin et al., 2012). This is likely an important factor when it comes to regret because, as was found in Studies 1 and 2, a large contributor to regret is a lack of knowledge or education about what parenting is really like. Canadian parents appear to lack easy access to accurate and unbiased information, and this may lead to regret for some parents. Supporting parents and reducing the likelihood of regret is essential as Canada currently faces a birth rate crisis.

### *Birth rates in Canada*

Like many countries, Canada has experienced a dramatic decline in birth rates in recent years. In fact, 2023 had the lowest birth rates ever recorded in the country for the second year in a row (Kulkarni, 2024). Canada has now become one of the 5 “lowest-low” countries with

regards to birth rate (with the other four being Japan, South Korea, Spain, and Italy). Part of the reason for this decline is argued to be the high cost of living in Canada (Kulkarni, 2024). When surveyed, the most commonly reported reason for delaying having children among respondents was financial security (41%; Angus Reid Institute, 2024). Even among those considered “childfree”—the 37% who reported that they were definitely not going to have children—a quarter reported finances as the reason for not having children (Angus Reid Institute, 2024). Given the results of Study 2, it is perhaps unsurprising that that the financial burden is causing Canadian parents, and would-be parents, strife. For those that do have children, financial strain could be one factor contributing to feelings of regret.

This unique context in Canada, of extremely low birth rates, high cost of living, and lack of access to resources, makes it especially important to examine how these challenges may impact experiences of parental regret. With research on parental regret in its infancy, a necessary first step is assessing its prevalence. Previous work has found rates of regret among parents ranging from 7% (Newport & Wilke, 2013) to 20% (Shtrauchler, 2016), with Piotrowski (2021) predicting that the average is likely to be around 10% worldwide. However, this is based on just a handful of studies, none of which have examined the prevalence in Canada. A major goal of the current study was to examine how common regret is among Canadian parents, using the same method employed in previous studies of prevalence (i.e., the single item asking if given the chance to go back in time, parents would choose not to have children). Given its similarity to other Western countries, it was hypothesized that prevalence in Canada would fall close to the average estimated by Piotrowski (2021; i.e., 10%).

### **Scale Validation**

In addition to establishing the prevalence of regret in Canada, another major goal of this study was to further validate the Parental Regret Scale. Item Response Theory was used to test the items in the scale to ensure that it properly captures the full variability of regret. Once this was complete, we then moved onto measuring convergent, discriminant, and criterion validity.

#### *Convergent Validity*

To test for convergent validity (i.e., whether the measure is related to variables it should be related to), we looked at the relationship between the Parental Regret Scale and life satisfaction, leisure needs, and loneliness. Although life satisfaction decreases for parents in general (Becker et al., 2019), we expected greater regret to be associated with less life satisfaction broadly. Similarly, it was expected that regret would be associated with feeling less able to engage in fulfilling relationships and hobbies. Both of these hypotheses emerged from the findings of Studies 1 and 2, in which regretful parents reported feeling a loss of freedom, loss of self, and greater financial constraints. The final measure of convergent validity was loneliness. Given that regretful parents often feel a lack of support from their family and friends (Study 2), it should follow that regret would predict greater loneliness.

#### *Discriminant validity*

Next, to measure discriminant validity (whether the scale is not strongly related to things it should not be related to), we studied the relationship between the Parental Regret Scale and both consumer regret and general negative affect. Consumer regret was chosen in order to differentiate parental regret from other types of regret. It was expected that regretful parents would not be prone to feeling regretful in general, but rather that there is something unique about parental regret. Similarly, four negative emotions were measured that we expected to be

unrelated to regret (i.e., feeling suspicious, fearful, panicked, and impatient), if regretful parents are not simply prone to feelings of negativity in general.

#### *Criterion validity*

The single dichotomous item used in previous research was included to measure criterion validity (whether a measure is related to other measures of the same construct, i.e., “If you could go back in time and do it all over again, would you choose to become a parent?”). Because this item has been used to measure parental regret in past research, a strong positive relationship between it and the Parental Regret Scale would provide evidence that our scale measures the same construct.

#### *Other scale analyses*

After examining the validity of the scale, we next wanted to confirm the findings of Studies 1 and 2. Specifically, it was expected that parental regret would be related to less identification with parenthood, lower ratings of autonomy, and increased depression and anxiety. We also preregistered that we would conduct a confirmatory factor analysis on the antecedent items, affirming the structure observed in Study 2. In addition, we hypothesized that parental regret would mediate the relationship between the antecedents and poor mental health, specifically depression and anxiety. Given the link that has been found between parental regret and both depression and anxiety, along with poor mental health in general (i.e., in Studies 1 and 2 and in the literature; Donath, 2015; East et al., 2012), we had strong reasons to believe that regret would be associated with each, over and above experiences prior to having children.

#### **Conclusion**

Overall, Study 3 was designed to build on the work of the previous two studies to provide further evidence of the validity of the Parental Regret Scale. This study also allows us to make a

direct comparison between regretful and non-regretful parents, for our key variables. In addition, this study will provide the first estimate of the prevalence of parental regret in Canada.

### **Study 3 Method**

#### **Participants**

Potential participants saw a posting on the crowd-sourcing platform *Prolific* (*prolific.co*), looking for parents to complete a survey with the goal of understanding the difficulties faced by some parents (i.e., parenthood was the only inclusion criterion). We preregistered that we would collect data from 500 Canadian parents. However, after 3 weeks of data collection, the pace of new responses slowed to the point where it was not reasonable to continue data collection. We therefore ended data collection with 474 parents. We next applied our preregistered exclusion criteria, removing anyone who did not consent ( $n = 2$ ), who reported that their data was not truthful ( $n = 1$ ), or who failed to provide post debriefing consent ( $n = 9$ ). Although we preregistered that we would remove anyone who failed both of our attention check items, no one fit this criterion. As a result, our final sample consisted of 462 participants. Of these, 52.60% identified as women, with a mean age of 42.95 years ( $SD = 10.26$ ). Most of our parents were married (75.54%), worked full time jobs (74.89%), and were on average 29.38 years old when their first child was born ( $SD = 5.66$ ). The majority of our sample had 2 children (46.75%), followed by 1 child (35.93%), with the age of children ranging from under 1 to over 21. Detailed demographic information is presented in Table 9.

Table 9.

Demographics for participants in Study 3

Variable	Percent (n)	Variable	Percent (n)
<b>Gender</b>			
Man	46.75% (216)	<b>Relationship Status</b>	
Woman	52.60% (243)	Single, never married	5.63% (26)
Other	0.65% (3)	In a serious relationship	8.66% (40)
<b>Religion</b>			
Catholic	17.10% (79)	Married	75.54% (349)
Protestant	5.63% (26)	Separated	2.81% (13)
Christian	17.75% (82)	Divorced	5.41% (25)
Jewish	1.73% (8)	Other	1.73% (8)
Muslim	3.03% (14)	NA	0.22% (1)
Sikh	0.65% (3)	<b>Income</b>	
Hindu	1.73% (8)	Less than \$25, 000	3.03% (14)
Buddhist	2.38% (11)	\$26,000-\$30,000	2.16% (10)
Agnostic	19.26% (89)	\$31,00-\$35,000	1.08% (5)
Atheist	22.73% (105)	\$36,000-\$40,000	2.60% (12)
Other	7.79% (36)	\$41,000-\$45,000	2.16% (10)
NA	0.23% (1)	\$46,000-\$50,000	1.08% (5)
<b>Political Orientation</b>			
Very conservative	4.11% (19)	\$56,000-\$60,000	1.08% (5)
Somewhat conservative	12.12% (56)	\$61,000-\$65,000	1.73% (8)
Centre	28.14% (130)	\$71,000-\$75,000	3.68% (17)
Somewhat liberal	35.06% (162)	\$76,000-\$80,000	4.98% (23)
Very liberal	20.56% (95)	\$81,000-\$85,000	3.68% (17)
<b>Number of children</b>			
One	35.93% (166)	\$86,000-\$90,000	4.76% (22)
Two	46.75% (216)	\$91,000-\$95,000	5.84% (27)
Three	12.12% (56)	\$96,000-\$100,000	6.06% (28)
Four	3.03 (14)	over \$100,000	49.78% (230)
Five or more	1.95% (9)	NA	6.38% (29)
NA	0.21% (1)	<b>Work</b>	
<b>Work</b>			
		Full time	74.89% (346)
		Part time	14.94% (69)
		Stay at home parent	10.17% (47)

## Materials

### *Antecedents of Regret*

The same antecedent items were included in Study 3 as described in Study 2 (See Table 10), with the exception of 2 items that were not strongly endorsed in that study (i.e., “I thought having a child would fix my relationship with my partner,” and “I had a poor relationship with my child’s mother/father”). Given that two items were dropped from Study 1, an exploratory factor analysis was performed in order to confirm the structure of these items (see Results).

These factors were then used in subsequent analyses.

*Table 10.*

Antecedents with means, standard deviations, and medians

Item	Mean (SD)	Median	Item	Mean (SD)	Median
Before becoming a parent...			Before becoming a parent...		
I did not want to have children	1.94 (1.26)	1	I experienced depression	2.46 (1.49)	2
I only had children because of my partner’s wishes	1.61 (1.08)	1	I experienced anxiety	2.83 (1.46)	3
I always wanted to have kids	3.68 (1.34)	4	I was often exhausted	2.27 (1.17)	2
I did not like children	1.88 (1.14)	1	I was often lonely	2.41 (1.27)	2
I felt obligated to have children	1.74 (1.07)	1	I sometimes felt suicidal	1.57 (1.06)	1
I did not know what parenting was really like	3.88 (1.14)	4	I had experience in childcare (e.g., babysitting)	3.02 (1.54)	4
I had very little patience	2.49 (1.26)	2			

*Note.* Scale ranges from 1-5, with 1 being ‘*Strongly Disagree*’ and 5 being ‘*Strongly Agree*.’

### *Parental Regret*

The items for the Parental Regret Scale, as described in Study 2, were included in order to provide a nuanced measurement of parental regret and its aspects (Table 11). We conducted an item-response theory (IRT) analysis on these items in order to ensure that the scale measures a

range of regret and to examine the fit of each of the items. This was completed before determining the scale scores (see Results).

*Table 11.*

Parental Regret Scale items with means, standard deviations, and medians

Item	Mean (SD)	Median	Item	Mean (SD)	Median
Loss of freedom	2.62 (1.19)	3	Loss of Career	1.87 (1.13)	1
Loss of income	2.36 (1.12)	2	Lack of emotional/practical support from partner	2.28 (1.32)	2
Loss of freedom to choose how I spend my money	2.17 (1.20)	2	Lack of emotional/practical support from family/friends	2.17 (1.32)	2
Loss of self/identity	2.09 (1.16)	2	Relationship with partner has deteriorated	2.25 (1.24)	2
Parenting is not what I expected	2.00 (1.09)	2	Less time for intimacy with partner	2.58 (1.19)	3
Lack of connection/closeness with my child(ren)	1.90 (1.18)	1	My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	1.90 (1.21)	1
Unable to fulfill personal goals and dreams	2.34 (1.14)	2	Reliving my own childhood difficulties through my child (e.g., racism, bullying, etc.)	1.97 (1.17)	2
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	1.94 (1.09)	2	Bodily changes in myself	2.30 (1.34)	2
Lack of parental instincts	1.85 (1.08)	1	Bodily changes in my partner	1.62 (0.97)	1

*Note.* Scale ranges from 0-4, with 0 being 'Not a contributor' and 4 being 'A major contributor.'

### ***Anxiety and Depression***

In order to measure mental health, we employed the Hospital Anxiety and Depression Scale (HADS), which consists of 14 items, 7 measuring anxiety (e.g., “I feel tense or “wound up”) and 7 measuring depression (e.g., “I still enjoy the things I used to enjoy” [reversed]). The

scale has been found to be a psychometrically sound measure of both anxiety and depression in both psychiatric patients and non-clinical populations (Bjelland et al., 2002). Items are presented with a 4-point response scale (from 0 to 3), with the wording of the anchors changing to suit each prompt. Items are summed for each subscale and participants are given a score out of 21 for both depression and anxiety (Zigmond & Snaith, 1983). Scores above 8 on either measure translate to clinical levels of anxiety or depression (Bjelland et al., 2002). In our sample, both subscales had good internal reliability, Anxiety:  $\omega = .88$ , 95% CI [.87, .90]; Depression:  $\omega = .82$ , 95% CI [.79, .85]. On average, the current sample is above the cutoff on depression ( $M = 8.31$ ,  $SD = 2.36$ ) and anxiety ( $M = 9.11$ ,  $SD = 3.57$ ).

### ***Loneliness***

Loneliness was measured using the 8-item version of the UCLA Loneliness Scale. This scale asks participants to report how often each of the statements apply to them (e.g., “I feel isolated from others”) with responses given a 4-point scale ranging from *Often* to *Never* (Hays & DiMatteo, 1987). The 8-item version of the scale has been found to be more closely related to the 20-item scale than the 4-item version and have high reliability ( $\alpha = .84$ ; Hays & DiMatteo, 1987). In our data, it exhibited good internal reliability,  $\omega = .89$ , 95% CI [.87, .90].

### ***Satisfaction with life***

The Satisfaction with Life Scale measures how satisfied a person feels with their life overall (Diener et al., 1985). It is made up of 5 items (e.g., “In most ways, my life is close to my ideal”), answered using a 7-point scale (from *Strongly Disagree* to *Strongly Agree*). The scale has been shown to have good reliability ( $\alpha = .85$ ; Pavot & et al., 1991) and exhibited good internal reliability in the current study,  $\omega = .91$ , 95% CI [.89, .92].

### ***Regret Elements Scale***

The Regret Element Scale (RES; Buchanan et al., 2016) measures regret in general, and was included to investigate discriminant validity for the Parental Regret scale. By measuring general regret, we examine whether the Parental Regret scale measures a specific form of regret. The RES consists of 10 items, 5 affective and 5 cognitive, asking about regret surrounding a previous event (e.g., “Things would have gone better if I had chosen another option”). Participants were asked to think back to their last large purchase, not related to their child, and respond to the questionnaire with this item in mind. Responses are made using a 7-point scale, from *Strongly Disagree* to *Strongly Agree*. The scale has been found to have good fit ( $\chi^2(34) = 89.30$ ; CFI = 0.96; RMSEA = 0.10; SRMR = 0.03) and internal reliability in our sample was high,  $\omega = .98$ , 95% CI [.97, .98].

### ***Negative emotionality***

As another way to establish discriminant validity, we measured negative emotions that we presumed to be unrelated to regret. Namely, participants were asked how much they were currently feeling fearful, panicked, suspicious, and impatient, each rated on a 5-point scale from *Not at all* to *Very much*. These items exhibited relatively high internal reliability, indicating that they form a coherent measure of negative emotionality,  $\omega = .81$ , 95% CI [.78, .84].

### ***Leisure***

The ability of parents to meet their leisure needs was measured using 4 items created for the current study: (1) “I am able to try new activities/hobbies when I want,” (2) “I am able to spend time socializing with those whose company I enjoy,” (3) “I am able to spend time doing things I enjoy,” and (4) “I am satisfied with the amount of time I have for leisure activities.”

Responses were given on a 5-point scale from *Strongly Agree* to *Strongly Disagree*. In our sample, internal reliability for this scale was high,  $\omega = .89$ , 95% CI [.87, .90].

### ***Autonomy Needs Satisfaction***

The results of Study 2 suggested that regretful parents might be feeling a frustration of the basic need for autonomy, as described by Self Determination Theory (Deci & Ryan, 2008). In order to directly examine this potential relationship, we measured felt autonomy using the 8 items of the autonomy subscale for the Basic Needs Satisfaction in General Scale which has been found to have acceptable internal consistency, with Cronbach's alpha ranging from .60 to .68 (Johnston & Finney, 2010). An example item is, "I feel like I am free to decide for myself how to live my life." Responses were given on a 7-point scale ranging from *Not at all true* to *Very True*. Internal reliability was acceptable in our sample,  $\omega = .84$ , 95% CI [.81, .86].

### ***Neuroticism***

The same measure of Neuroticism that was included in Study 2 was also administered for this study ( $\alpha = .89$ ; DeYoung et al., 2007). This allowed us to examine whether parental regret is simply a manifestation of the tendency to experience negative affect, here measured by the two aspects of Neuroticism: Withdrawal and Volatility. Internal reliability for this measure was high,  $\omega = .82$ , 95% CI [.78, .84.]

### ***Inclusion of the Other in the Self Scale***

An adapted version of the Inclusion of The Other in The Self scale (Aron et al., 1992) was included in order to examine how much parents identify with parenthood, as described in Study 2.

## ***Demographics***

Participants also responded to demographic questions asking about their age, gender, relationship status, political orientation, religion, education level, family income, age when the first child was born, the number and age of children, and work status. In addition to providing important information about our sample, these questions provide valuable contextual information, and will help us to identify the factors that might protect against regret.

## **Procedure**

Participants were recruited through Prolific and first asked to provide consent to participate. Next, they completed the Parental Regret Scale, adapted inclusion of the other in the self scale (Aron et al., 1992), The Regret Element Scale (Buchanan et al., 2016), and the measures of antecedents. They then responded to the 4 items asking about leisure needs, the Satisfaction with Life Scale (Diener et al., 1985), and the UCLA Loneliness Scale (Hays & DiMatteo, 1987), which were presented in a random order for each participant. Items asking about negative emotionality, the autonomy subscale of the Basic Needs Satisfaction in General Scale (Johnston & Finney, 2010), Neuroticism (DeYoung et al., 2007), and the The Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) were presented next, also in a randomized order. Finally, participants responded to the single item asking about overall regret, and the demographic items, before being asked to confirm that their data was truthful and should be analyzed. This was followed by a debriefing screen. The entire study took, on average, 13.03 minutes to complete ( $SD = 11.04$ ) and participants were compensated with \$3.70 CAD. All materials, the sampling plan, our hypotheses, and our analytic plan were preregistered on the Open Science Framework prior to data collection (<https://osf.io/xkhu5>).

### **Study 3 Results**

For Study 3 we preregistered that we would, (1) estimate the prevalence of parental regret in Canada; (2) conduct an IRT analysis to develop and validate the Parental Regret Scale; (3) look at the correlations between parental regret and identity, autonomy, depression and anxiety; (4) conduct a confirmatory factor analysis to examine the factor structure of the antecedents; and then (5) conduct a mediation analysis to look at the relationship between the antecedents, regret, and both depression and anxiety.

#### **Prevalence of parental regret in Canada**

In order to estimate the percentage of Canadian parents who regret having children, we looked at how many parents reported that they would choose not to have children if they could go back in time and do it over (i.e., the single item of parental regret employed in past surveys). In line with our hypothesis, 10.17% ( $n = 47$ ) of Canadian parents in our sample reported regretting having children. We then split the data by gender to determine if there is a difference in the amount of regret experienced by mothers and fathers. Fathers were slightly more likely to report experiencing regret (11.1%,  $n = 24$ ) than mothers (9.1%,  $n = 22$ ), but this was not a statistically significant difference.

#### **Development and Validation of the Parental Regret Scale**

Next, Item Response Theory (IRT) was used to test the Parental Regret Scale for difficulty and discrimination. Item Response Theory has become more common than exploratory factor analysis (EFA) for evaluating new measures, as it allows for a more nuanced examination of scale items compared to EFA. An IRT analysis examines the benefit of including or removing each individual item and provides an estimate of how a person would likely score on a scale given the difficulty of each item (Boateng et al., 2018). The fit of the model including all items

of the PRS was acceptable (RMSEA = .095, TLI = 0.75, CFI = 0.80). Because the data was ordinal, a graded model was used to fit the data, with all individual items showing good fit (Table 12).

Looking at the test parameters, peak discrimination occurs between approximately -2 and 4 (Figures 4 and 5). This means that the scale is best able to distinguish between who are two points below and 4 points above the theoretical mean. Given this range of discrimination, the PRS is better at differentiating between people who are more regretful compared to those who experience little regret.

Table 12.

*Item fit in IRT model*

Item	RMSEA	<i>p</i> value
Loss of freedom to choose how I spend my time	0.00	.81
Loss of freedom to choose how I spend my money	0.00	.81
Loss of income	0.00	.93
Loss of self/identity	0.03	.21
Loss of career	0.03	.21
Lack of emotional and practical support from family/friends	0.01	.67
Lack of emotional and practical support from child's other parent	.02	.21
Relationship with partner has deteriorated	.02	.21
Less time for intimacy with partner	.00	.83
Parenting was not what I expected	.02	.24
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	.02	.39
Reliving my own childhood difficulties through my child (e.g., racism, bullying, etc.)	.00	.81
Bodily changes in myself	.02	.21
Bodily changes in my partner	.00	.81
Lack of parental instincts (e.g., no natural ease with children)	.01	.54
Lack of connection/closeness with my child(ren)	.02	.21
Unable to fulfill personal goals and dreams	.00	.81
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	.02	.39

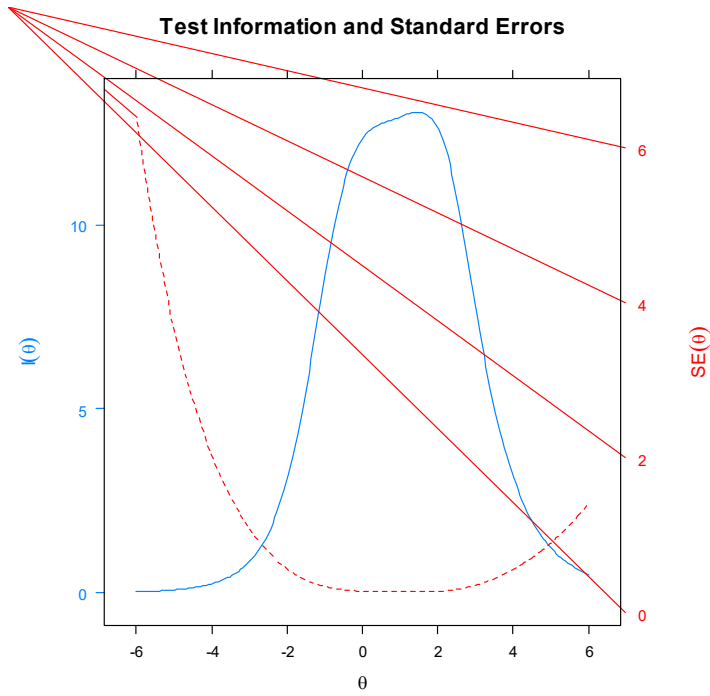


Figure 4. Study 3, IRT test information with standard errors

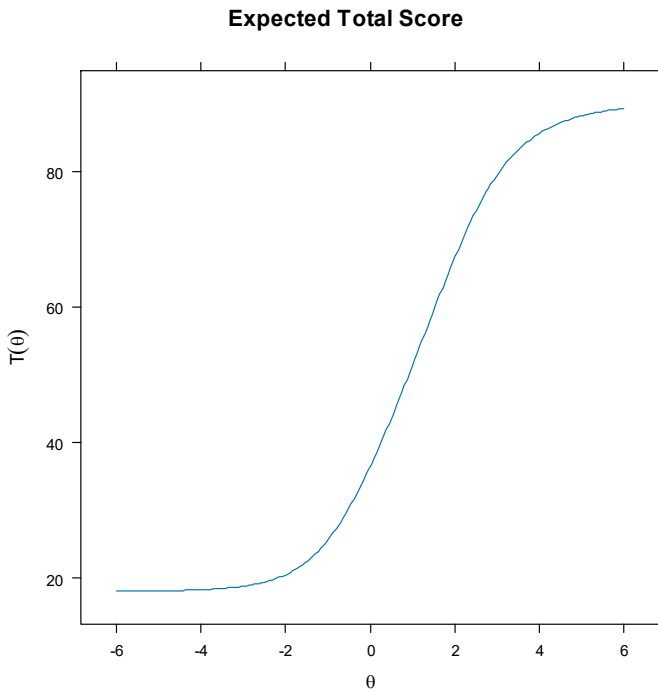


Figure 5. Study 3 Expected total score for PRS

We next looked at the individual items in terms of discrimination, or their individual ability to distinguish between parents who experience more or less regret. Two items exhibited the best discrimination ability: (1) “Unable to fulfill personal goals and dreams” had the highest discrimination, followed by (2) “Loss of self/identity” (for all values see Table 13). These two items describe an inability to fulfill personal goals and the experience of a loss of a sense of self, consistent with the idea that a loss of autonomy is one of the main reasons why parents experience regret.

When looking at item difficulty (i.e., the amount of regret a person would need to experience in order to endorse an item), “Bodily changes in my partner” had the widest range in difficulty, followed by “Lack of connection/closeness with my child(ren)” and “Lack of parental instincts (e.g., no natural ease with children).” This means that only the most regretful parents are likely to endorse these items. Figure 6 graphs the difficulty of each individual item.

Table 13.

## Discrimination and difficulty of items on PRS

Item	a	b1	b2	b3	b4
Loss of freedom to choose how I spend my time	1.986	-1.139	-0.033	1.013	1.798
Loss of freedom to choose how I spend my money	1.906	-0.829	0.217	1.401	2.179
Loss of income	1.675	-0.374	0.467	1.569	2.279
Loss of self/identity	2.226	-0.295	0.602	1.397	2.099
Loss of career	1.647	0.081	0.981	1.88	2.383
Lack of emotional and practical support from family/friends	1.315	-0.375	0.486	1.407	2.298
Lack of emotional and practical support from child's other parent	1.006	-0.277	0.888	1.819	2.673
Relationship with partner has deteriorated	1.227	-0.539	0.485	1.657	2.543
Less time for intimacy with partner	1.047	-1.381	-0.123	1.422	2.923
Parenting was not what I expected	1.85	-0.278	0.771	1.763	2.425
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	1.437	0.11	1.048	1.716	2.442
Reliving my own childhood difficulties through my child (e.g., racism, bullying, etc.)	1.408	-0.114	0.941	1.806	2.652
Bodily changes in myself	1.222	-0.487	0.439	1.351	2.252
Bodily changes in my partner	0.922	0.686	1.92	3.172	4.927
Lack of parental instincts (e.g., no natural ease with children)	1.2	0.004	1.215	2.311	3.241
Lack of connection/closeness with my child(ren)	0.963	0.152	1.285	2.365	3.518
Unable to fulfill personal goals and dreams	2.249	-0.699	0.259	1.249	2.153
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	1.443	-0.171	0.969	1.956	3.035

*Note.* a = discrimination, b1-b4 = item difficulty

P1- P4 response items (strongly disagree – strongly agree)

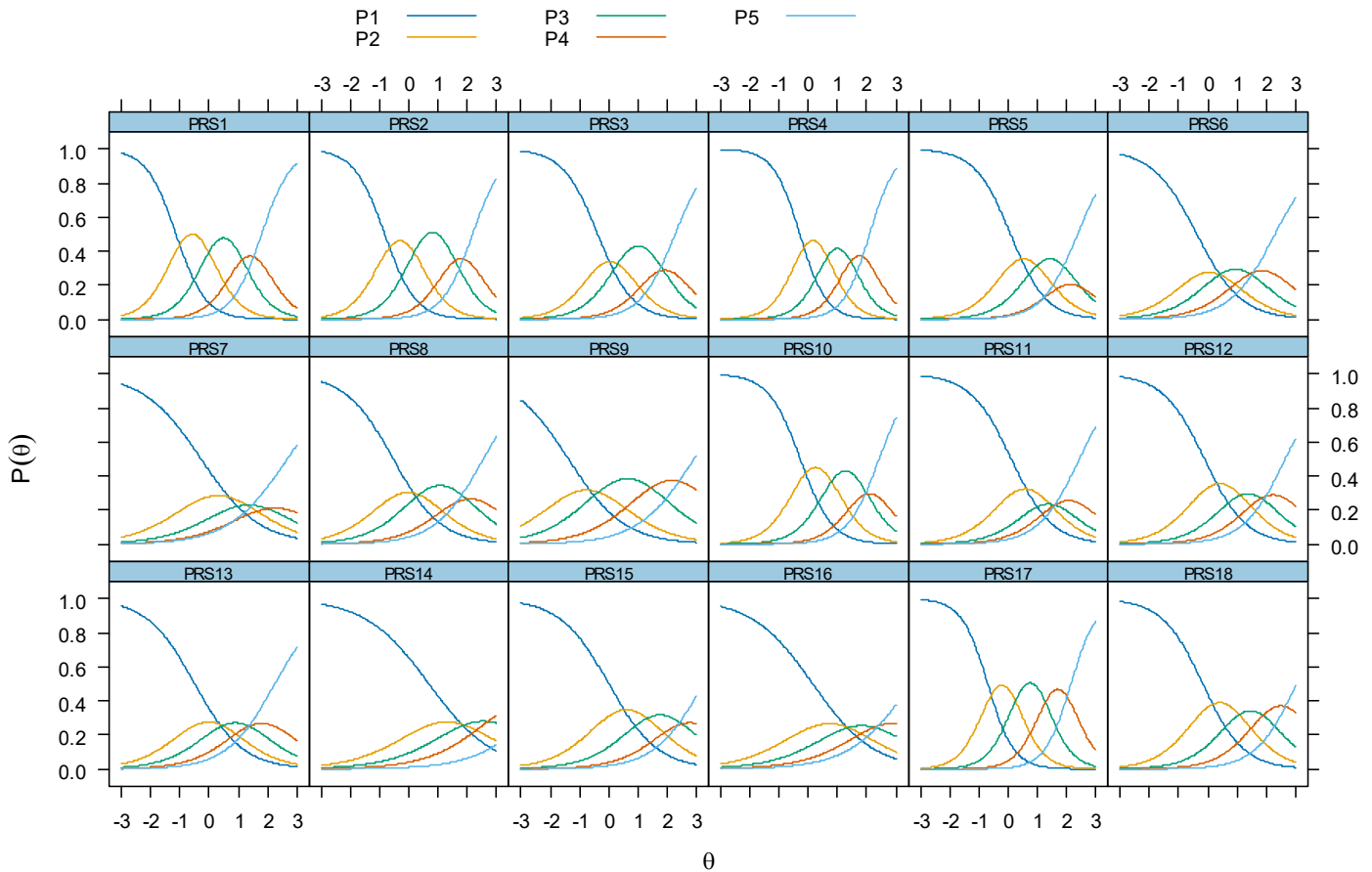


Figure 6. Graph of item difficulty on PRS. The x-axes represent individual regret, with 0 being the theoretical average and either less or more regret on either side. The y axes represent how often a response was chosen for each of the items on the PRS. For example. PRS 14, “Bodily changes in my partner” had the majority of people strongly disagree, suggesting it is not good at distinguishing between people who are very regretful. P1 = Strongly disagree, P2 = disagree, P3 =neither agree nor disagree, P4 = agree, P5 = agree.

We then tested each individual item (for parsimony, the individual results for each of the 18 items are included in Appendix C; two exemplar items presented) in terms of the range of regret that the item is able to distinguish between. For example, “Loss of Freedom to choose how I spend my time” had good fit with the model, ranging from approximately -2 to 3, as visualized in the Expected Score Chart (Figure 7). This means that the item can best capture regret amongst people who are 2 points below or 3 points above the theoretical mean. The item also accounts for

just over 10% of the overall scale estimations, demonstrated by the peak of the curve falling just above 1.0. Practically, this means that when someone completes the entire PRS, about 10% of their results will be because of this one item.

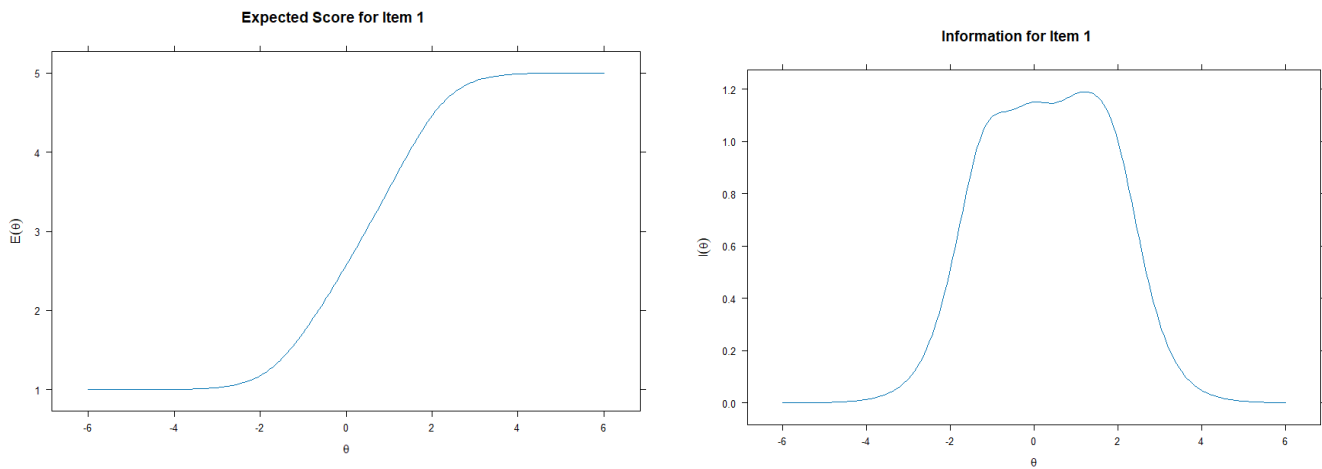


Figure 7. Expected score and scale estimate for “Loss of freedom to choose how I spend my time”

In comparison, “Bodily changes in my partner” was the most difficult item, explaining approximately 2.5% of the scale estimations and having a low expected score from participants. Practically, this would mean that a person would have to have very high levels of regret in order to endorse this item (Figure 8).

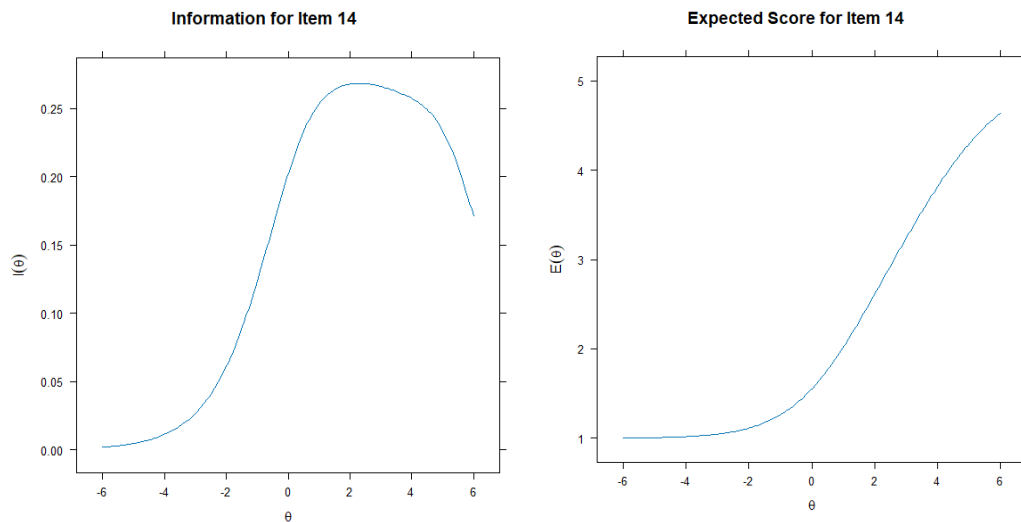


Figure 8. Expected score and scale estimate for “Bodily changes in my partner”

### ***Parental Regret Scale Factor Structure***

In order to validate the subscales of the PRS, we examined its factor structure using an exploratory factor analysis. An examination of the Scree plot suggests a 1 factor model (Figure 9). However, a parallel analysis recommended a 5-factor structure. To determine the most appropriate factor structure for these items, we estimated models with 1 through 6 factors. These models were then evaluated based on both fit, and interpretability of the factors. The analysis used unweighted least squares testing with an oblimin rotation, allowing factors to correlate. The 4-factor model was found to have the best fit, interpretation, and theoretical meaning, and was therefore used going forward (RMR = .03, RMSEA = .07, TLI = 0.90,  $R^2 = .41$ ; results for the 1-3 and 5 - 6 factor models can be found in Appendix D). The four factors identified were: (1) Loss of Self; (2) Parenting Expectations; (3) Lack of Support; and (4) Relationship Quality (see Table 14 for factor correlations, and Table 15 for factor loadings).

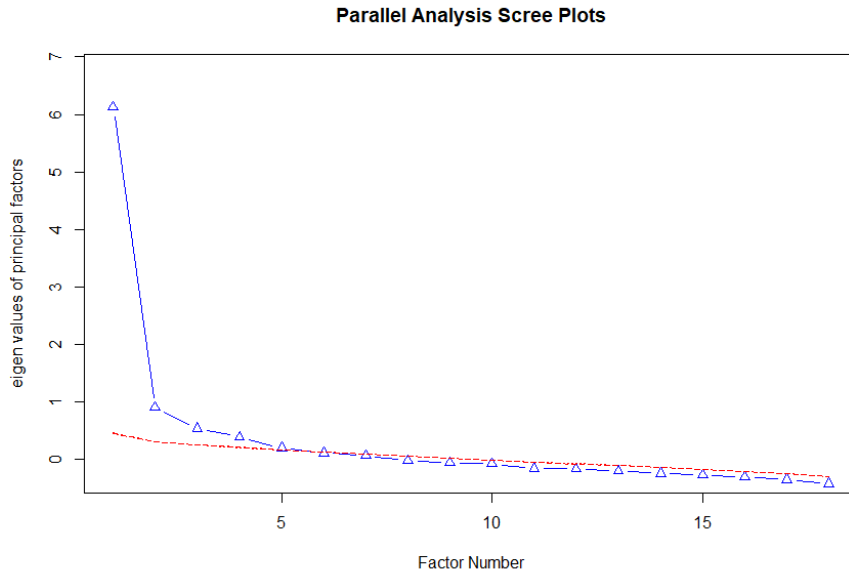


Figure 9. Scree plot identifying the factors for the Parental Regret Scale

Table 14.

Factor correlations of PRS scale			
	1	2	3
1. Loss of Self			
2. Parenting Expectations	.39		
3. Lack of Support	.32	.28	
4. Relationship Quality	.45	.27	.15

Table 15.

Factor loadings for the 4-factor model of the Parental Regret Scale

Item	Loss of Self	Parenting Expectations	Lack of Support	Relationship Quality
Loss of freedom to choose how I spend my time	<b>.69</b>		-.21	
Loss of income	<b>.68</b>	-.21		
Loss of freedom to chose how I spend my money	<b>.70</b>			
Loss of self/identity	<b>.56</b>			
Loss of career	<b>.60</b>		.28	
My child is difficult to raise (e.g., has behavioral, mental health, or physical health issues)	<b>.33</b>	.29	.27	
Bodily changes in myself	<b>.52</b>			
Unable to fulfill personal goals and dreams	<b>.65</b>			
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	<b>.40</b>	.23	.27	
Parenting is not what I expected	<b>.48</b>	.45		
Lack of parental instincts (e.g., no natural ease with children)		<b>.70</b>		
Lack of connection/closeness with my child(ren)		<b>.55</b>	.26	
Lack of emotional/practical support from partner			<b>.67</b>	
Lack of emotional/practical support from family/friends	.22		<b>.49</b>	
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.25	.27	<b>.34</b>	
Relationship with partner has deteriorated			.33	<b>.61</b>
Less time for intimacy with partner				<b>.72</b>
Bodily changes in my partner				<b>.34</b>

*Note.* Bolded values represent the factor that item loads on. Loadings less than .2 have been removed.

Factor 1, *Loss of Self*, was largely made of items that described parents' feelings of loss since having children. This included items such as "Loss of freedom to choose how I spend my time" and "Bodily changes in myself." Three items crossloaded on other factors: (1) My child is difficult to raise (e.g., has behavioral, mental health, or physical health issues); (2) Feeling judged by others regarding my parenting choices (e.g., by family, by society); and (3) Parenting is not what I expected. However, each item was most strongly related to factor 1 and was therefore kept as part of *Loss of Self*.

Factor 2, *Parenting Expectations*, was related to how participants ability to parent differed from how they had imagined prior to having children. This factor had 2 items on it: "Lack of parental instincts (e.g., no natural ease with children)" and "Lack of connection/closeness with my child(ren)." Though the second item also loaded on factor 3, it was not as substantial as the association with factor 2 and was thus kept as part of this expectations factor. However, given the small number of items on this subscale, we separate them and analyze them individually in subsequent analyses.

The third factor, *Lack of Support*, had 3 items loading on it: "Lack of emotional/practical support from partner," "Lack of emotional/practical support from family/friends," and "Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)." The relationship with the first two items is unsurprising. The third item, though crossloading on factors 1 and 2, has the highest loading on factor three and makes theoretical sense in this factor. Adults who experienced childhood trauma often feel isolated (U.S. Department of Health and Human Services, 2014). As a result, feeling like one does not have support is unsurprising.

The final factor, *Relationship Quality*, included 3 items that all related to the regretful parent's relationship with their partner (e.g., "Less time for intimacy with partner"). Items on this

factor did not load heavily on other factors. See Table 16 for correlations between each of the factors and the single item measure.

Table 16.

*Means, standard deviations, and correlations with confidence intervals for PRS and subscales*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. PRS	2.12	0.71				
2. Loss of Self subscale	2.18	0.82	.93** [.92, .94]			
3. Parenting Expectations subscale	1.92	0.89	.73** [.69, .77]	.56** [.50, .62]		
4. Lack of Support subscale	2.14	1.00	.75** [.71, .79]	.59** [.52, .64]	.51** [.44, .58]	
5. Relationship Quality subscale	2.15	0.87	.68** [.63, .73]	.53** [.46, .59]	.42** [.34, .49]	.37** [.29, .45]

### ***Measurement Invariance***

Given the difference in parenting experiences between mothers and fathers, it was important to further validate the PRS by ensuring that men and women respond to the scale similarly. Measurement invariance involves testing the scale when split by increasingly specific categories to ensure that there are no differences between groups. It generally involves 4 levels of testing, starting with the configural model (wherein the number of factors between the two groups holds across groups), before moving to the metric model (which adds the factor loadings in addition to the number of factors), the scalar model (which is the same as the metric model but adds a third element whereby the intercepts also need to be equal), and finally the strict model (which adds the additional constraint of the residuals being equal; Pirralha, 2020). In the present case, four factors were specified for all tests to align with the EFA results reported below.

In the current work the configural model was tested to examine whether the factor structure is maintained across genders. This model was supported based on the fit statistics (CFI = .99, TLI = .99, RMSEA = .03), and we therefore moved onto the metric model. In this model we constrained the factor loadings but allowed the intercepts to vary between genders. Again, this model was supported, CFI = .98, TLI = .97, RMSEA = .05. From here, we moved on to testing the scalar model, which also constrains the intercepts. Based on the fit statistics, the PRS passed this test (CFI = .96, TLI = .96, RMSEA = .06). Finally, we tested the strict model, which assumes the residuals are also equal, for which the fit statistics again indicated a good fit (CFI = .96, TLI = .96, RMSEA = .06). Thus, across all four tests, the fit indices provided evidence of measurement invariance. As a result, we concluded that the scale provides equivalent measurement of regret for both mothers and fathers.

### ***Tests of Validity for the PRS***

To validate the PRS we examined convergent, discriminant, and criterion validity using a series of correlations. In terms of convergent validity, we hypothesized that parental regret would have a negative correlation with leisure needs, life satisfaction, and a positive correlation with loneliness. For criterion validity, we expected the PRS to positively correlate with the single item measure of regret. These correlations are presented in Table 17. In line with our hypotheses, both Leisure Needs and Satisfaction with Life were negatively correlated with the PRS. The PRS also had a positive correlation with loneliness. Thus, parents who reported more regret based on the PRS, also reported being less able to engage in leisure activities and felt less satisfied with life, in addition to feeling lonelier.

In terms of discriminant validity, we expected that our measure of parental regret would not correlate strongly with consumer regret, and other aspects of negative affect unrelated to

regret (i.e., suspicious, fearful, panicked, and impatient). Counter to these expectations, the PRS had moderate positive correlation with both the Regret Elements Scale and aggregate score for negative emotions.

### **Antecedents**

We preregistered that we would conduct a CFA of the antecedents in order to confirm the 4-factor model from Study 2. However, 2 items were dropped between Study 2 and Study 3, both from the same factor, which resulted in Factor 4 (Prior Relationship) having only 1 item. Thus, we deviated from our preregistration and conducted a second EFA. The analysis used unweighted least squares testing with an oblimin rotation, allowing factors to correlate (Table 18). A Scree plot (Figure 10) suggested 2 factors, however, the parallel analysis suggested 3. We therefore tested models with 1 through 4 factors to determine the best model, based on fit and interpretation. The 3-factor model exhibited the best fit and is presented here (Table 19, models including 1, 2, and 4 factors can be found in Appendix E). The factors have clear boundaries and interpretability, as discussed below.

Table 17.

*Means, standard deviations, and correlations with confidence intervals for validity measures with PRS*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Parental Regret Scale	2.12	0.71						
2. Leisure Needs	3.31	1.01	-.38** [-.45, -.30]					
3. Satisfaction with Life	4.62	1.35	-.54** [-.61, -.48]	.44** [.37, .51]				
4. Loneliness	2.22	0.68	.51** [.44, .58]	-.49** [-.55, -.41]	-.62** [-.68, -.57]			
5. Regret Elements Scale	2.50	1.50	.39** [.31, .47]	-.27** [-.35, -.18]	-.32** [-.40, -.23]	.37** [.29, .45]		
6. Negative Emotions	2.28	0.96	.39** [.31, .46]	-.34** [-.42, -.26]	-.36** [-.44, -.28]	.51** [.43, .57]	.34** [.26, .42]	
7. Single Regret Item	1.10	0.30	.35** [.27, .43]	-.23** [-.32, -.14]	-.35** [-.42, -.26]	.26** [.17, .34]	.12* [.03, .21]	.17** [.08, .26]

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

Table 18.

Factor loadings of Antecedents

Item	Want Children	Antecedent Emotions	Antecedent Expectations
I did not want to have children	<b>.97</b>		
I only had children because of my partner's wishes	<b>.51</b>		
I did not like children	<b>.50</b>		.27
I felt like I did not have a choice to have children	<b>.30</b>		
I always wanted to have kids (r)	<b>-.79</b>		
I had very little patience		<b>.26</b>	
I experienced depression		<b>.87</b>	
I experienced anxiety		<b>.67</b>	
I was often exhausted		<b>.49</b>	
I was often lonely		<b>.54</b>	
I sometimes felt suicidal		<b>.61</b>	
I did not know what parenting was really like			<b>.45</b>
I had experience in childcare (e.g., babysitting) (r)			<b>-.43</b>

Note. Bolded values represent the factor that item loads on. Loadings less than .2 have been removed.

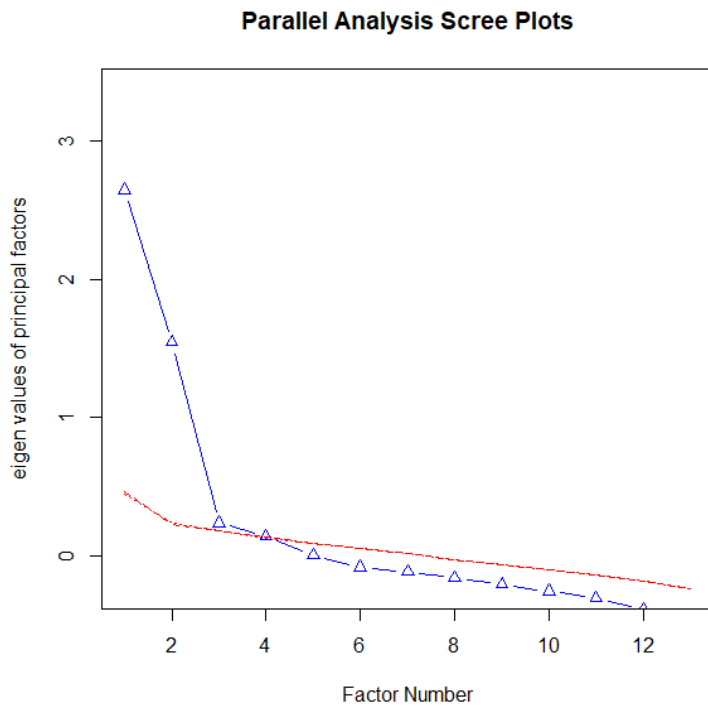


Figure 10. Scree plot identifying the factors for the antecedents

Table 19.

*Factor correlations of antecedents*

	1	2
1. Want Children		
2. Antecedent emotions	.19	
3. Antecedent expectations	.33	.11

The first factor, *Wanting Children*, was related to parents’ feelings towards having children before having them. In this case, feelings of not wanting children loaded positively (e.g., “I felt like I did not have a choice to have children”), whereas feeling that they did want children loaded negatively (e.g., “I always wanted to have kids”). Items on this factor did not heavily crossload on other factors, making it easy to interpret. Factor 2, *Antecedent Emotions*, included

items describing how parents felt before having children. For example, “I experienced depression” and “I sometimes felt suicidal”. Finally, factor 3, *Antecedent Expectations*, similarly related to the expectations parents held towards parenthood before having children. This factor had 2 items: “I did not know what parenting was really like” and “I had experience in childcare (e.g., babysitting)” (reverse coded).

## Hypothesized and Exploratory Correlations

Next, we hypothesized that parental regret would predict less identification with parenting, less autonomy, and increased depression and anxiety. Although not preregistered we also included correlations with the antecedent subscales to examine how the PRS is related to participant feelings before becoming a parent (Table 20).

As expected, the more regret that parents felt, the less they identified with being a parent,  $r = -.19$  [95% CI:  $-.28, -.11$ ],  $p < .01$ . There was also a strong negative correlation between the PRS and autonomy ( $r = -.49$  [95% CI:  $-.55, -.41$ ],  $p < .01$ ), and positive associations with depression ( $r = .35$  [95% CI:  $.26, .42$ ],  $p < .01$ ) and anxiety,  $r = .45$  [95% CI:  $.38, .52$ ],  $p < .01$ .

Although not pre-registered, we also examined how neuroticism and demographic factors related to regret (Table 21). Perhaps surprisingly, parental regret was not related to the number of children a parent has, their relationship status, education, political orientation, or religiosity. There was a small correlation between work status and the loss of self subscale of the PRS, as well as a negative relationship with income for both the PRS total score and the parenting expectations subscale. Perhaps unsurprisingly, those with lower incomes experience greater regret. It appears that financial stability is the demographic characteristic most strongly related to parental regret. Finally, the PRS and all its subscales were positively correlated with trait neuroticism. This mirrors what was found in Study 2: those lower in emotional stability experience higher regret.

Table 20.

*Means, standard deviations, and correlations with confidence intervals for preregistered variables of interest*

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11
1. PRS	2.12	0.71											
2. Loss of Self subscale	2.18	0.82	.93** [.92, .94]										
3. Parenting Expectations subscale	1.92	0.89	.73** [.69, .77]	.56** [.50, .62]									
4. Lack of Support subscale	2.14	1.00	.75** [.71, .79]	.59** [.52, .64]	.51** [.44, .58]								
5. Relationship Quality subscale	2.15	0.87	.68** [.63, .73]	.53** [.46, .59]	.42** [.34, .49]	.37** [.29, .45]							
6. Parenthood Identity	4.68	1.12	-.19** [-.28, -.11]	-.14** [-.22, -.04]	-.27** [-.35, -.19]	-.12** [-.21, -.03]	-.16** [-.24, -.07]						
7. Autonomy	4.74	1.04	-.49** [-.55, -.41]	-.47** [-.54, -.40]	-.33** [-.41, -.25]	-.31** [-.39, -.22]	-.36** [-.43, -.28]	.04 [-.05, .13]					
8. Depression	8.31	2.36	.35** [.26, .42]	.32** [.23, .40]	.32** [.24, .40]	.23** [.15, .32]	.21** [.12, .30]	-.07 [-.16, .02]	-.51** [-.58, -.44]				
9. Anxiety	9.11	3.57	.45** [.38, .52]	.44** [.36, .51]	.31** [.23, .39]	.38** [.30, .46]	.22** [.13, .31]	-.02 [-.11, .07]	-.55** [-.61, -.49]	.50** [.42, .56]			
10. Want Children antecedent subscale	2.17	0.52	.33** [.24, .41]	.31** [.23, .39]	.30** [.21, .38]	.19** [.10, .28]	.20** [.11, .29]	-.17** [-.26, -.08]	-.27** [-.36, -.19]	.22** [.13, .30]	.23** [.15, .32]		
11. Antecedent Expectations subscale	2.31	0.94	.21** [.12, .30]	.21** [.12, .29]	.15** [.05, .23]	.26** [.18, .35]	.02 [-.07, .11]	-.01 [-.11, .08]	-.21** [-.30, -.12]	.13** [.04, .22]	.32** [.24, .40]	.21** [.12, .29]	
12. Antecedent Expectations subscale	3.45	0.86	.16** [.07, .24]	.14** [.05, .23]	.16** [.07, .25]	.18** [.09, .27]	-.01 [-.10, .08]	.01 [-.09, .10]	-.14** [-.23, -.05]	.09* [.00, .18]	.20** [.11, .28]	.01 [-.08, .10]	.18** [.09, .26]

*Note.* *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. \* indicates  $p < .05$ . \*\* indicates  $p < .01$

Table 21.

Means, standard deviations, and correlations with confidence intervals for demographic variables of interest and neuroticism

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7	8	9	10	11	12
1. PRS	2.12	0.71												
2. Loss of Self subscale	2.18	0.82	.93** [.92, .94]											
3. Parenting Expectations subscale	1.92	0.89	.73** [.69, .77]	.56** [.50, .62]										
4. Lack of Support subscale	2.14	1.00	.75** [.71, .79]	.59** [.52, .64]	.51** [.44, .58]									
5. Neuroticism	2.71	0.99	.39** [.31, .47]	.38** [.30, .46]	.31** [.22, .39]	.32** [.23, .40]								
6. Number of Children	1.88	0.88	.04 [-.05, .13]	.04 [-.05, .13]	.05 [-.04, .14]	-.00 [-.09, .09]	.04 [-.05, .13]							
7. Relationship Status	3.93	1.00	-.04 [-.13, .06]	-.05 [-.14, .04]	-.08 [-.17, .02]	.01 [-.08, .10]	-.09* [-.18, -.00]	.16** [.07, .25]						
8. Education	16.40	2.58	-.02 [-.11, .07]	.02 [-.07, .11]	-.09 [-.18, .00]	-.11* [-.20, -.02]	-.01 [-.10, .08]	.01 [-.08, .11]	.13** [.03, .21]					
9. Income	13.61	4.77	-.11* [-.20, -.02]	-.09 [-.18, .01]	-.11* [-.20, -.02]	-.23** [-.31, -.14]	-.07 [-.16, .02]	.10* [.01, .19]	.13** [.04, .22]	.22** [.13, .30]				
10. Work Status	1.35	0.66	.09 [-.00, .18]	.10* [.01, .19]	.09 [-.00, .18]	.13** [.04, .22]	.12** [.03, .21]	.12* [.03, .21]	.00 [-.09, .09]	-.08 [-.17, .01]	-.36** [-.43, -.27]			
11. Political Orientation	3.56	1.07	-.04 [-.13, .05]	-.01 [-.10, .08]	-.08 [-.17, .01]	-.03 [-.12, .07]	.00 [-.09, .10]	-.10* [-.19, -.01]	.03 [-.06, .12]	.08 [-.02, .17]	.10* [.00, .19]	-.04 [-.13, .05]		
12. Religious Status	6.26	3.78	.02 [-.07, .11]	.03 [-.06, .12]	.03 [-.06, .12]	.04 [-.05, .13]	.03 [-.06, .12]	-.17** [-.26, -.08]	-.06 [-.15, .03]	.02 [-.07, .11]	.02 [-.07, .11]	-.02 [-.11, .07]	.29** [.21, .38]	

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. \* indicates  $p < .05$ . \*\* indicates  $p < .01$ .

## Mediation Models

In line with our pre-registration, we conducted structural equation modeling to examine how the antecedents related to depression and anxiety, mediated by parental regret (Figure 11). Models were tested using structural equation modeling using bootstrapped standard errors. The models suggested that the third antecedent subfactor (antecedent expectations) was not a good fit, and therefore the items from this factor were included individually. The antecedent subfactors were each included individually in order to examine the unique impact they had, and the PRS was included as a latent variable informed by the 4 factors. The mediation model testing whether regret mediated the effect of the antecedents on depression had adequate fit (SRMR = .05, RMSEA = .04, CFI = .91, TLI = .90). A parallel model, predicting anxiety, also had adequate fit. (SRMR = .06, RMSEA = .06, CFI = .91, TLI = .90).<sup>2</sup>

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<sup>2</sup> A second SEM model was run looking at the relationship between the antecedents, and regrets on depression and anxiety including the Regret Elements Scale as a control variable. This analysis can be found in Appendix F.

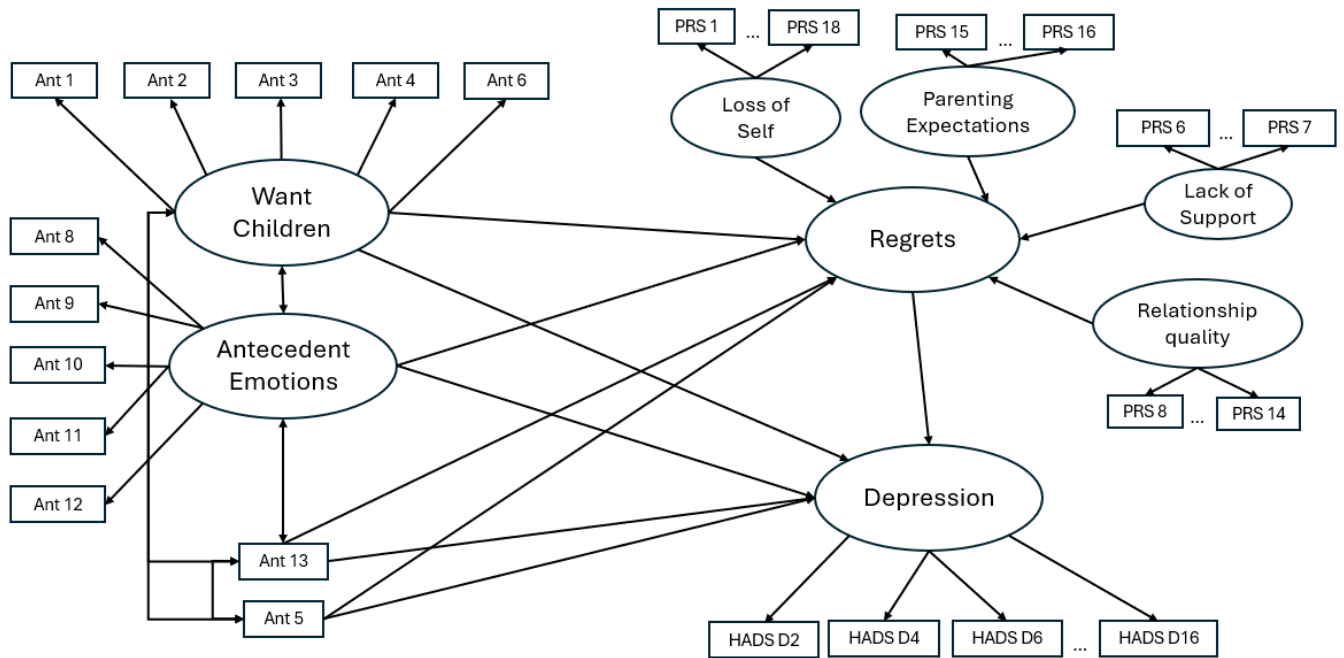


Figure 11. Model with regret mediating the relationship between antecedents and depression.

The parallel model with Anxiety replacing Depression was also tested. Depicted is a simplified model, before the exploration of modification indices which were incorporated to improve model fit. These minor alterations allowed items to contribute to more than one latent factor and allowed individual items to inter-correlate. A full list of the modifications appears in Appendix G.

Although we predicted that regret would act as a mediator, results indicated a partial mediation instead. There was a statistically significant path for all indirect effects using Regrets as the mediator, with the exception of the antecedent item “I had experience in childcare.” There was also a statistically significant direct effect of parental regret on depression, with the antecedent of expectations also having a statistically significant direct effect on Depression.

Combined, this suggests that parental regret partially mediates the relationship between the antecedent factors and depression.

A similar result was found with anxiety, wherein the paths from the antecedent factors to anxiety through regret were statistically significant in all cases. There was also a direct effect of regret on anxiety, as well as direct effects from all antecedent measures to anxiety. Thus, similar to depression, there is a partial mediation between the antecedent subfactors and anxiety, via parental regret (see Table 22 for all model results).

### **Depression and Anxiety among regretful parents**

Lastly, in an exploratory analysis (not preregistered) we examined the differences in depression and anxiety between regretful and non-regretful parents using the single item of regret. Starting with depression, a one-way ANOVA found that there was a statistically significant difference between the two groups ( $F(185.3) = 35.83, p < .001$ ), with those experiencing regret reporting higher levels of depression ( $M = 10.19, SD = 2.50$ ) compared to those not experiencing regret ( $M = 8.10, SD = 2.25$ ; Cohen's  $D = 0.88$ ).

Unsurprisingly, similar results were also found for anxiety ( $F(165.98) = 13.4, p < .001$ ), with regretful parents scoring higher on anxiety ( $M = 10.89, SD = 2.95$ ) compared to the non-regretful parents ( $M = 8.91, SD = 3.58$ ; Cohen's  $D = 0.60$ ). Importantly, our entire sample of parents averages a score above the clinical cutoff for both depression and anxiety. One possible reason for this could be that the data were collected in early 2023. At this time many people were still dealing with the aftermath of the COVID-19 pandemic and adjusting to the “new normal” (Selvam et al., 2024). Even within this context, however, the group of regretful parents score higher than non-regretful parents for both variables.

Table 22.

*Models for parental regret predicting depression and anxiety*

<b>Depression</b>			
Direct Effect		<i>B</i>	95% CI
	PRS → Depression	0.45*	[0.33, 0.656]
	WC → Depression	0.02	[-0.05, 0.09]
	AE → Depression	0.07*	[0.2, 0.12]
	Ant5 → Depression	0.04	[-0.01, 0.09]
	Ant13 → Depression	0.02	[-0.03, 0.05]
Indirect Effect			
	WC → PRS → Depression	0.10*	[0.05, 0.17]
	AE → PRS → Depression	0.04*	[0.01, 0.07]
	Ant5 → PRS → Depression	0.03*	[0.01, 0.07]
	Ant13 → PRS → Depression	0.02	[0.00, 0.05]
Paths			
	WC → PRS	0.12*	[0.04, 0.21]
	AE → PRS	0.11*	[0.05, 0.17]
	Ant5 → PRS	0.07*	[0.02, 0.13]
	Ant13 → PRS	0.03	[-0.01, 0.07]
Fit Statistics	RMSEA	0.05	
	SRMR	0.04	
	CFI	0.91	
	TLI	0.90	
<b>Anxiety</b>			
Direct Effect		<i>B</i>	95% CI
	PRS → Anxiety	0.38*	[0.24, 0.56]
	WC → Anxiety	0.00	[-0.08, 0.01]
	AE → Anxiety	0.15*	[0.08, 0.21]
	Ant5 → Anxiety	0.03	[-0.02, 0.08]
	Ant13 → Anxiety	0.03	[-0.01, 0.07]
Indirect Effect			
	WC → PRS → Anxiety	0.09*	[0.05, 0.15]
	AE → PRS → Anxiety	0.04*	[0.01, 0.08]
	Ant5 → PRS → Anxiety	0.03*	[0.01, 0.06]
	Ant13 → PRS → Anxiety	0.02*	[0.002, 0.05]
Paths			
	WC → PRS	0.10*	[0.01, 0.19]
	AE → PRS	0.18*	[0.12, 0.25]
	Ant5 → PRS	0.06*	[0.003, 0.12]
	Ant13 → PRS	0.05*	[0.01, 0.09]
Fit Statistics	RMSEA	0.06	
	SRMR	0.05	
	CFI	0.91	
	TLI	0.90	

*Note.* \* CI does not include 0. PRS = Parental Regret. WC = Want children antecedent subfactor. AE = Antecedent Emotions subfactor. Ant5 = I didn't know what parenting was really like. Ant13 = I had experience in childcare.

### Study 3 Discussion

The results of Study 3 largely supported our hypotheses. As expected, the prevalence of regret in Canada is approximately 10%, with little difference between mothers and fathers. Although this number may seem high to some, it corresponds with similar estimates found in other countries (e.g., Piotrowski, 2021). For example, in the UK 8% of parents reported some regrets, in America it was 7%, and in Poland 9.8% of mothers and 12.2% of fathers (Nolsoe, 2021; Newport & Wilke, 2013; Piotrowski, 2021). In comparison, German parents have higher rates of regret with 19% of mothers and 20% of fathers reporting they would not have children if they could go back in time and do it all over again (Shtrauchler, 2016). Broadly, the similarity in rates of regret across countries provides a strong rebuttal to those who believe parental regret does not exist. This similarity also suggests that there may be some unifying experience among parents that produces regret, something that is not defined by borders and not sufficiently influenced by culture or society to result in countries with little to no regret. That the experience of parenting has the strongest associations with regret, and less so the other demographic factors, is further supported by the fact that regret does not correlate with many seemingly important contextual and demographic variables (e.g., number of children, relationship status, education, political orientation, or religiosity).

The only demographic characteristic that was related to parental regret was income, with wealthier parents experiencing less regret. It is important to note that there is no item on the PRS that directly asks about the cost of raising children. The item most closely related to financial issues is, “Loss of freedom to choose how I spend my money.” Tellingly, this item was not strongly endorsed across our sample, with the average falling below the midpoint of the scale. Further, the association between income and parental regret was weak ( $r = .11$ ), meaning that

this was not a major factor related to regret. This result does, however, converge with the results of a recent paper on regretful parents (Piotrowski et al., 2023), which found that income was a factor in regret. However, this was only found in one of the three studies reported, with no such relationship found in the other two (Piotrowski et al., 2023). Given the weakness of the relationship more research needs to be done to confirm the finding. One possibility is that those with more resources are better able to “opt out of,” or receive respite from, parenting responsibilities with greater frequency compared to those with fewer financial means. For example, being able to pay for a nanny, overnight camps, and other activities that reduce the burden of parenting may help to reduce the likelihood of parents experiencing regret.

A major goal of this study was to further develop and validate the PRS. We were able to provide some evidence of criterion validity through the positive relationship between the PRS and the single dichotomous item measuring regret. In addition, the positive correlation between the PRS and loneliness, as well as the negative correlations with leisure needs and satisfaction with life, provided evidence of convergent validity. Discriminant validity was more difficult to obtain, however, with unanticipated associations observed for both consumer regret and negative affect. A possible reason for these associations might be the high rates of depression in regretful parents. It may be that the negative thinking that happens when one is depressed (Remes et al., 2021) leads people to think negatively about many aspects of their life. Our mediation model presents evidence that parental regret might be an important factor in a parent’s depression. It is possible that the negative thoughts associated extend to general, seemingly unrelated, emotions and purchases. Regardless, more research should be done to demonstrate discriminant validity for the PRS.

Another goal of this study was to examine whether regret mediates the associations between antecedent experiences and two mental health variables: depression and anxiety. We found that regret acted as a partial mediator for both these variables. That is, parental regret helps to explain the relationship between pre-natal experiences and both depression and anxiety. This finding is an important contribution to the literature as it helps to demonstrate the profound negative impact parental regret itself can have on a person, and the need to support this segment of the population. Some criticisms of parental regret, and the study of parental regret, have focused on the idea that parental regret is either not real or the result of someone's "bad day." Although our study is cross-sectional, it is the first to provide an in-depth examination of these associations and provides a promising foundation for future research (e.g., longitudinal designs).

These findings have important clinical implications as well. If we know that people who regret having children experience more depression and anxiety than those without such regret, as found in our exploratory analyses, it is easy to see the benefit of an intervention. More effort should be put into discouraging parents and, given the prevalence of this regret, breaking down the taboo of talking about it. Further, it may be that the best course of prevention is to educate people before they become parents to try to prevent regret at the outset.

### **Limitations**

A major limitation of this study was its inability to establish discriminant validity for the PRS. We selected 4 emotions that, though negative, were not expected to strongly correlate with parental regret (i.e., suspicious, fearful, panicked, and impatient). In addition, we expected that consumer regret would not relate to parental regret. However, in both cases there was a positive correlation with the PRS. It is possible that people who regret having children are more likely to experience negative emotions in general, or that experiencing such regret makes other negative

emotions more salient. The positive relationship between the PRS and consumer regret suggests that regretful parents might also be more regretful people in general. More research needs to be done to examine the directionality of these associations, and to establish the discriminant validity of the PRS.

A second important limitation of the study, and work in this area more broadly, is that it has all been done in Western, industrialized countries. Though the prevalence of regret in Canada is in line with other research, it is impossible for these results to be generalized broadly to a diverse range of other countries and cultures. In order to test the generalizability of this work, and parental regret in general, research needs to be expanded to different cultures globally.

## **Conclusion**

Study 3 aimed to tie together the research conducted in Studies 1 and 2 by further validating the PRS, while also examining the relationship between the antecedents, regrets, and mental health of regretful parents. This study also allowed us to determine the prevalence of regret in Canada. By better understanding the relationship between experiences prior to having children, the specific things parents regret, and their mental health, we were able establish the unique contribution of parental regret in parental experiences of depression and anxiety. Overall, this body of work provides a solid foundation for which future research can continue.

## Chapter 5: General Discussion

This dissertation had six related goals: (1) to better understanding of the experience of people who regret becoming parents; (2) to examine potential antecedents of parental regret; (3) to identify the specific things these parents regret; (4) to understand the mental health of regretful parents; (5) to develop a survey to measure parental regret; and (6) to estimate the prevalence of parental regret in Canada. In order to achieve each of these goals we conducted three studies, which combine to provide a novel contribution to an otherwise sparse body of literature.

In Study 1 we conducted a thematic analysis of regretful parents' reports of their experiences of parenthood, resulting in the identification of five themes. The first theme, Loss of Self, describes a feeling of being "stuck in a prison," with parents having lost their identity outside of parenthood. Difficulties of Parenthood, the second theme, described struggles such as the cost of raising children, dealing with children who have disabilities, and the resurfacing of childhood trauma from parents. A closely related theme focused on the Difficulties of Motherhood. Mothers reported that parenting is more difficult for women than men, exacerbated by the perceived lack of choice for women when it comes to parenthood. The fourth theme, Lack of Support, outlined how regretful parents struggle with a dearth of support from partners, family and friends, and society at large. Finally, within the theme of Anxiety and Fears, parents discussed specific concerns for the future of their children. What was common across all themes was a strong undercurrent of struggling parents with poor mental health. This was the first qualitative study to provide the opportunity for both mothers and fathers to share their experiences related to parental regret. Fathers have often been omitted from psychological research pertaining to children. For example, fathers are included in just 55% of studies on pediatric psychology compared to 98% for mothers (Phares et al., 2005). When fathers are

directly asked about this gap, 80% of fathers report that they do not participate in research simply because they are not asked: only 9% reported a lack of interest (Davison et al., 2017). Although the majority of our sample remained mothers, the fact that fathers were invited to contribute, but ultimately largely did not respond, could provide an important piece of information about regretful parents. Given that the make-up of Reddit, where the majority of our sample came from, is largely male (Ceci, 2024), the fact that our sample included substantially more mothers than fathers is an interesting finding. This implies that fathers are either less regretful, or less willing to discuss this regret in a research context. We know from our Study 3 and other surveys that fathers are as regretful or more (e.g., Shtrauchler, 2016; Piotrowski, 2021), and so the latter seems more likely. Any intervention to support regretful parents should take into account that fathers may be especially reluctant to discuss these feelings and likely require tailored forms of intervention.

In Study 2 we began to develop the Parental Regret Scale (PRS). Past research has often employed a single yes/no item to measure parental regret. To improve upon this approach, we created a multi-item questionnaire that is sensitive to a range of regret. Using this scale, Study 2 examined associations between specific antecedents, regrets, and mental health. Our PRS was positively related to the dichotomous single-item measure of regret used in previous research, indicating its validity. Greater regret, as measured by the PRS, was associated with worse mental health and more suicidal thoughts. Parental regret was also associated with recalling more negative attitudes towards parenting prior to having children, having unclear expectations of parenting, and poor relationship quality. Parents who reported only having children because their partner wanted to, and who felt obligated to have children, were also likely to score high on the

PRS. But the strongest predictors of regret were participants' attitudes towards having children, their emotional state prior to being a parent, and their current mental state.

In Study 3 we collected a gender-representative sample of Canadian parents and found that 10.2% of parents regret having children (11.1% of fathers and 9.1% of mothers). This study also helped establish the validity of the PRS and examined important correlates of parental regret. Our new scale demonstrated measurement invariance between mother and fathers, and we were able to establish both criterion and convergent validity. However, more work will need to be done to establish discriminant validity, as the scale did positively correlate with both consumer regret and other negative emotions (i.e., suspicious, fearful, panicked, and impatient).

As expected, parental regret was associated with important markers of poor mental health: depression and anxiety. These results mirror previous research with mothers, which found that mothers who experience regret tend to have higher levels of depression and anxiety (Donath, 2015; East et al., 2012). The current work replicates these findings while also extending them to fathers, who have been almost entirely absent from research on parental regret. Being able to compare the differences—or lack thereof—between mothers and fathers is a large benefit of the current work. This is sadly impossible in most prior work on parental regret, given its focus on mothers. But exploring regret within fathers is essential for the accurate characterization of this experience, in order to determine who has these experiences and how they might best be helped.

The newly developed measure is also a novel contribution, because it provides nuanced measurement for a field that has long relied on a single dichotomous item. The necessity of such a measure was reinforced when, in December of 2023, another group published a Parenthood Regret Scale (Piotrowski et al., 2023). This scale uses 12 items that expand on the single item used historically, forming a single factor. Example items include “If I could decide again

whether to have a child (children), I would choose not to” and “I’m angry at myself for having a child”. Unfortunately, the data for this dissertation was already collected when this scale was published, which means we could not benefit from its inclusion. Notably, this group took a different approach to measuring parental regret, focusing on asking questions similar to the single item measure, reinforcing that one theme. In contrast, our PRS focuses instead on exploring parental regret by examining the specific types of regret experienced by this population. Neither approach is necessarily superior to the other, and this other scale merely demonstrates that there are different viable perspectives on approaching this topic, and value in having various scales that look at different aspects of this complex phenomenon.

Similarly, in 2025, a group out of Japan also published a Motherhood Regret Scale (MRS; Haruyama et al., 2025). These researchers explored the regrets of mothers with children ranging from being unborn to 29 years old. The latter is notable, as there is a lay belief that mothers only experience regret when the child is an infant and these feelings fade as the child ages. Just like our own findings, however, this does not appear to be true. The MRS contains 9 items measured on a 5-point scale. Example items include, “I believe a life in which I do not become a mother would have been better,” and “I sacrificed myself to become a mother and this left a scar on me” (Haruyama et al., 2025). The example items suggest that the MRS is in line with the scale by Piotrowski and colleagues (2023), largely expanding on the dichotomous items used previously, and focusing on mothers. The proposed scale uses a cut-off score wherein only those who score above 30 (out of 45) are considered to be regretful (7% of the mothers surveyed; Haruyama et al., 2025). The fact that two scales were published after our data were collected really speaks to the timeliness of this work, and its growing importance.

The research by Piotrowski and colleagues (2023) increases the confidence in what was found in this dissertation, as our findings converge in a number of ways. For example, this group also found a link between parental regret and both poorer life satisfaction and greater depression. Similarly, in line with the current work, Haruyama and colleagues (2025) found no significant relationship between relationship status, employment status, and education did not relate to parental regret. Future research would benefit from including all of these measures as a convergent validation of each other as well and also capturing the full spectrum of this experience.

### **Loss of Identity**

An important factor we expected to play a role in predicting parental regret was how much someone incorporated parenting into their self concept. Becoming a parent is a major change in one's role. If this new role is not incorporated into one's identity the loss of the former self may produce regret. We therefore predicted that parents who were not able to update their self-concept to reflect their current identity (i.e., as a parent) would experience greater levels of regret. We found evidence that this was the case in all three studies, with parents reporting feeling a loss of self when prompted to reflect on their regret (Study 1), strong endorsement of items pertaining to a loss of self/identity in our new scale (Study 2), and a correlation between parental regret and our identity measure (Study 3). This is in keeping with research on how a mismatch between one's self-concept and the actual self is likely to result in depression (Mason et al., 2019). Given that our research demonstrates this discrepancy, and the immense shift in identity that parents must make (Kluwer, 2010), interventions to reduce parental regret should focus on helping parents update their self-concept to include their new role. Doing so could help alleviate some of the regret and reduce feelings of distress.

## **Self Determination Theory**

Related to a loss of identity, we predicted that the core need frustration central to feelings of regret would be a loss of autonomy (from Self Determination Theory; Deci & Ryan, 2008). Our results confirmed this idea, with parents feeling like their life is no longer their own (Study 1), and parental regret increasing as feelings of autonomy decrease (Study 3). The regret parents feel appears to be rooted, in part, in the need for autonomy being frustrated. However, what was less expected was the importance of the other SDT needs: the needs for competence and relatedness. In the qualitative study, parents wrote about feeling like a babysitter who has not been properly informed of what parenting would be like. This sentiment was mirrored in Studies 2 and 3, with parents reporting that they did not know what parenting was really like before having children. Our need for competence describes our motivation to feel as though we can successfully navigate the world (Van den Broeck et al., 2010). If parents feel that they do not know how to be parents and are ill-prepared for their current life, it follows that their need for competence may not be met.

The need for relatedness also appears to be frustrated among regretful parents (i.e., feeling like one has a loving support system; Van den Broeck et al., 2010), with participants endorsing a lack of support from partners, family, and friends in all three studies. This might help explain why regretful parents tend to have worse mental health than those who do not experience regret. According to SDT, all three core needs must be met in order to lead a satisfying life, “for people to experience ongoing growth, integrity, and wellness” (Ryan & Deci, 2022). If regretful parents experience frustration in at least one, and possibly all three core needs, then it is unsurprising they are so unhappy. Interestingly, there are some who suggest that parenting should improve a person’s ability to meet their three core needs (Nelson et al., 2014).

For example, a study on parents of children with down syndrome found that although these needs might be challenged, participants also found opportunities for fulfillment in being a parent (Desimpelaere, et al., 2024). That is, the need for relatedness was negatively impacted as their social life and relationships with family suffered, but parents also found new opportunities to connect with their child and community (Desimpelaere, et al., 2024). Longitudinal research has found that mothers whose needs were not met before having children were more likely to experience depressive symptoms once the child was born. Having one's relationship needs met after the child was first born also led to better parenting 2 years later (Brenning and Soenens, 2017). Overall, what these data demonstrate is the importance of understanding needs when it comes to parental health, including parental regret.

### **Neuroticism**

A common experience described by parents is struggling with negative emotions, such as anxiety. We therefore wanted to rule out the idea that parental regret could simply be a “symptom” of neuroticism. Although regret should necessarily entail the experience of negative affect, we do not believe that this phenomenon can be fully explained by trait neuroticism. As expected, in Studies 2 and 3 neuroticism was associated with parental regret: those higher in trait neuroticism reported greater regret. These associations are also consistent with previous research showing that trait neuroticism is associated with other types of regret (e.g., Novliadi et al., 2018). The link between neuroticism and anxiety, and negative emotions in general (DeYoung et al., 2007), help to explain why this trait would predict parental regret. Most importantly, although these associations were moderately strong, they did not approach the levels at which we would assume entity. In other words, there is no evidence that parental regret is the same as trait neuroticism. Moreover, given the cross-sectional nature of these data, we are unable to determine

causal direction. It is possible that those high in neuroticism are more likely to regret becoming parents, perhaps because they are already feeling anxious and emotionally unstable. The uncertainty that comes with parenthood may also heighten these negative emotions and result in feelings of regret.

### **Won't people regret it more if they do not have children?**

This dissertation contributes to the ongoing discussion around parental regret, a central component of which is the assertion that people are more likely to experience regret if they do not have children than if they do (e.g., Rogers, 2024; Neal & Neal, 2023; R/childfree, n.d.). In essence, this argument pits parental regret against the regret of not having children, and argues that the latter is more likely and perhaps worse. As a result, people should have children in order to avoid future regret. This hypothetical future regret is used to pressure women in particular to have children, as womanhood is often inseparably combined with motherhood (Donath, 2017). Given the emphasis on parenthood for women especially, it is impossible to discuss issues of parenthood without acknowledging the different experiences of mothers and fathers.

Adults who have voluntarily chosen not to have children are known as “childfree”, to distinguish them from those who do not have children for a variety of other reasons (including those beyond their control, such as infertility). Those who choose to be childfree are often pressured to have a child as a way to avoid possible future regret. When childfree adults mention a disinterest in children, a common reply is that “It will be different when they’re your own” (e.g., Matei, 2024). Whether this is true or not has been the topic of empirical research. Although some work does show that people without children are less happy than their childbearing counterparts, other research finds just the opposite (for a summary, see Stavrova & Fetchenhauer, 2015). These contradictory results are clarified when contextual factors are

considered. Apparent differences in life satisfaction between parents and nonparents (both childfree and childless adults) disappear after controlling for age, for example. Further, when it comes to regret among parents and those who choose to be childfree, there is no statistically significant difference in regret between the two groups (Neal & Neal, 2023). In fact, parents report slightly more regrets than childfree older adults (Neal & Neal, 2023). Life satisfaction also decreases for people after they have children, with parenthood only related to an increase in life satisfaction after the child leaves home (Becker et al., 2019). Overall, the argument that people should have children to avoid the future regret of being childless seems unsubstantiated. That said, the research on this topic is primarily retrospective in nature. In order to strengthen this evidence, longitudinal studies would be required, following expectant parents who do want children to investigate the proportion who eventually develop regret. Somewhat ironically, promoting parenting via this fear of future regret could actually cause parental regret, as it encourages people to have children for self-serving reasons, even when they may not desire to become parents otherwise. It could be dangerous to encourage potential parents to ignore their own doubts regarding becoming a parent.

Finally, an issue that has become especially prevalent in recent years is whether having a child is a choice at all, especially after already becoming pregnant. Women who access abortion services are more likely to be teenagers, single, and/or come from low socio-economic backgrounds, suggesting that they do not have the supports in place necessary to care for their child (Donohue & Levitt, 2000). The overturning of *Roe v. Wade* in the United States has created a situation wherein the options for terminating a pregnancy have been taken away from many women in America. This has resulted in a 10% increase in mental distress among women of childbearing age in the country (Dhaval et al., 2023). As the result of this change in abortion

access, more women are becoming parents against their own will, which will likely increase the incidence of parental regret. These data demonstrate the need for clinical intervention to help parents experiencing such regret.

### **Clinical Implications**

From a clinical perspective, the findings from all three studies provide promising avenues that may help support regretful mothers and fathers. Given that the prevalence of parental regret is approximately 1 in 10 parents, and the profound negative impact this regret has on mental health, practicing clinicians should be trained to detect and discuss parental regret. This is especially true as the taboo surrounding it may prohibit parents from volunteering this information spontaneously. Although there are still those who believe that parental regret does not exist, research clearly demonstrates that it does and it is prevalent in multiple countries (Piotrowski, 2021; Haruyama et al., 2025). Despite the fact that parental experiences of regret are as common as being left-handed (De Kovel, 2019), most regretful parents do not feel comfortable admitting to how they are feeling for fear being judged or prosecuted. For example, Marsh (2017) describes how one mother admitted to feeling regret in an anonymous post, feeling safety in the anonymity. However, this did not prevent negative commenters from responding. One particularly painful reply was, “Sort out your insecurities and guilt and self-centred, self-indulgent feelings, and get on with the job of parenting” (Marsh, 2017). Such comments will likely disincentive the poster from sharing their feelings in other avenues. Worse, this reply will also likely to be read by other regretful parents, perpetuating the cycle of not wanting to speak out about their feelings. Educating clinicians on the possible causes of parental regret, and its correlates, will allow them to better support clients who may be suffering. The PRS we

developed is an excellent tool to measure parental regret and may be of value in in clinical research and perhaps as part of clinical practice.

## **Education**

This dissertation provides evidence that parents dealing with regret could benefit from updating their self-concept to include the parenting role, and finding ways to increase feelings of autonomy, competence, and relatedness in their lives. Parental regret appears to be borne in part from a lack of education regarding parenthood, resulting in unrealistic expectations. This is demonstrated by the lack of educational programs available to Canadian parents (Devolin et al., 2012). To prevent regret, those considering having children should be provided with realistic education and resources, to better prepare them for the realities of parenthood. Perhaps the simplest option would be for better formal education to be incorporated into the secondary school curriculum, and making these mandatory. Although some of this content does appear in social studies courses, not all students take these courses and yet the great majority of adults will end up becoming parents. A policy of mandatory parental education would ensure that all potential parents learn accurate expectations and helpful strategies for parenting. Outside of this, free courses could be offered through local community centers to those interested in having children. It would also be beneficial if current parents were more forthcoming about all aspects of their experiences. Many regretful parents reported that, prior to having children, they were only told the “good parts.” Pre-natal education and counselling, and an open dialogue regarding parenthood prior to pregnancy, would help people make an informed choice about whether or not to become parents. Further, offering education and support once someone has had a child could potentially lessen the stress and reduce instances of regret. For example, in some countries new parents are provided with a ‘baby box’, regardless of income, which has necessities for both a

newborn and their parents. This includes contact information for support services, information on mental health resources, and so forth (e.g., Scotland.org, n.d.). This type of post natal support can be especially valuable for parents who might be feeling overwhelmed by the experience, which may be even more likely if their child has special needs.

Education about choice and options is also important. Regretful parents in Study 1, particularly mothers, discussed feeling a lack of choice when it came to becoming a parent. This lack of choice can stem from perceived constraints (e.g., “We are conditioned as children to believe that it is our only purpose” [Study 1, Respondent 3]), or objective, practical constraints (e.g., “[this country] takes away women’s choice...when they take away a woman’s choice not to abort.” [Study 1, Respondent 25]). Related to the latter, providing access to abortions for those who do not want to be a parent is likely to reduce regret. There is an increasingly polarizing debate around access to abortions both in Canada and around the world, which has direct ramifications for parental regret. This is not a theoretical or abstract concern. Parents in our studies explicitly discussed the importance of access to abortions, and even how being refused access played a role in their regret. Research on the mental health of women after the overturning of *Roe v. Wade* found higher rates of distress in states that have restricted access to abortion (Dave et al., 2023). Given the profound negative mental health among regretful parents, being able to prevent unwanted births is extremely important to improve the quality of life for sexually active adults.

### **Limitations**

Despite our best efforts, the current work does have some limitations. Studies 1 and 2 employ the same sample, one that was made up largely of mothers, with very little representation from fathers. This imbalance in participants is even more noteworthy given that the majority of

this sample came from the website Reddit, whose user base is primarily male (62.1% of Reddit users identify as male; Ceci, 2024). Based on this, it may seem as though mothers experience more regret than fathers. However, our own research and previous work have found that rates of regret are rather similar between mothers and fathers (Study 3; e.g., Shtrauchler, 2016; Nolsoe, 2021). An alternative explanation for this is offered by Bodin (2022), who argues that this difference arises from the fact that women are more likely to seek out support than men. Because men are socialized to internalize their feelings regretful mothers are more likely than regretful fathers to seek support from other parents on online forums (Bodin, 2022). This seems like a plausible explanation, and future work qualitative work should actively recruit regretful fathers as most qualitative work to date has focused on mothers (e.g., Donath 2017).

Another limitation of the current work is the cross-sectional and correlational nature of the two quantitative studies. As a result, it is impossible to make inferences regarding causal direction. Although the theoretical model that motivated our Bayesian regressions in Study 2, and the SEM models in Study 3, demonstrated that antecedents lead to regret which in turn impacts mental health, the causal direction of these paths cannot be tested. It is possible, for example, that the negative emotions regretful parents are feeling at present is skewing their memories of what life was like prior to becoming a parent. A future project following individuals from before they have children, and for a length of time after the child is born, would allow us to examine how feelings change and evolve. However, even longitudinal data cannot establish causal direction, and experimental work on this topic has clear obstacles (i.e., the ethics of randomly assigning people to conditions that may increase regret). Perhaps the most promising research design to explore this topic would be a randomized controlled trial (RCT) for an

intervention to reduce regret, with a wait-list control. Our research has tentatively identified some areas to target in such an intervention.

## **Conclusion**

Parental regret is an important phenomenon that has profound negative effects on parents, and yet it remains understudied. Given how little research has been done on this topic to date, this dissertation helps to advance our knowledge of parental regret, providing new insights into what is a very taboo topic. Encouragingly, our results are mostly consistent with what little research does exist, in terms of prevalence, the lack of gender differences, and mental health outcomes. Approximately 10% of the population seems to experience long term regret around having a child. This number is perhaps higher than expected, given how little attention parental regret receives. It is also potentially an underestimate, given the taboos that surround confessing such regret. To put this prevalence into context, around 10% of the population is left-handed (De Kovel, 2019). Such regret is likely to have a far more meaningful, and deleterious, impact on one's life, and yet parental regret is far less visible in societal discussion compared to left-handedness. This is likely because of the taboo nature of admitting to feeling such regret, illustrated in our own qualitative work by parents feeling like they needed to keep their regret a secret for fear of how they will be responded to. Importantly, however, the vast majority of these parents emphasize how much they love their children, but find fault in the experience of parenthood itself. This dissertation provides a foundation for future work, by identifying key risk factors for parental regret, and developing a nuanced measure of this construct.

## Appendices

### Appendix A

#### Study 2 Antecedent alternative factor solutions for exploratory factor analyses

Table 1A.

Factor loadings of 2 Factor model of Antecedents

Item	Factor 1	Factor 2
Before becoming a parent...		
I did not want to have children	<b>.95</b>	.02
I only had children because of my partner's wishes	<b>.60</b>	-.22
I thought having children would fix my relationship with my partner	<b>.03</b>	.19
I did not like children	<b>.66</b>	.15
I had a poor relationship with my child's mother/father	<b>.30</b>	-.10
I felt obligated to have children	.22	.21
I did not know what parenting was really like	.20	-.12
I always wanted to have kids (r)	<b>.85</b>	-.02
I had very little patience	.18	.26
I experienced depression	.04	<b>.85</b>
I experienced anxiety	.09	<b>.65</b>
I was often exhausted	-.12	<b>.59</b>
I was often lonely	-.09	<b>.53</b>
I sometimes felt suicidal	-.06	<b>.64</b>
I had experience in childcare (e.g., babysitting) (r)	.15	-.14

Note. Bolded values represent the factor that item loads on.

Table 2A.

Factor loadings of 3 Factor model of Antecedents

Item	Factor 1	Factor 2	Factor 3
Before becoming a parent....	Antecedent Attitudes	Antecedent Emotions	Expectations
I did not want to have children	<b>.97</b>	.02	-.01
I only had children because of my partner's wishes	<b>.59</b>	-.21	.06
I thought having children would fix my relationship with my partner	-.06	.24	<b>.32</b>
I did not like children	<b>.60</b>	.18	.23
I had a poor relationship with my child's mother/father	.27	-.09	.11
I felt obligated to have children	.19	.22	.12
I did not know what parenting was really like	.02	-.04	<b>.92</b>
I always wanted to have kids (r)	<b>.88</b>	-.02	-.04
I had very little patience	.13	.29	.21
I experienced depression	.09	<b>.84</b>	-.17
I experienced anxiety	.10	<b>.64</b>	-.04
I was often exhausted	-.14	<b>.60</b>	.04
I was often lonely	-.15	<b>.57</b>	.22
I sometimes felt suicidal	-.09	<b>.65</b>	.09
I had experience in childcare (e.g., babysitting) (r)	.04	-.09	<b>.47</b>

Note. Bolded values represent the factor that item loads on.

Table 3A.

Factor loadings of 5 Factor model of Antecedents

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Before becoming a parent...					
I did not want to have children	<b>.94</b>	.01	-.01	.06	.02
I only had children because of my partner's wishes	<b>.53</b>	-.22	-.07	-.02	<b>.48</b>
I thought having children would fix my relationship with my partner	-.18	.20	.19	.13	<b>.47</b>
I did not like children	<b>.63</b>	.16	.27	.08	-.10
I had a poor relationship with my child's mother/father	.24	-.08	.05	-.04	.19
I felt obligated to have children	.12	.25	.03	-.04	<b>.40</b>
I did not know what parenting was really like	.03	-.09	<b>.78</b>	.08	.08
I always wanted to have kids (r)	<b>.89</b>	.02	.00	-.05	-.10
I had very little patience	.01	-.01	.00	<b>1.00</b>	.00
I experienced depression	.13	<b>.87</b>	-.16	-.01	-.06
I experienced anxiety	.12	<b>.61</b>	-.05	.09	-.08
I was often exhausted	-.16	<b>.54</b>	-.02	.14	.07
I was often lonely	-.15	<b>.61</b>	.22	-.08	.13
I sometimes felt suicidal	-.09	<b>.64</b>	.05	.02	.10
I had experience in childcare (e.g., babysitting) (r)	.09	-.05	<b>.65</b>	-.12	-.12

Note. Bolded values represent the factor that item loads on. Loadings less than .2 have been removed.

## Appendix B

Study 2 Parent Regret Scale alternative factor solutions for exploratory factor analyses

*Table 4A.*

Fit statistics of the 2 and 3 factor models for the Parental Regret Scale

Model	RMR	RMSEA	TLI	$R^2$
2 Factor Model	.09	.08	0.74	.33
3 Factor Model	.08	.08	0.75	.39

Table 5A.

Factor loadings for the 2-factor model of the Parental Regret Scale

Item	Factor 1	Factor 2
Loss of freedom to choose how I spend my time	<b>.71</b>	-.04
Loss of income	<b>.67</b>	-.04
Loss of freedom to chose how I spend my money	<b>.81</b>	.05
Loss of self/identity	<b>.61</b>	.07
Loss of career	<b>.59</b>	.03
Lack of emotional/practical support from partner	<b>.30</b>	-.06
Lack of emotional/practical support from family/friends	<b>.51</b>	.15
Relationship with partner has deteriorated	<b>.48</b>	<b>-.58</b>
Less time for intimacy with partner	<b>.49</b>	-.13
Parenting is not what I expected	<b>.38</b>	.28
My child is difficult to raise (e.g., has behavioral, mental health, or physical health issues)	.14	.06
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.23	<b>.43</b>
Bodily changes in myself	<b>.34</b>	-.12
Bodily changes in my partner	.22	-.25
Lack of parental instincts (e.g., no natural ease with children)	<b>.33</b>	<b>.42</b>
Lack of connection/closeness with my child(ren)	<b>.35</b>	<b>.44</b>
Unable to fulfill personal goals and dreams	<b>.80</b>	-.03
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	<b>.35</b>	<b>.46</b>

*Note.* Bolded values represent the factor that item loads on.

Table 6A.

Factor loadings for the 3-factor model of the Parental Regret Scale

Item	Factor 1	Factor 2	Factor 3
Loss of freedom to choose how I spend my time	<b>.61</b>	.09	.16
Loss of income	<b>.53</b>	.14	.19
Loss of freedom to chose how I spend my money	<b>.65</b>	.22	.17
Loss of self/identity	<b>.74</b>	-.09	-.09
Loss of career	<b>.75</b>	-.15	-.09
Lack of emotional/practical support from partner	.09	.19	.25
Lack of emotional/practical support from family/friends	<b>.50</b>	.11	-.04
Relationship with partner has deteriorated	.17	-.09	<b>.75</b>
Less time for intimacy with partner	<b>.34</b>	.08	.26
Parenting is not what I expected	.23	<b>.38</b>	-.02
My child is difficult to raise (e.g., has behavioral, mental health, or physical health issues)	-.14	<b>.39</b>	.20
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.11	<b>.45</b>	-.16
Bodily changes in myself	<b>.33</b>	-.08	.12
Bodily changes in my partner	-.11	.21	<b>.48</b>
Lack of parental instincts (e.g., no natural ease with children)	<b>.38</b>	.24	-.29
Lack of connection/closeness with my child(ren)	.00	<b>.83</b>	-.02
Unable to fulfill personal goals and dreams	<b>.77</b>	.01	.12
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	<b>.41</b>	.26	<b>-.30</b>

Note. Bolded values represent the factor that item loads on.

Table 7A.

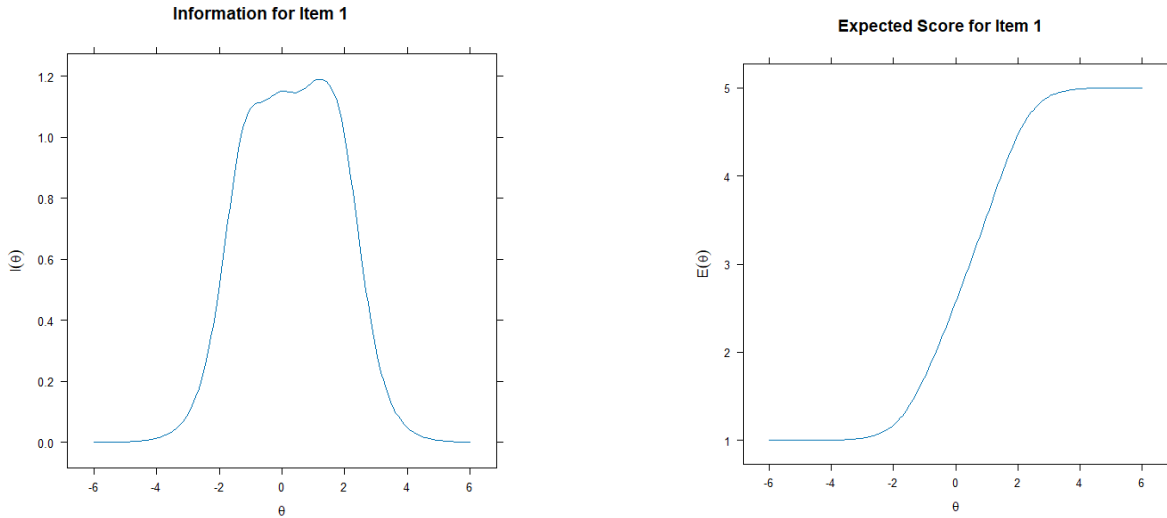
Fit statistics of the 2 and 3 factor models for the Parental  
Regret Scale

Model	RMR	RMSEA	TLI	$R^2$
1 Factor Model	.18	.14	0.42	.18
2 Factor Model	.09	.07	.85	.34
3 Factor Model	.06	.00	1.00	.43
5 Factor Model	.04	.00	1.01	.54

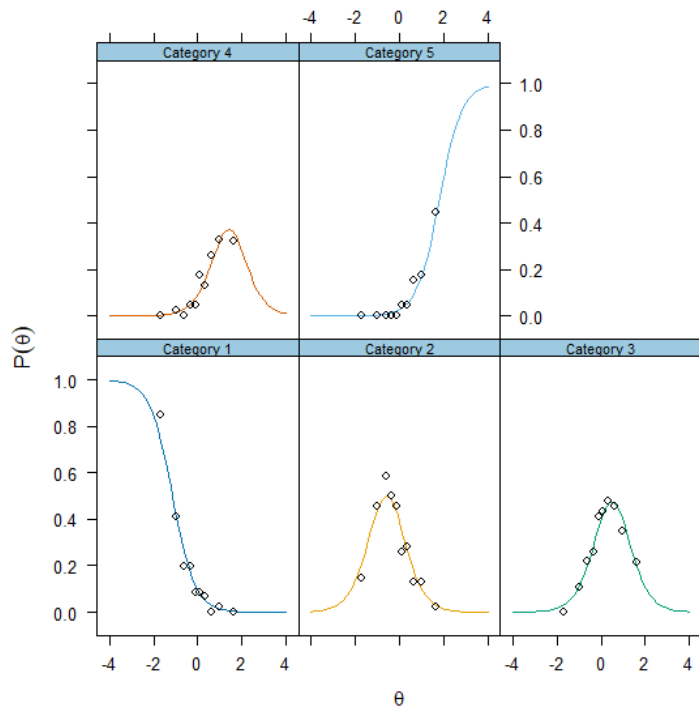
# Appendix C

## Study 3 IRT results for individual items

### Loss of freedom

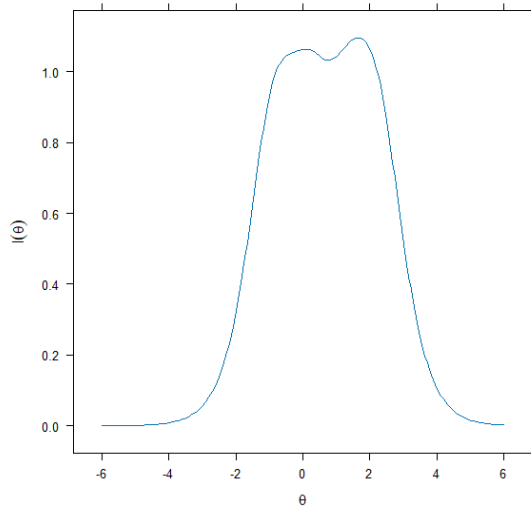


### Empirical plot for item 1

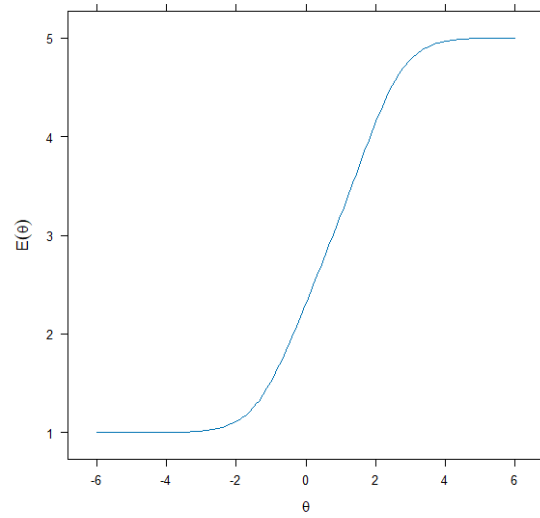


# Loss of income

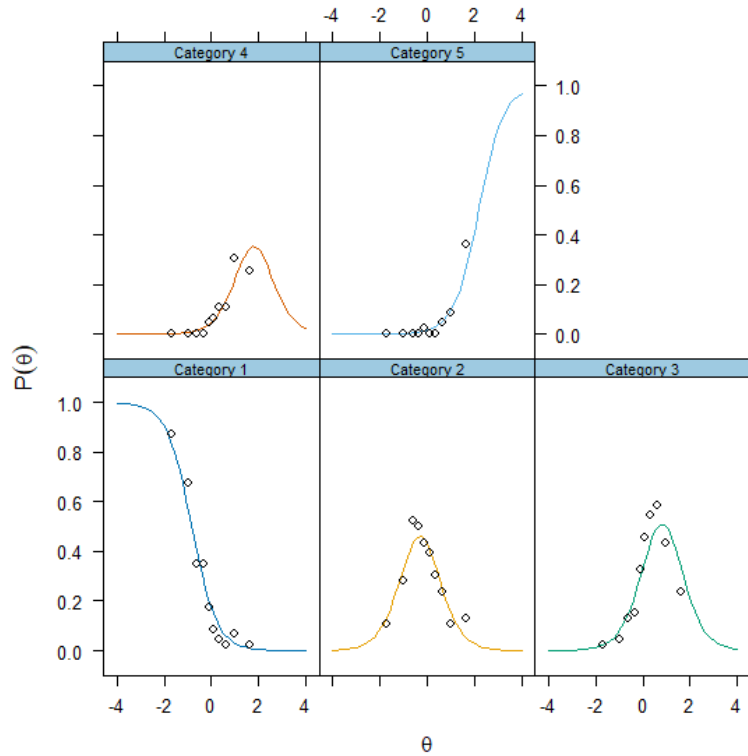
### Information for Item 2



### Expected Score for Item 2

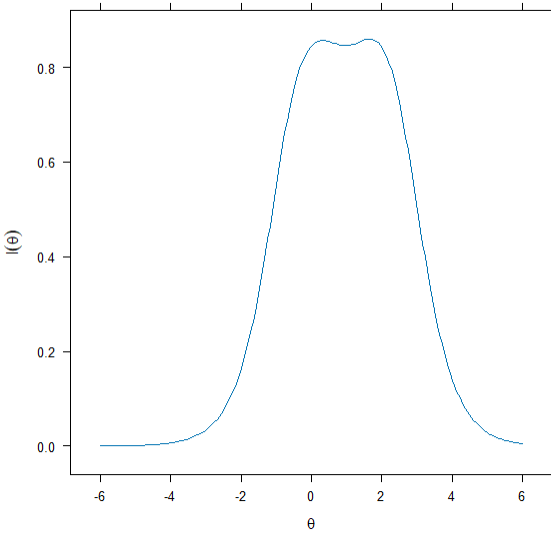


### Empirical plot for item 2

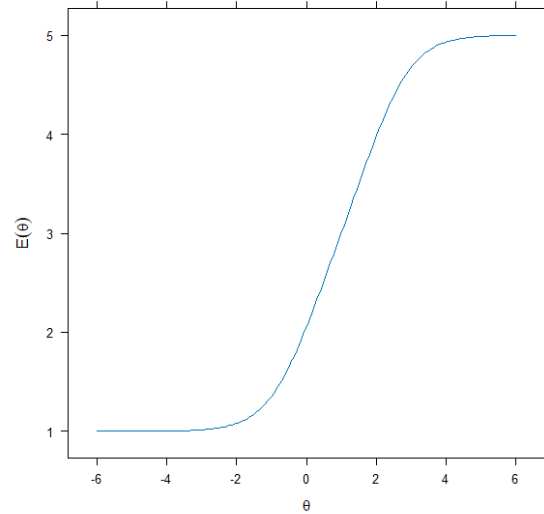


# Loss of freedom to choose how I spend my money

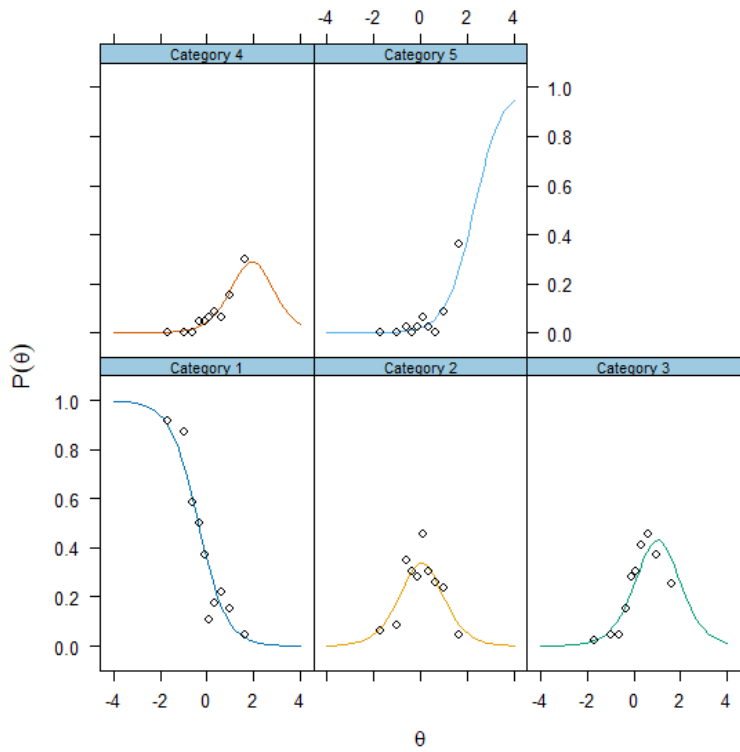
Information for Item 3



Expected Score for Item 3

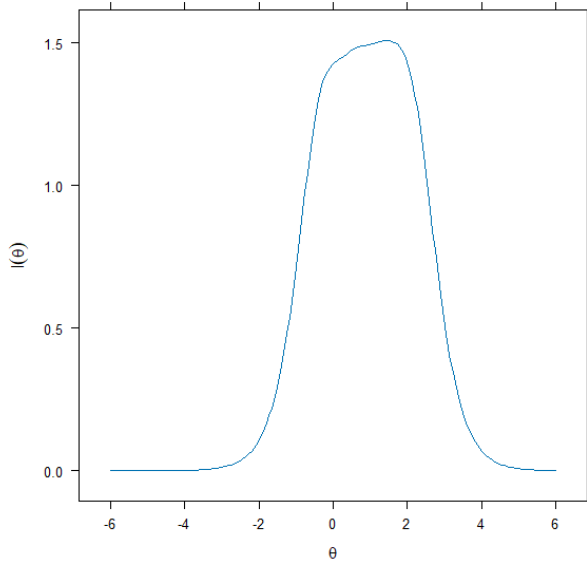


Empirical plot for item 3

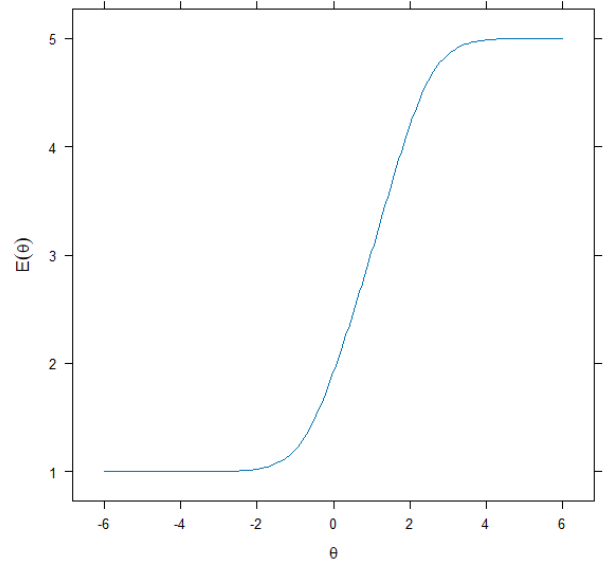


# Loss of self/identity

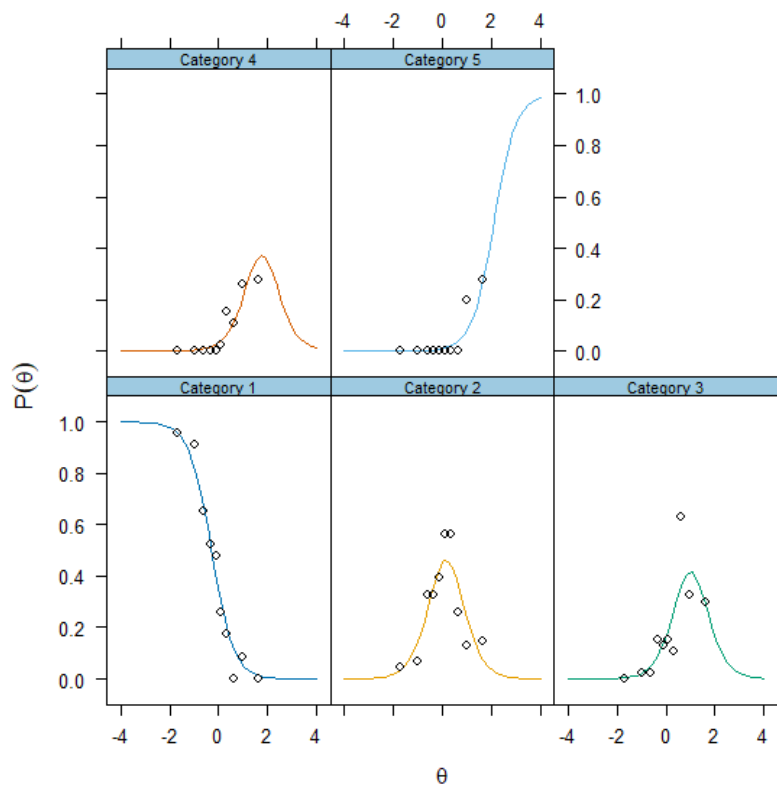
### Information for Item 4



### Expected Score for Item 4

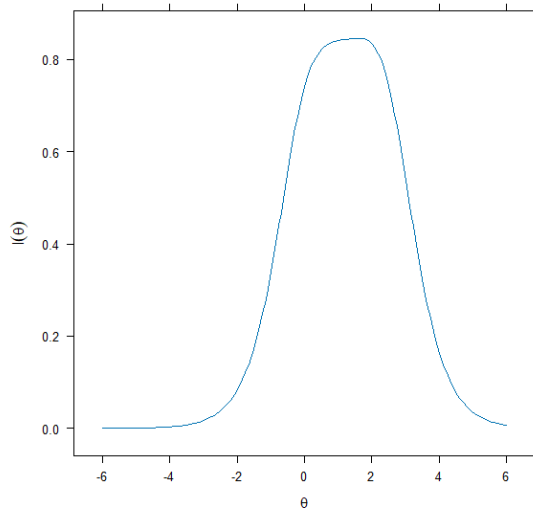


### Empirical plot for item 4

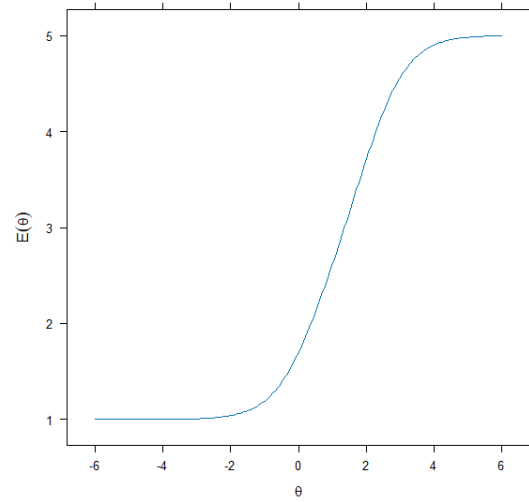


# Loss of career

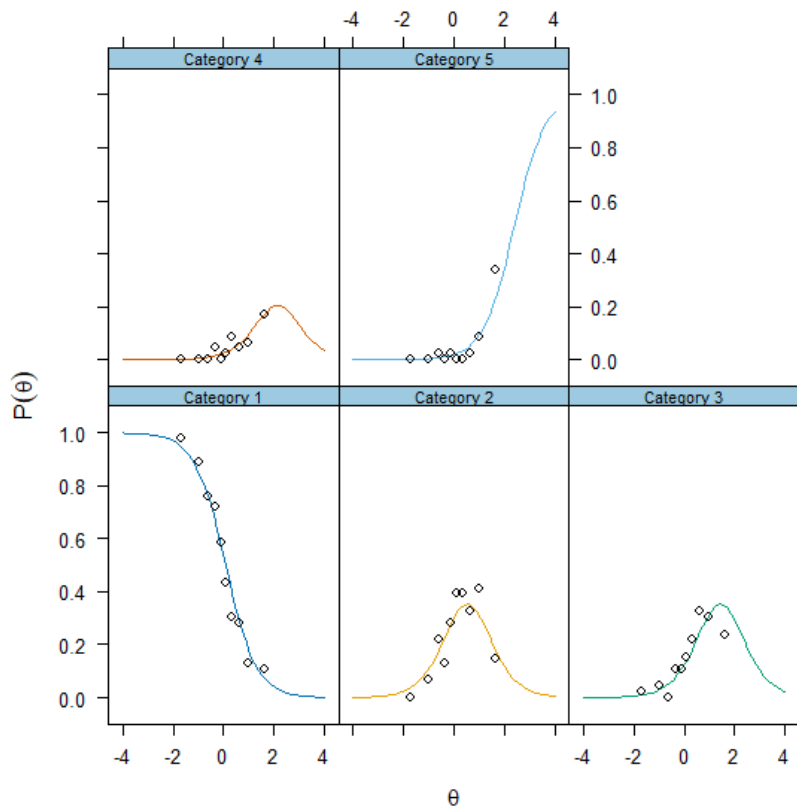
Information for Item 5



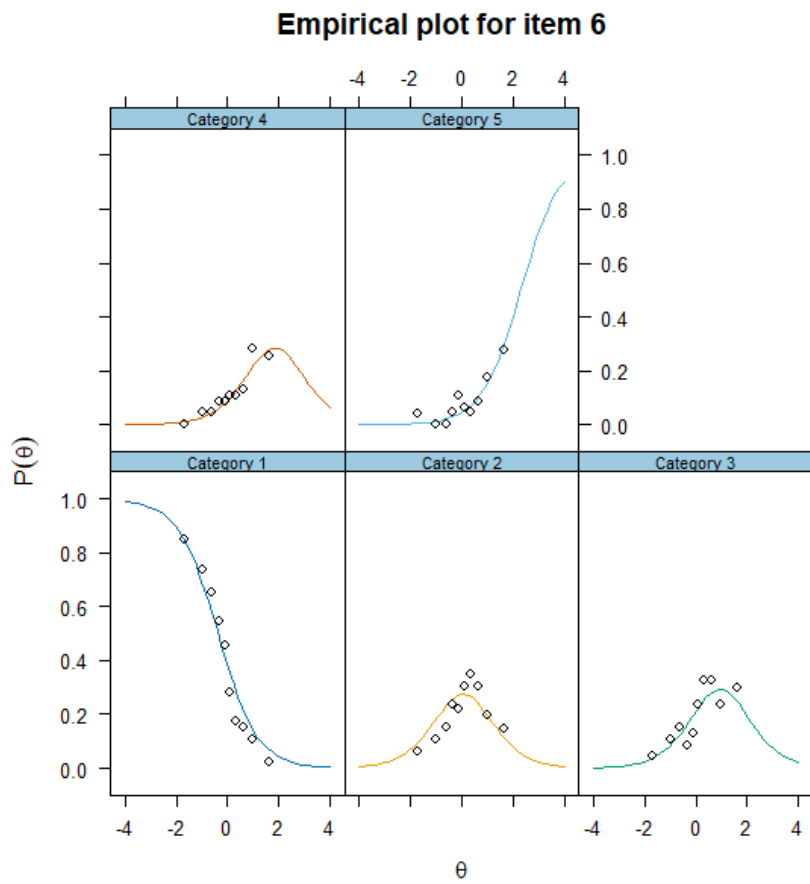
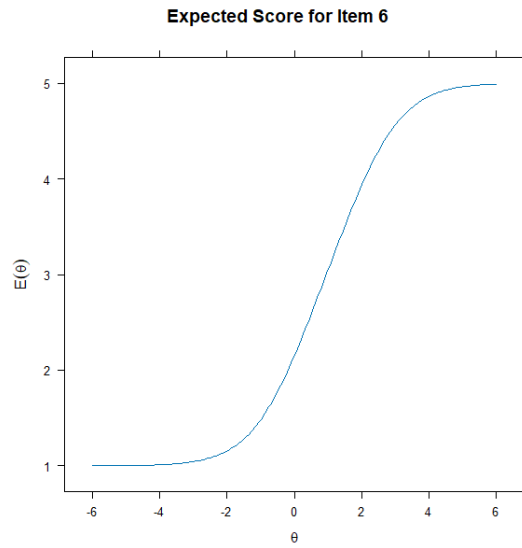
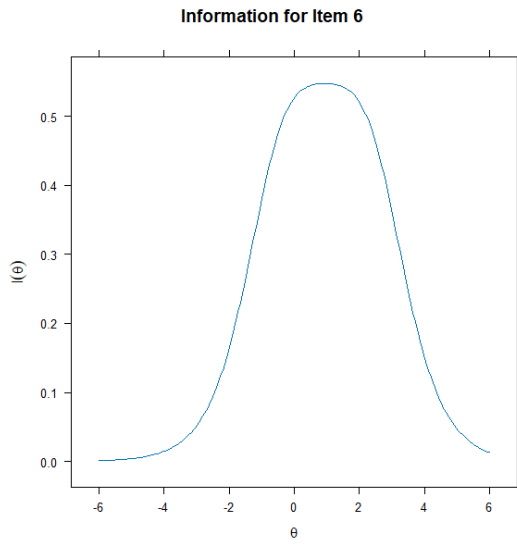
Expected Score for Item 5



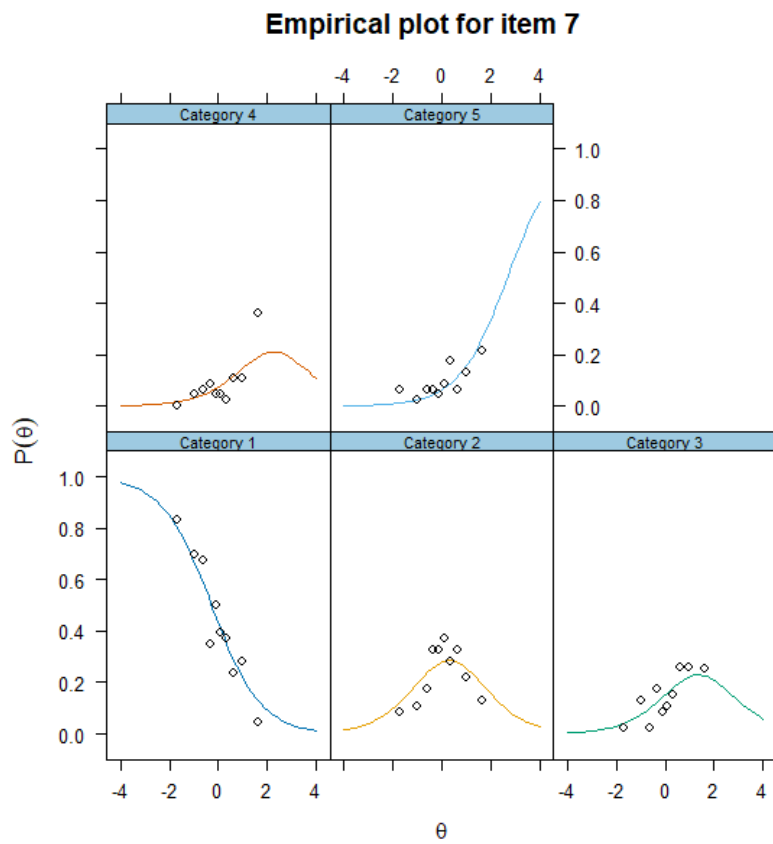
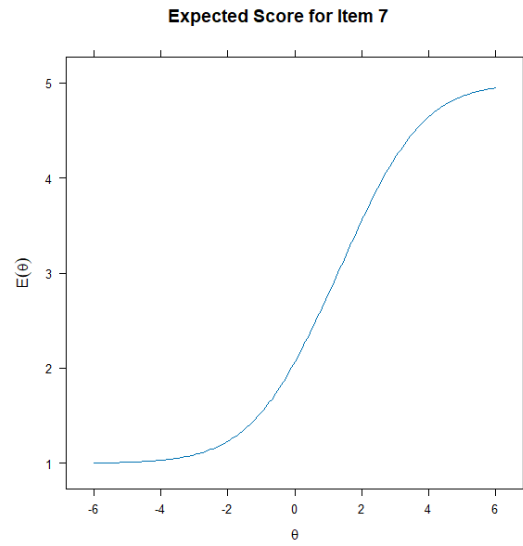
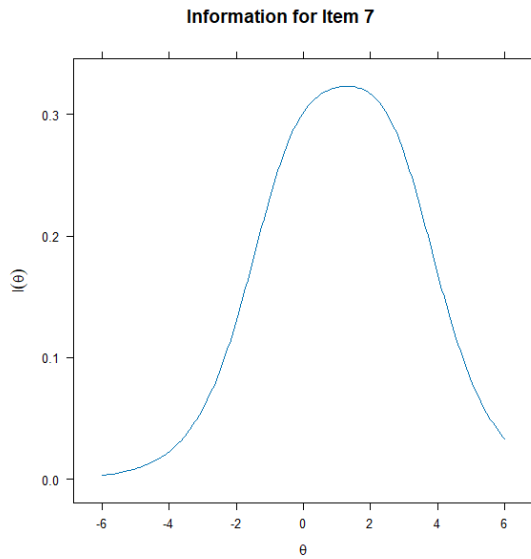
Empirical plot for item 5



Lack of motional/practical support from partner

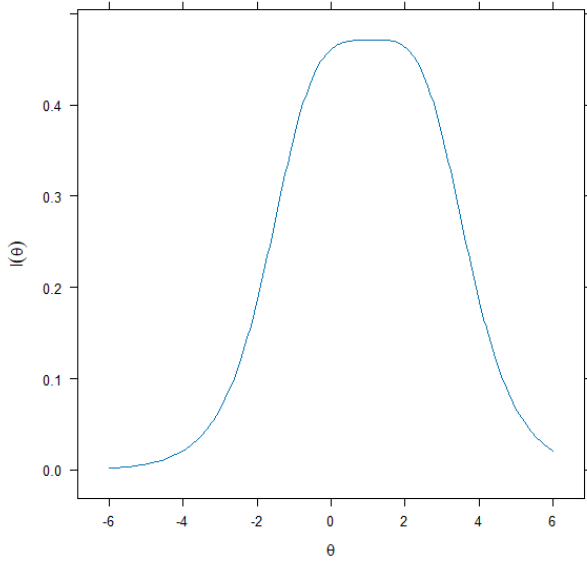


Lack of emotional/practical support from family/friends

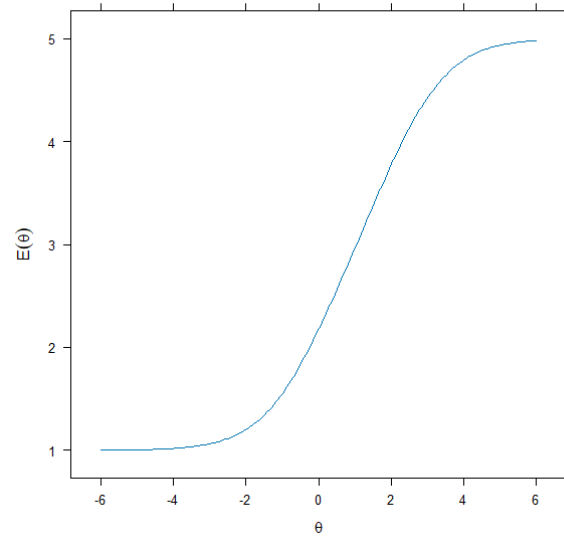


Relationship with partner has deteriorated

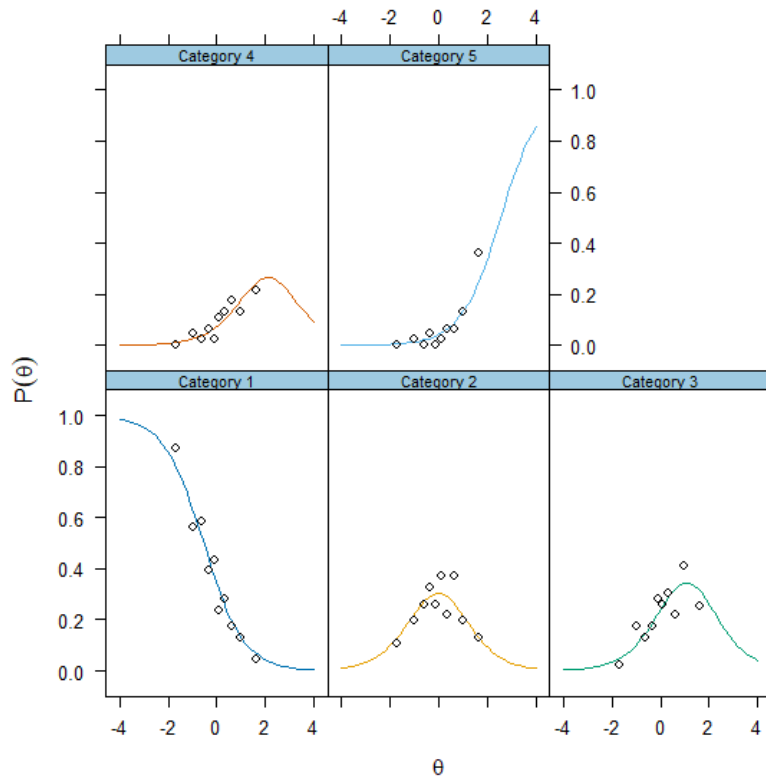
Information for Item 8



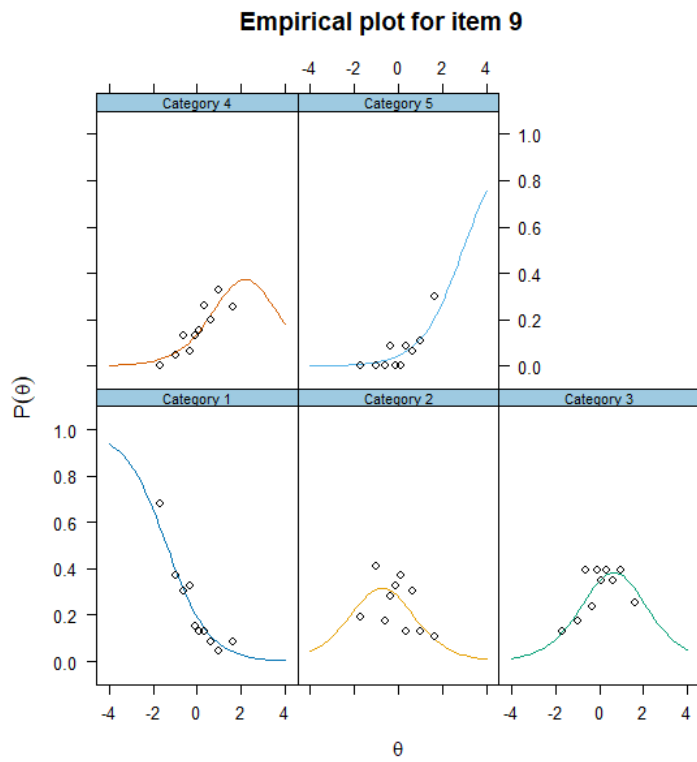
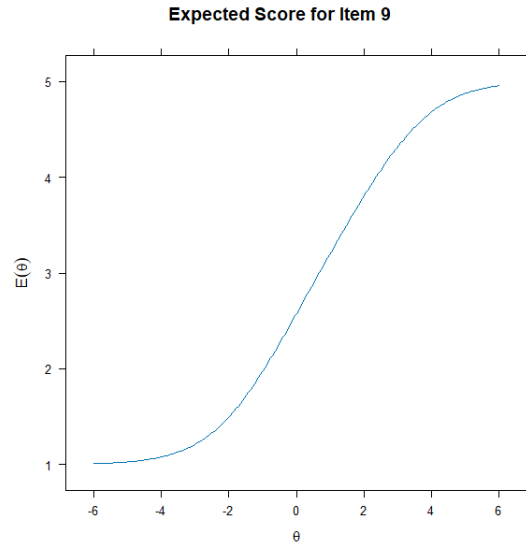
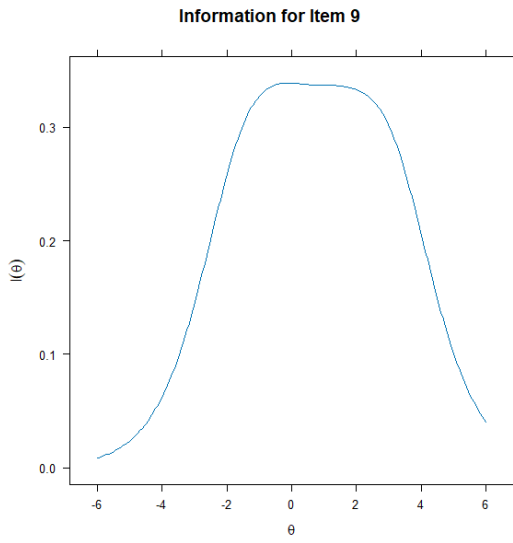
Expected Score for Item 8



Empirical plot for item 8

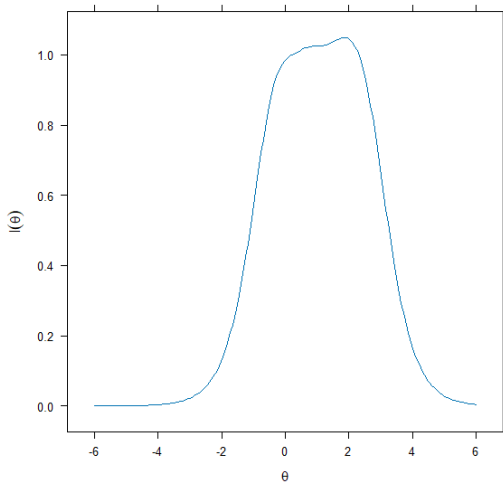


Less time for intimacy with Partner

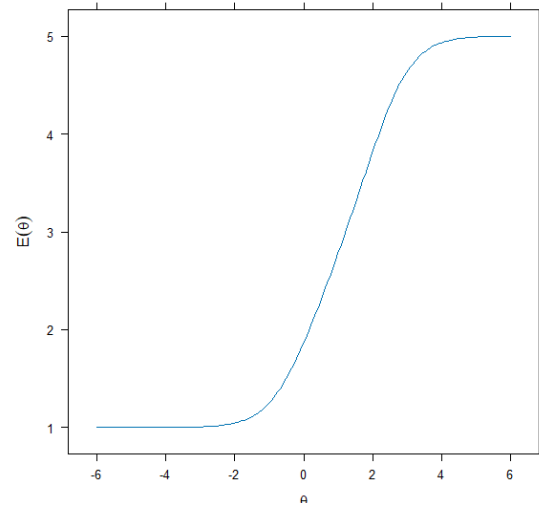


# Parenting is not what I expected

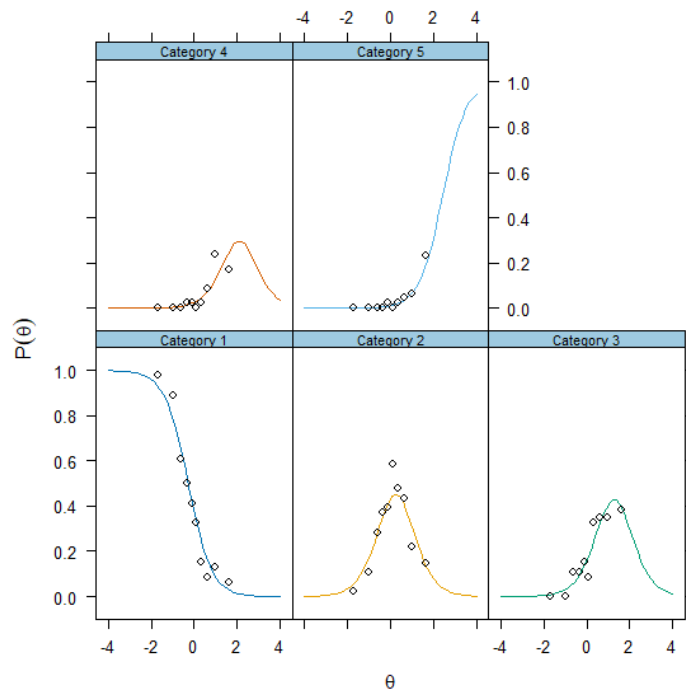
Information for Item 10



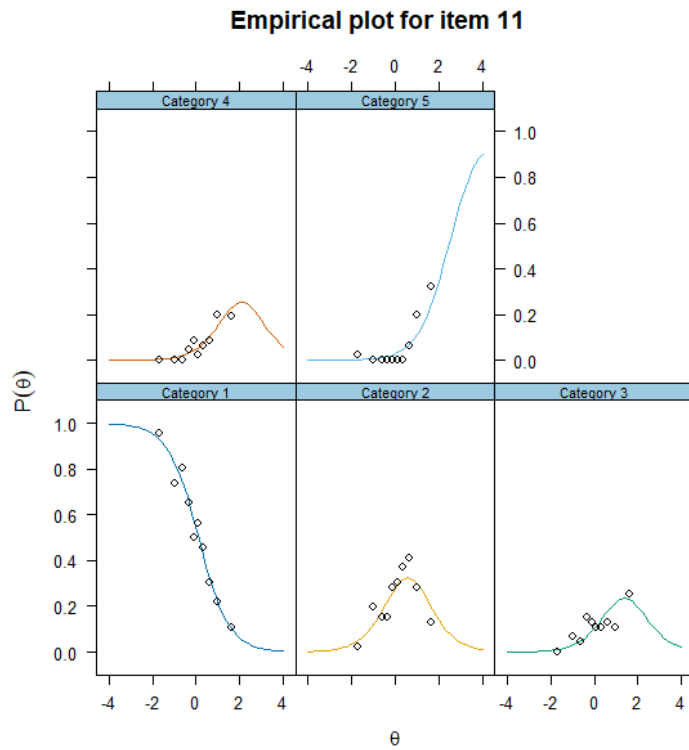
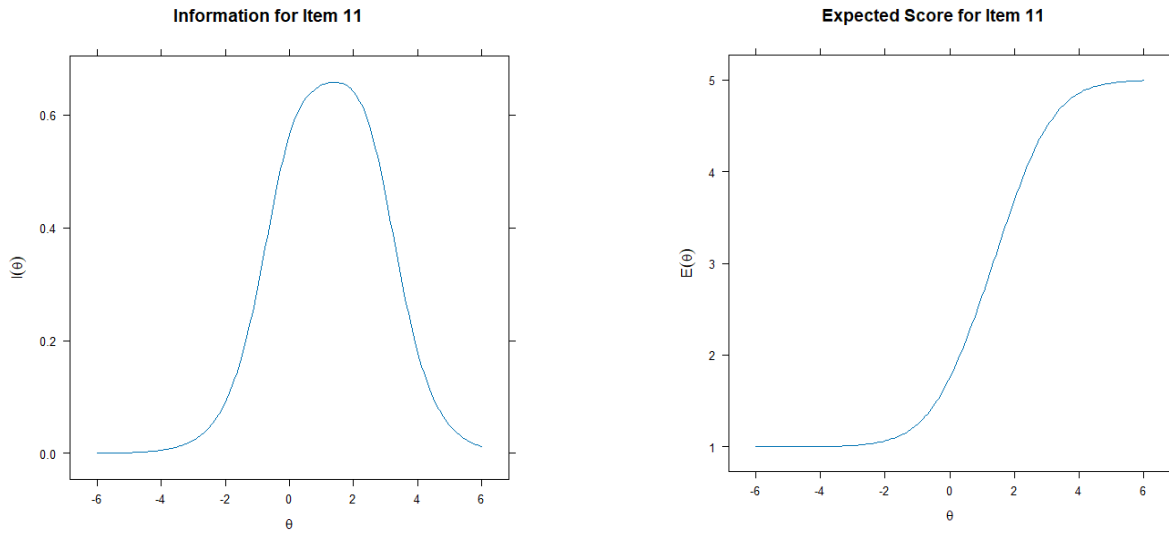
Expected Score for Item 10



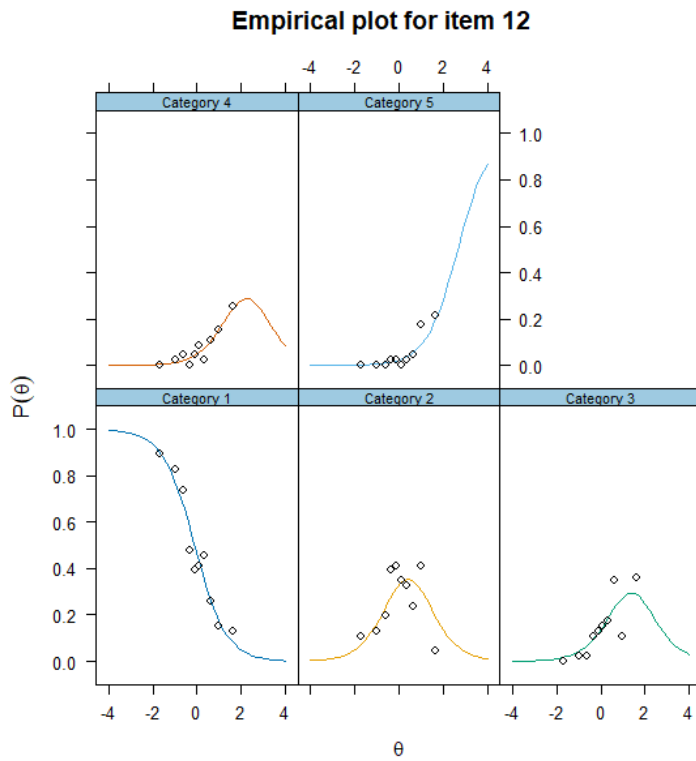
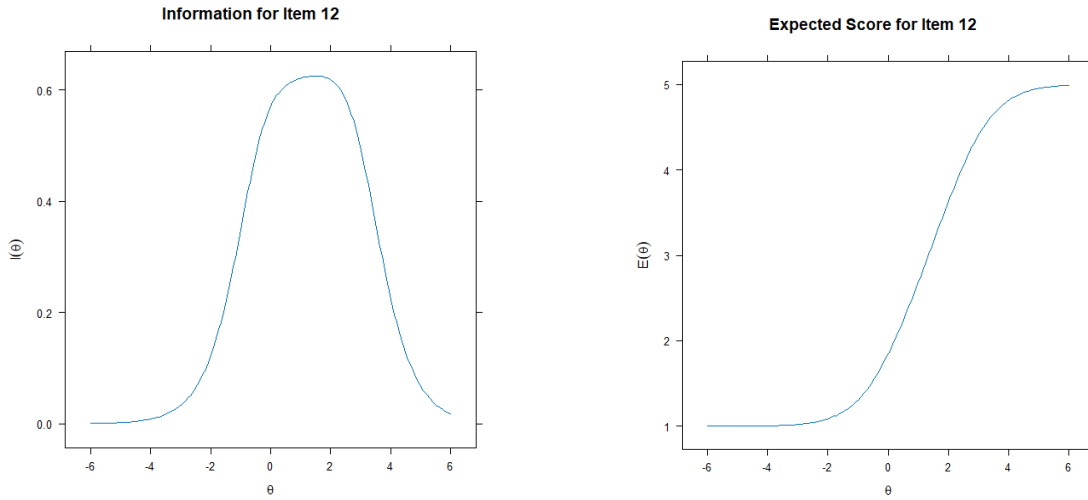
Empirical plot for item 10



My child is difficult to raise (e.g., has behavioral, mental health, or physical health issues)

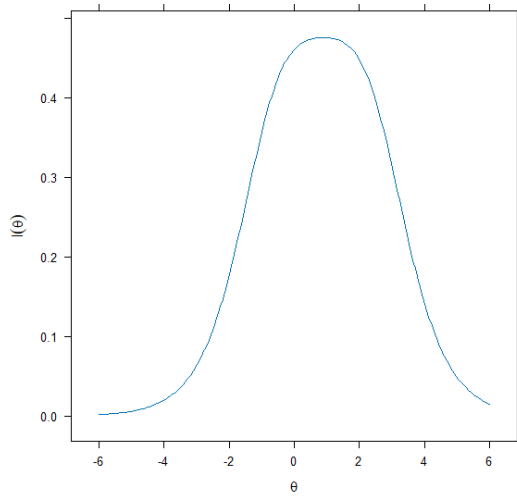


Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)

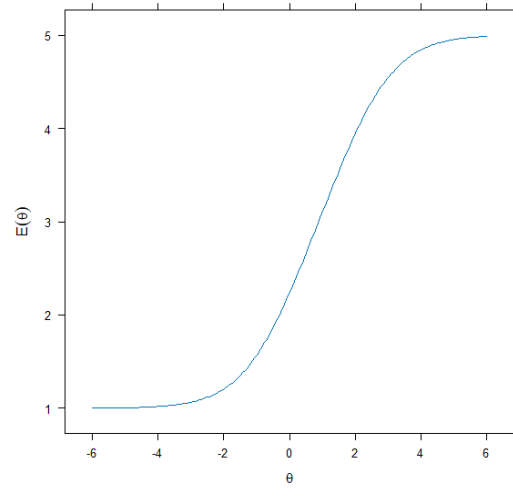


# Bodily changes in myself

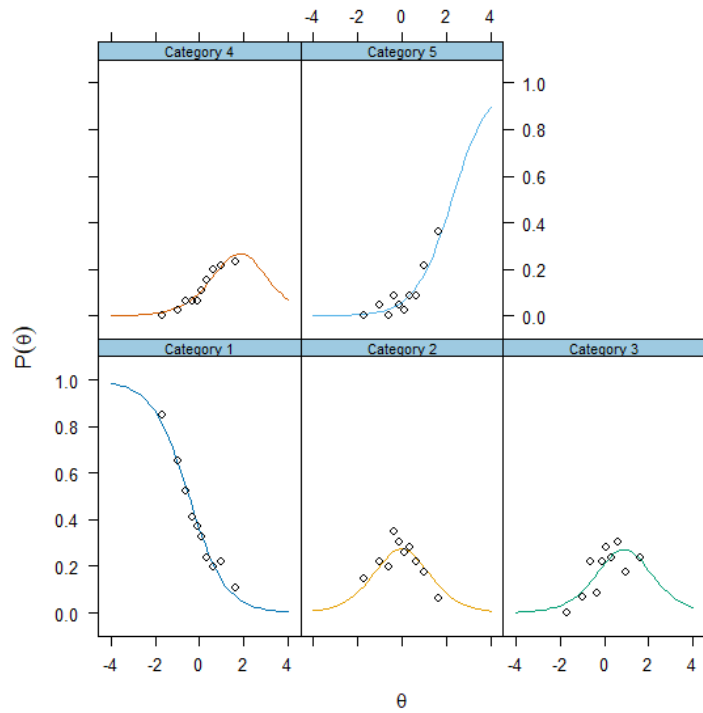
Information for Item 13



Expected Score for Item 13

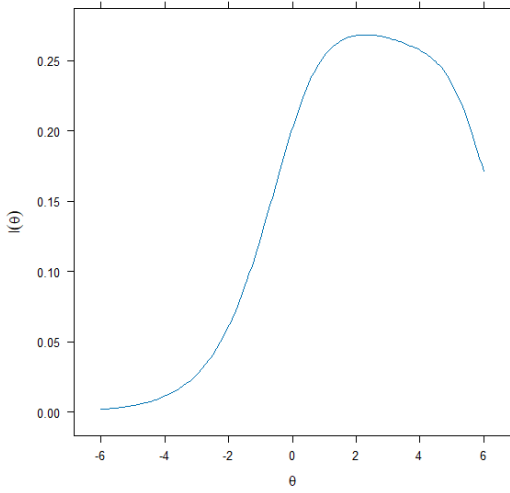


Empirical plot for item 13

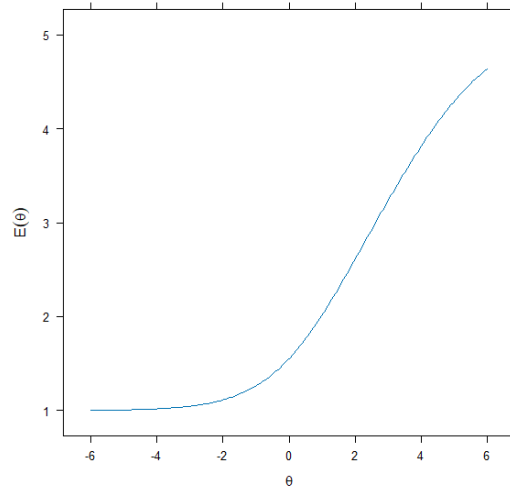


# Bodily changes in my partner

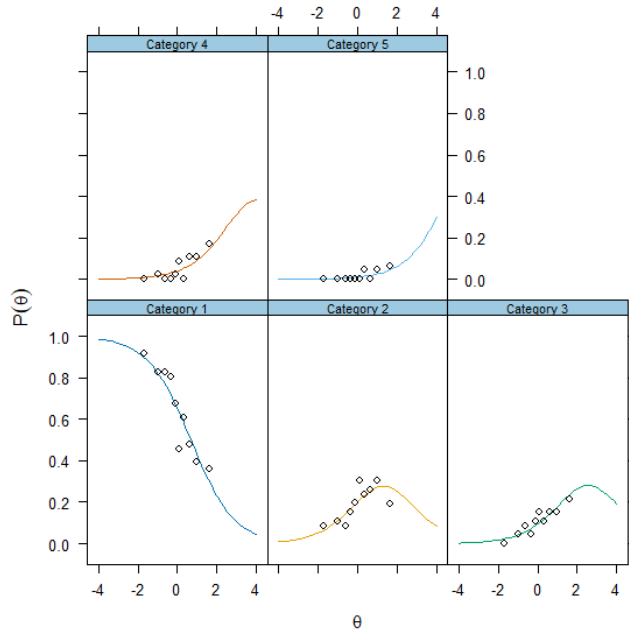
Information for Item 14



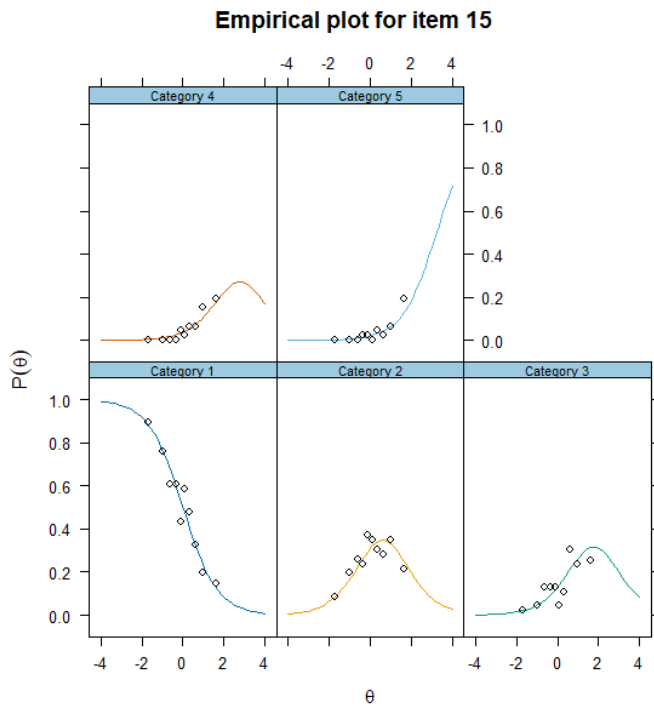
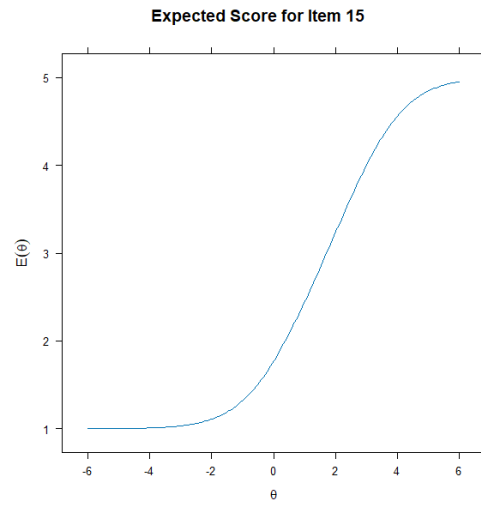
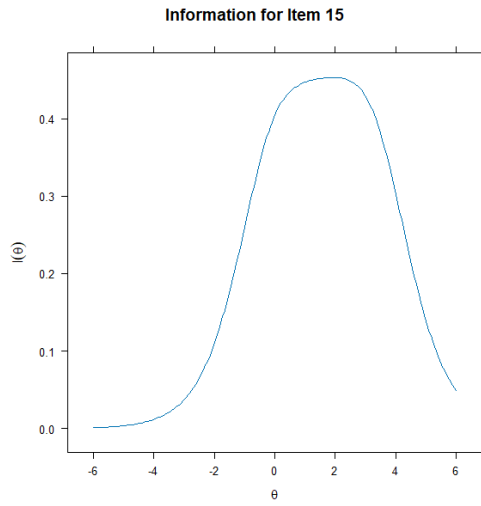
Expected Score for Item 14



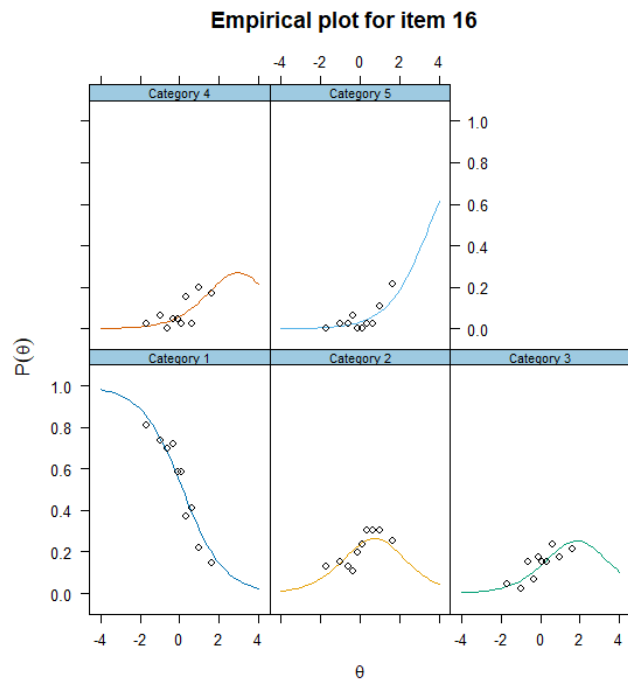
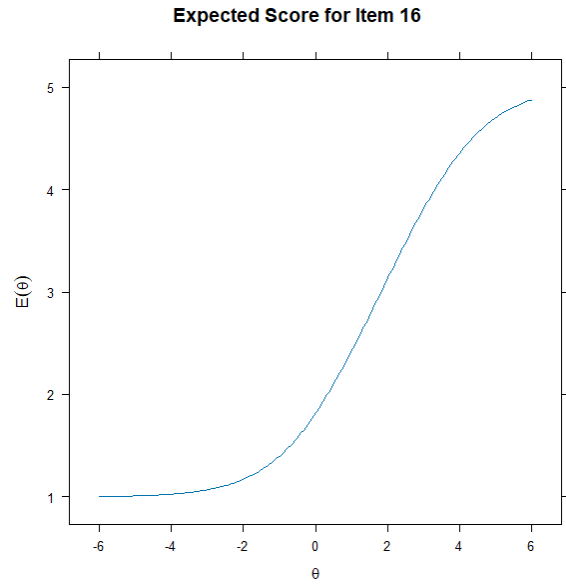
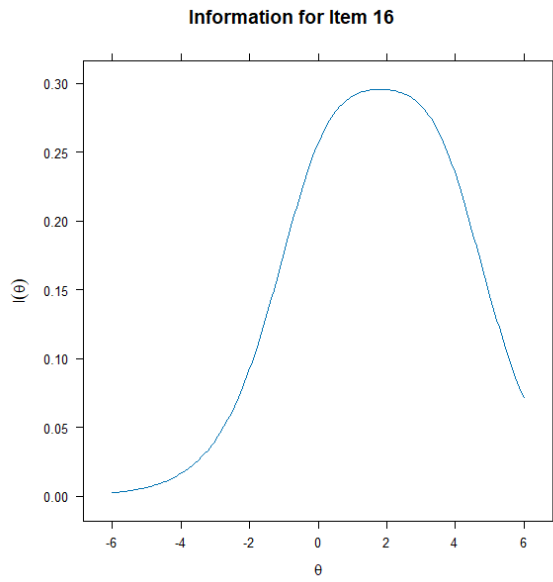
Empirical plot for item 14



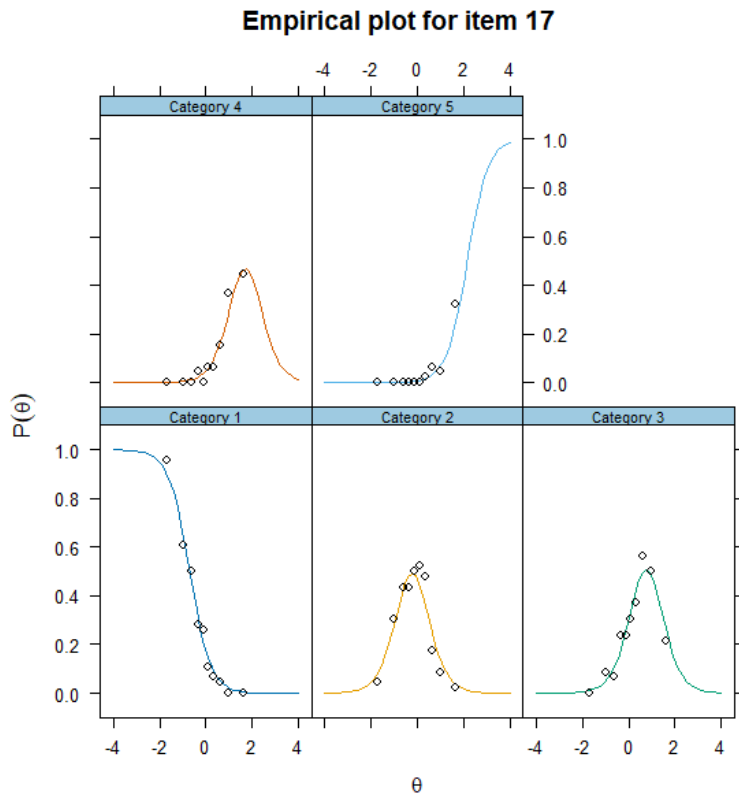
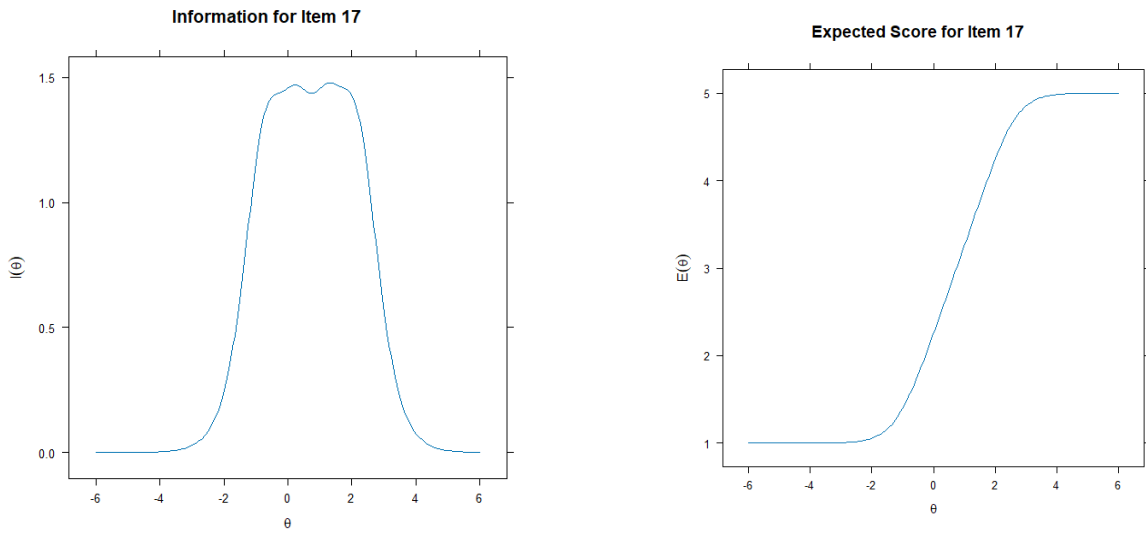
Lack of parental instincts (e.g., no natural ease with children)



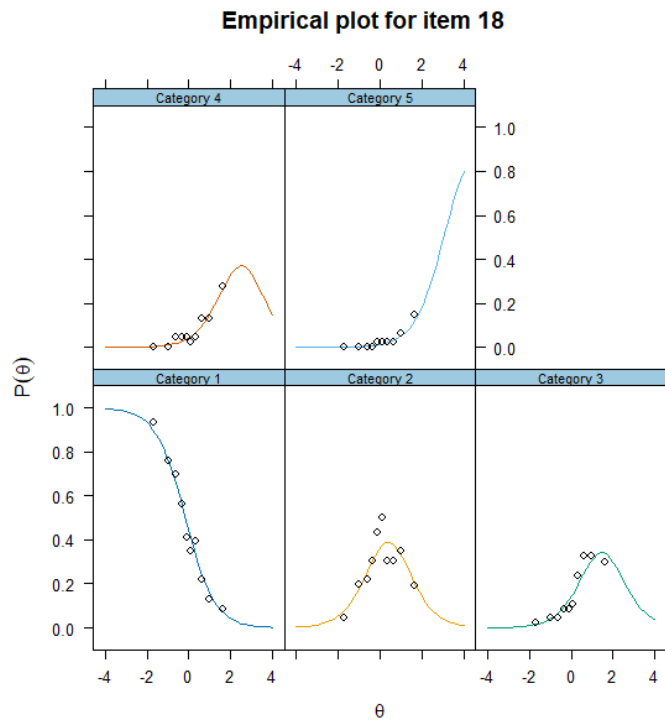
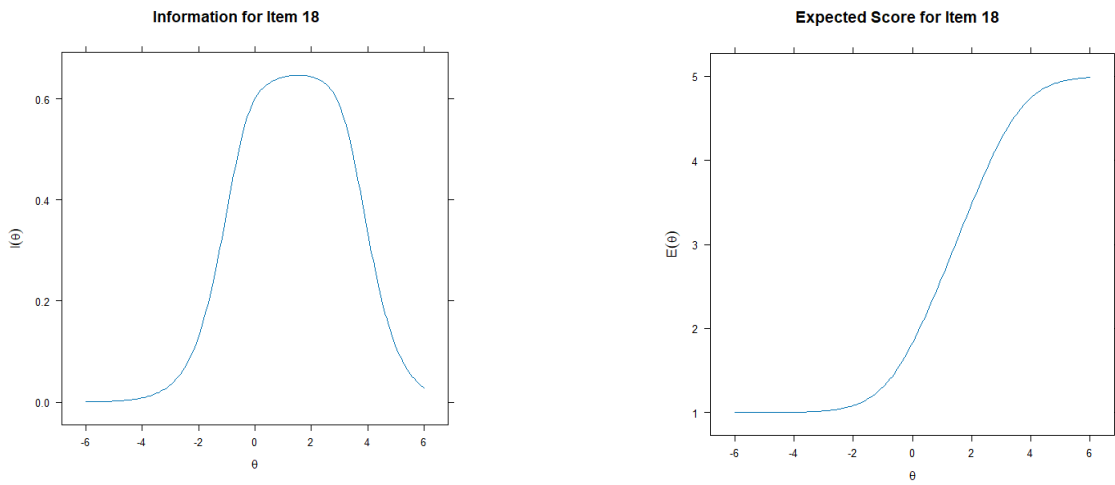
Lack of connection/closeness with my child(ren)



Unable to fulfill personal goals and dreams



Feeling judged by others regarding my parenting choices (e.g., by family, by society)



## Appendix D

### Study 3 Parent Regret Scale alternative factor solutions for exploratory factor analyses

*Table 8A.*

Factor loadings for the 1 factor model of the Parental Regret Scale

Item	Factor 1
Loss of freedom to choose how I spend my time	.68
Loss of freedom to chose how I spend my money	.66
Loss of income	.62
Loss of self/identity	.73
Loss of career	.60
Lack of emotional and practical support from family/friends	.57
Lack of emotional and practical support from child's other parent	.46
Relationship with partner has deteriorated	.56
Less time for intimacy with partner	.46
Parenting is not what I expected	.65
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	.58
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.59
Bodily changes in myself	.51
Bodily changes in my partner	.39
Lack of parental instincts (e.g., no natural ease with children)	.53
Lack of connection/closeness with my child(ren)	.46
Unable to fulfill personal goals and dreams	.74
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	.58

*Note.* Bolded values represent those that load at greater than .2

Table 9A.

Factor loadings for the 2-factor model of the Parental Regret Scale

Item	Factor 1	Factor 2
Loss of freedom to choose how I spend my time	.81	-.07
Loss of freedom to chose how I spend my money	.76	-.04
Loss of income	.63	.05
Loss of self/identity	.57	.22
Loss of career	.49	.16
Lack of emotional and practical support from family/friends	.57	.57
Lack of emotional and practical support from child's other parent	-.12	.69
Relationship with partner has deteriorated	.29	.33
Less time for intimacy with partner	.61	-.12
Parenting is not what I expected	.37	.36
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	.14	.53
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.10	.59
Bodily changes in myself	.50	.06
Bodily changes in my partner	.43	-.01
Lack of parental instincts (e.g., no natural ease with children)	.12	.50
Lack of connection/closeness with my child(ren)	-.10	.65
Unable to fulfill personal goals and dreams	.68	.13
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	.17	.49

Table 10A.

Factor loadings for the 3-factor model of the Parental Regret Scale

Item	Factor 1	Factor 2	Factor 3
Loss of freedom to choose how I spend my time	.75	.07	-.20
Loss of freedom to chose how I spend my money	.75	-.03	-.04
Loss of income	.73	-.15	.18
Loss of self/identity	.61	.17	.06
Loss of career	.63	-.10	.27
Lack of emotional and practical support from family/friends	.25	.30	.35
Lack of emotional and practical support from child's other parent	.06	.34	.47
Relationship with partner has deteriorated	.31	.38	-.03
Less time for intimacy with partner	.52	.14	-.37
Parenting is not what I expected	.39	.35	.05
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	.26	.34	.26
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.22	.38	.27
Bodily changes in myself	.53	.00	.05
Bodily changes in my partner	.36	.18	-.24
Lack of parental instincts (e.g., no natural ease with children)	.07	.68	-.08
Lack of connection/closeness with my child(ren)	-.11	.74	.05
Unable to fulfill personal goals and dreams	.69	.10	.02
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	.30	.26	.30

Table 11A.

Factor loadings for the 5-factor model of the Parental Regret Scale

Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Loss of freedom to choose how I spend my time	.50	.14	.13	.21	-.29
Loss of freedom to chose how I spend my money	.62	.04	.06	.12	-.14
Loss of income	.74	-.13	.01	.04	.11
Loss of self/identity	.46	.15	.17	.14	-.01
Loss of career	.71	-.10	.00	-.02	.21
Lack of emotional and practical support from family/friends	.17	.09	.32	.09	.35
Lack of emotional and practical support from child's other parent	.15	.15	.20	-.05	.53
Relationship with partner has deteriorated	.07	.20	-.02	.51	.35
Less time for intimacy with partner	.01	-.04	.01	.85	-.04
Parenting is not what I expected	.39	.46	.11	-.09	-.15
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	.35	.35	.11	-.13	.13
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.17	.25	.29	.01	.19
Bodily changes in myself	.33	-.06	.30	.12	-.08
Bodily changes in my partner	.15	.13	-.04	.33	-.05
Lack of parental instincts (e.g., no natural ease with children)	-.03	.69	.10	.07	-.08
Lack of connection/closeness with my child(ren)	-.06	.67	-.03	.06	.22
Unable to fulfill personal goals and dreams	.67	.19	-.03	.06	-.05
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	-.04	-.01	.93	-.01	.01

Table 12A.

Factor loadings for the 6-factor model of the Parental Regret Scale						
Item	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Loss of freedom to choose how I spend my time	.21	.15	.08	-.04	.46	.27
Loss of freedom to chose how I spend my money	.46	.09	.00	.01	.26	.19
Loss of income	.78	.02	-.04	.01	-.03	.07
Loss of self/identity	.24	.19	.24	-.04	.36	.00
Loss of career	.68	.01	.09	-.04	.05	-.11
Lack of emotional and practical support from family/friends	.24	.39	.16	.16	-.14	-.08
Lack of emotional and practical support from child's other parent	.23	.26	.26	.17	-.16	-.32
Relationship with partner has deteriorated	-.03	-.02	.96	.01	.00	.02
Less time for intimacy with partner	.07	.04	.38	.01	.02	.52
Parenting is not what I expected	.10	.11	.02	.21	.54	-.08
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	.21	.11	.10	.21	.28	-.24
Reliving own childhood difficulties through my child (e.g., racism, bullying, etc.)	.17	.35	.04	.27	.00	-.05
Bodily changes in myself	.24	.35	-.02	-.05	.07	.20
Bodily changes in my partner	.18	.01	.02	.27	-.07	.43
Lack of parental instincts (e.g., no natural ease with children)	-.16	.14	.05	.50	.31	.07
Lack of connection/closeness with my child(ren)	.01	-.03	.02	.82	-.02	.01
Unable to fulfill personal goals and dreams	.49	-.02	.06	.12	.33	.06
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	-.05	.87	-.03	-.02	.03	.01

## Appendix E

### Study 3 Antecedent alternative factor solutions for exploratory factor analyses

Table 13A.

Factor loadings for the 1-factor model of antecedents

Item	Factor 1
Before becoming a parent....	
I did not want to have children	.70
I only had children because of my partner's wishes	.45
I did not like children	.58
I felt like I did not have a choice to have children	.34
I did not know what parenting was really like	.34
I always wanted to have kids	-.58
I had very little patience	.30
I experienced depression	.54
I experienced anxiety	.41
I was often exhausted	.30
I was often lonely	.43
I sometimes felt suicidal	.46
I had experience in childcare (e.g., babysitting) (r)	-.11

Table 14A.

Factor loadings for the 2-factor model of antecedents

Item	Factor 1	Factor 2
Before becoming a parent...		
I did not want to have children	.88	.04
I only had children because of my partner's wishes	.56	-.02
I did not like children	.62	.08
I felt like I did not have a choice to have children	.32	.08
I did not know what parenting was really like	.27	.14
I always wanted to have kids	-.82	.08
I had very little patience	.12	.27
I experienced depression	.00	.87
I experienced anxiety	-.04	.67
I was often exhausted	-.05	.49
I was often lonely	.05	.55
I sometimes felt suicidal	.05	.60
I had experience in childcare (e.g., babysitting) (r)	-.21	.10

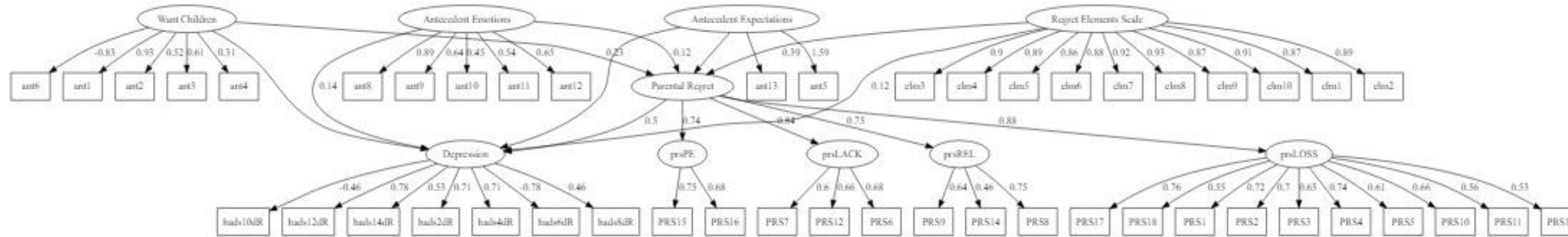
Table 15A.

Factor loadings for the 4-factor model of antecedents

Item	Factor 1	Factor 2	Factor 3	Factor 4
Before becoming a parent...				
I did not want to have children	.05	.94	.04	-.06
I only had children because of my partner's wishes	-.06	.36	.33	.08
I did not like children	.06	.46	.08	.27
I felt like I did not have a choice to have children	.00	.00	.74	-.02
I did not know what parenting was really like	.12	.06	-.03	.49
I always wanted to have kids	.06	-.85	.06	-.07
I had very little patience	.25	-.02	.09	.18
I experienced depression	.88	.03	-.04	-.01
I experienced anxiety	.67	-.03	-.02	.01
I was often exhausted	.48	-.06	.08	-.04
I was often lonely	.52	-.09	.12	.16
I sometimes felt suicidal	.61	.06	.04	-.05
I had experience in childcare (e.g., babysitting) (r)	.14	-.01	.00	-.43

## Appendix F

### Study 3 SEM results with Regret Elements Scale included



The model predicting depression, including the Regret Element Scale (RES) shows ok fit (SRMR = .06, RMSEA = .07, CFI = .84, TLI = .82).

Parental regret still predicts depression ( $\beta = .42$ , CI [.30, .55],  $p < .001$ ) as does the RES ( $\beta = .05$ , CI [.01, .10],  $p = .02$ ). The RES is also the strongest predictors of parental regret ( $\beta = .19$ , CI [.14, .25],  $p < .001$ ).

The model predicting anxiety failed to converge and, as a result, results are not reported.

## Appendix G

### Modifications for Study 3 Structural Equation Models

Modifications for model predicting depression

<b>Items Contributing to an Additional Factor</b>	
<i>PRS Item</i>	<i>PRS Factor</i>
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	Lack of Support
Less time for intimacy with my partner	Lack of Support
Parenting is not what I expected	Parenting Expectations
<b>Covarying Items</b>	
<i>PRS Item</i>	<i>PRS Item</i>
Lack of emotional/practical support from family/friends	Less time for intimacy with partner
Lack of emotional/practical support from family/friends	Relationship with partner has deteriorated
Loss of freedom to choose how I spend my money	Loss of career
Loss of freedom to choose how I spend my time	Loss of income
Loss of freedom to choose how I spend my time	Less time for intimacy with my partner
Loss of freedom to choose how I spend my time	Lack of emotional/practical support from family/friends
Parenting is not what I expected	Lack of parental instincts
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	Less time for intimacy with my partner
<i>Antecedent Item</i>	<i>Antecedent Item</i>
I did not want to have children	I always wanted to have kids
I only had children because of my partner's wishes	I felt obligated to have children

Modifications for model predicting anxiety

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**Items Contributing to Additional Factor**

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<i>PRS/HADS Item</i>	<i>PRS Factor</i>
Feeling judged by others regarding my parenting choices (e.g., by family, by society)	Lack of Support
Less time for intimacy with my partner	Lack of Support
Loss of freedom to choose how I spend my time	Lack of Support
Relationship with partner has deteriorated	Lack of Support
Parenting is not what I expected	Parenting Expectations
HADS(I get sudden feelings of panic)	Parental Regret

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**Covarying Items**

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<i>PRS Item</i>	<i>PRS Item</i>
Lack of emotional/practical support from family/friends	Less time for intimacy with partner
Lack of emotional/practical support from family/friends	Relationship with partner has deteriorated
Loss of freedom to choose how I spend my money	Loss of career
Loss of freedom to choose how I spend my time	Loss of income
Loss of freedom to choose how I spend my time	Less time for intimacy with my partner
Loss of freedom to choose how I spend my time	Relationship with partner has deteriorated
Parenting is not what I expected	Lack of parental instincts
Parenting is not what I expected	Loss of freedom to choose how I spend my time
My child is difficult to raise (e.g., has behavioural, mental health, or physical health issues)	Less time for intimacy with my partner

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<i>Antecedent Item</i>	<i>Antecedent Item</i>
I did not want to have children	I always wanted to have kids
I only had children because of my partner's wishes	I felt obligated to have children

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***HADS Item***

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***HADS Item***

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I feel tense or 'wound up'

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I can sit at ease and feel relaxed

I get a sort of frightened feeling like  
'butterflies in the stomach'

I get sudden feelings of panic

I can sit at ease and feel relaxed

I feel restless as if I have to be on the  
move

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