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Parenting, self-regulation and childhood anxiety: A Self-Determination Theory perspective

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Résumé

Le contrôle psychologique parental est un facteur de risque réputé pour les problèmes intériorisés des enfants (p. ex., Affrunti & Ginsburg, 2011; McLeod, Wood & Weisz, 2007). Selon la Théorie de l'auto-détermination, le contrôle psychologique mène aux problèmes intériorisés (Ryan, Deci, Grolnick, & La Guardia, 2006) car il brime le besoin fondamental d'autonomie. En effet, recevoir de la pression afin de penser, se comporter et se sentir d'une certaine façon (Ryan, 1982) semble favoriser une régulation trop rigide et surcontrôlée (Ryan et al., 2006). Suite aux travaux de Soenens et Vansteenkiste (2010), la distinction conceptuelle entre deux formes de contrôle psychologique, soit manifestes (p. ex., les menaces, forcer physiquement) et dissimulées (p. ex., la surprotection, le marchandage), ont été utilisées pour évaluer le style parental (Étude 1) et les pratiques disciplinaires (Étude 2).

Le contrôle psychologique parental et le soutien de l'autonomie (Étude 2) ont été mesurés durant la petite enfance puisque (1) les problèmes intériorisés émergent tôt, (2) le développement du sentiment d'autonomie est central au cours de cette période, et (3) attire probablement plus de contrôle psychologique parental. Avec ses deux articles, la présente thèse vise à clarifier la façon dont le contrôle psychologique manifeste et dissimulé est lié au développement précoce de problèmes intériorisés.

L'étude 1 est une étude populationnelle examinant l'impact relatif du style parental sur des trajectoires développementales d'anxiété (N = 2 120 enfants; de 2,5 à 8 ans) avec de nombreux facteurs de risque potentiels provenant de l'enfant, de la mère et de la famille, tous mesurés au cours de la petite enfance. Les résultats ont montré qu'en

plus de la timidité des enfants, de la dépression maternelle et du dysfonctionnement familial, le contrôle psychologique manifeste (c.-à-d., coercitif) et dissimulé (c.-à-d., la surprotection) augmentent le risque, pour les enfants, de suivre une trajectoire d'anxiété élevée. Une interaction entre la dépression maternelle et le contrôle dissimulé a été trouvée, ce qui indique que la surprotection augmente l'anxiété des enfants seulement lorsque la dépression maternelle est élevée. Enfin, le contrôle dissimulé prédit également l'anxiété

telle que rapportée par les enseignants de deuxième année.

Le deuxième article est une étude observationnelle qui examine comment l'autorégulation (AR) des bambins est liée au développement précoce des symptômes intériorisés, tout en explorant comment les pratiques disciplinaires parentales (contrôle et soutien de l'autonomie) y sont associées. Les pratiques parentales ont été codifiées lors d'une requête de rangement à 2 ans (contexte "Do", $N = 102$), tandis que l'AR des bambins a été codifiée à la fois durant la tâche de rangement ("Do") et durant une tâche d'interdiction (ne pas toucher à des jouets attrayants; contexte «Don't »), à 2 ans puis à 3 ans. Les symptômes d'anxiété / dépression des enfants ont été évalués par leurs parents à 4,5 ans. Les résultats ont révélé que l'AR aux interdictions à 3 ans diminue la probabilité des enfants à manifester des taux élevés de symptômes d'anxiété / dépression. Les analyses ont aussi révélé que le parentage soutenant l'autonomie était lié à l'AR des enfants aux requêtes, un an plus tard. En revanche, le contrôle psychologique manifeste et dissimulé ont eu des effets délétères sur l'AR. Enfin, seul le contrôle dissimulé a

augmenté les probabilités de présenter des niveaux plus élevés de problèmes intériorisés et ce, au-delà de l'effet protecteur de l'AR des bambins.

Des résultats mitigés sont issus de cette thèse concernant les effets respectifs des deux formes de contrôle sur les problèmes intériorisés, dépendamment de l'informateur (mère c. enseignant) et de la méthodologie (questionnaires c. données observationnelles). Toutefois, le contrôle psychologique dissimulé était lié à ce problème affectif dans les deux études. Enfin, le soutien à l'autonomie s'est révélé être un facteur de protection potentiel et mériterait d'être étudié davantage.

Mots-clés : Contrôle psychologique parental, Théorie de l'auto-détermination, Problèmes intériorisés, Petite enfance

Abstract

Parental psychological control is a well known risk factor for children's internalizing problems (e.g., Affrunti & Ginsburg, 2012; McLeod, Wood & Weisz, 2007). According to self-determination theory, psychological control leads to internalizing problems (Ryan, Deci, Grolnick, & La Guardia, 2006) because it thwarts the basic need for autonomy. Indeed, receiving pressure to think, behave and feel in particular ways (Ryan, 1982) is thought to foster a too rigid and overcontrolled regulation (Ryan et al., 2006). Following Soenens and Vansteenkiste (2010), the conceptual distinction between overt (e.g., threats, physical force) and covert (e.g., overprotection, bribes) forms of psychological control was used when assessing parenting style (Study 1) and disciplinary practices (Study 2). Parental psychological control and autonomy support (Study 2) were measured during toddlerhood as (a) internalizing problems emerge early, (b) the budding sense of autonomy and agency is central during this period, perhaps (c) "pulling for" parental control. With its two articles, the present thesis aims to clarify how overt and covert psychological control relate to the early development of internalizing problems.

Study 1 is a population study examining the relative impact of parenting style onto child anxiety developmental trajectories (N = 2120 children; 2.5- to 8-years-old) along a host of putative child, mother, and family risk factors measured in toddlerhood. Results revealed that in addition to child shyness, maternal depression and family dysfunction, both overt (i.e., coercive) and covert (i.e., overprotection) parenting

increase the risk for higher child anxiety. An interaction between maternal depression and covert control was found, indicating that overprotection only increases child anxiety when maternal depression is high. Finally, maternal covert control also predicted second grade teacher reports of children's anxiety.

Study 2 is an observational study investigating how toddlers' self-regulation (SR) relates to later internalizing symptoms, while also exploring how parental disciplinary practices (controlling and autonomy-supportive) relate to these child outcomes. Parental practices were coded during a clean-up request task at 2 years of age ("Do" context; $N = 102$), while toddlers' self-regulation was coded in both a clean-up ("Do") and an attractive toys prohibition ("Don't") contexts, at age 2 and 3. Their anxious/depressed symptoms were rated by parents at 4.5-years-old. Results revealed that SR to prohibitions at 3-years-old decreased the odds of children showing high levels of anxious/depressed symptoms. Analyses also revealed that autonomy-supportive parenting was positively related to child SR to requests one year later. In contrast, overt and covert controlling parenting had detrimental effects on SR. Finally, only covert control increased the odds of showing higher levels of internalizing problems, above the protective effects of toddlers' SR skills.

There were somewhat mixed results in this thesis for the respective effects of both forms of control onto internalizing problems, depending on informant (mother vs. teacher) and methodology (questionnaires vs. observational data). However, covert psychological control was related to this affective problem across both studies. Coding

autonomy support revealed that it may be an indirect, protective factor that merits further investigation.

Keywords: Parental Psychological control, Self-Determination Theory, Child Internalizing problems, Toddlerhood

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I dedicate this thesis to my husband and daughter. I pursued my graduate work for my love of learning, but I also achieved this for you. It is dedicated to all our journeys in learning to thrive.

"Believe in the magic that's in you, its potential, what it can achieve. But most of all believe in yourself and create a world where dreams become reality."

— Charlene A. Wilson

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Introduction

Internalizing problems consist of a range of emotional difficulties pertaining to anxious, withdrawn and depressive symptoms (Achenbach, 1991, 1992; Achenbach & Ederlbrock, 1983; Bayer et al., 2011). They are among the most prevalent psychiatric disorders in both adulthood and childhood (Bernstein & Borchardt, 1991; Breton et al., 1999). Epidemiological studies have shown that 10 to 25 % of the population will be affected by an internalizing problem during the course of their lifetime (Kessler, McGonagle, Zhao, & Nelson, 1994; Kovacs & Devlin, 1998). According to the World Health Organization, by 2030, internalizing problems will be second to HIV/AIDS as the leading cause for illness worldwide (Mathers & Loncar, 2006).

Of troublesome concern, onset for internalizing problems is often found to be rooted in childhood (Keller et al., 1992; Kessler et al., 2003; Mrazek & Haggerty, 1994; Sawyer et al., 2000; Spence 2001). Moreover, although peaking primarily in the childhood and adolescent years, observable preschool manifestations (e.g., dependency, fearfulness, worry, withdrawn, aches/pains) have been found at rates comparable to those of externalizing problems (e.g., opposition, aggression; Achenbach & Rescorla, 2004; Wichstrøm et al., 2012). Early childhood internalizing behaviours have been associated with costly daily functioning and social adjustment impairment (Egger & Angold, 2006; McConaughy & Achenbach, 1994; Sawyer et al., 2000; Shaw, Keenan, Vondra, Delliquardi, & Giovannelli, 1997). While symptoms stability has been found across early to mid-childhood (Bayer, Hiscock, Ukoumunne, Price, & Wake, 2008; Bayer, Sanson, &

Hemphill, 2006, 2009; Gazelle & Ladd, 2003), and from mid-childhood to adolescence (Letcher, Smart, Sanson, & Toumbourou, 2009; Sterba, Prinstein, & Cox, 2007), increases in symptoms have been found during the preschool years (Côté et al., 2009; Gilliom & Shaw, 2004). The early onset, high prevalence rates, as well as the associated social and economical costs of internalizing problems all underline the crucial importance of research in better understanding their development and prevention (Knapp, McCrone, Fombonne, Beecham, & Wostear, 2002; Spence, 2001). The goal of the present thesis is to further our understanding of the early development of internalizing problems.

Aggregation of internalizing problems has been found within families (Bögels & Brechman-Toussaint, 2006; Last, Hersen, Kazdin, Orvaschel, & Perrin, 1991). Most family and twin studies suggest a moderate heritability of internalizing problems (~ 30 and 47% of the overall variance; Capaldi, Pears, Kerr, Owen, & Kim, 2012; Feigon, Waldman, Levy, & Hay, 2001; Haberstick, Schmitz, Young, & Hewitt, 2005; Hettema, Neale, & Kendler, 2001). Burt's (2009) meta-analysis reveals that 16% and 33% of the variance in childhood and adolescent internalizing symptoms was respectively explained by family (shared environment) and child specific (non-shared environment) influences. Thus, the family context and child specific variables also hold important stake with the emergence and stability of internalizing problems.

Regarding the role of the familial context in the aetiology of childhood internalizing problems, although maternal psychopathology remains predictive of child functioning deficits above and beyond genetic influences (Hammen, Burge, & Stansbury, 1990), maternal diagnosis has repeatedly been found to be a secondary factor as compared

to maternal behaviours (e.g., Laskey & Cartwright-Hatton, 2009; Moore, Whaley, & Sigman, 2004; Murray, Creswell, & Cooper, 2009; Whaley, Pinto, & Sigman, 1999). Among the diverse parenting variables studied, forms of "controlling" parenting has frequently been found to be related to this mental health issue (Affrunti & Ginsburg, 2012; Bayer et al., 2008; Letcher et al., 2009; Rapee, 1997; Silk, Morris, Kanaya, & Steinberg, 2003; van Oort, Greaves-Lord, Ormel, Verhulst, & Huisink, 2011; Whaley et al., 1999). Meta-analyses targeting rearing practices on child internalizing problems have also concluded that parental overcontrol and overinvolvement are the strongest and most consistent predictors of childhood internalizing problems, while results for parental harshness yielded inconsistent results (Ballash, Leyfer, Buckley, & Woodruff-Borden, 2006; DiBartolo & Helt, 2007; McLeod, Wood & Weisz, 2007; van der Bruggen, Stams, & Bögels, 2008; Murray et al., 2009; Rapee, 1997; Wood, McLeod, Sigman, Hwang, & Chu, 2003). The present thesis will focus on the construct of parental psychological control, akin to the ideas of overcontrol and controlling parenting, which seem to relate closely to the development of child internalizing problems.

Psychological Control

Becker (1964) and Schaefer (1959, 1965a, 1965b) were among the first to study the concept of psychological control. Becker's definition referred to negative love-oriented discipline where manipulation of the parent-child love relationship was used as means of controlling the child behaviour. Schaefer's factor analysis defined this construct as intrusive, overprotective, possessive, and directive parenting, in addition to using guilt to control the child's behaviour. This construct was subsequently neglected in the literature

until Steinberg (1990) defined it as distinct from behavioural control, which refers to parental communication of clear expectations about appropriate behaviours and the monitoring of children's behaviour in relation to those expectations (Barber, 1996; Barber, Stolz, & Olsen, 2005; Barber & Xia, 2013; Soenens, Vansteenkiste, Luyckx, & Goossens, 2006; Steinberg, 1990).

During this gap, Baumrind's (1966, 1971) typological approach to parenting prevailed in the literature. Maccoby and Martin (1983) reorganised Baumrind's parenting typology along two intersecting orthogonal factors, defined by the presence or absence of warmth and control, thus yielding four parenting styles (i.e., neglectful, permissive, authoritarian, authoritative). Following Steinberg's (1990) interest in extracting the elements of optimal parenting typology (i.e., authoritative style; Baumrind, 1966, 1971; Maccoby & Martin, 1983), a plethora of research has supported that in addition to warmth (vs. hostility) and behavioural control (vs. permissiveness), the optimal, authoritative parenting style is also composed of the key dimension of psychological control (vs. autonomy; Aunola & Nurmi, 2005; Barber & Olsen, 1997; Gray & Steinberg, 1999; Grolnick & Ryan, 1989; Schaefer, 1965a, 1965b; Steinberg, 1990).

Barber and his colleagues (Barber & Xia, 2013; Barber, Xia, Olsen, McNeely, & Bose, 2012) recently reviewed the psychological control literature to identify the key elements of this construct. One conceptualization of psychological control includes coercive disciplinary tactics, which are arbitrary practices that are concerned with maintaining hierarchical family relationships, dominate the child in the interest of the parent and decrements the child's autonomy, esteem and efficacy (Baumrind, Larzelere,

& Owens, 2010; Grolnick & Pomerantz, 2009; Rollins & Thomas, 1979). Another definition points to strategic manipulation, which pressures the child into feeling the necessity to control or change his/her thoughts, feelings, and behaviour in order to meet parental demands or expectations (Deci & Ryan, 1980, 1985, 2000, 2008b). Finally, some authors include the intrusion on the child's psychological world which interferes with the development of the child's self, identity and psychological autonomy (Nucci, Hasebe, & Lins-Dyer, 2005; Smetana & Daddis, 2002). Barber and colleagues (Barber & Xia, 2013; Barber et al., 2012) solicited the views of adolescents themselves, who also mention that psychological control disrespects the child's integrity and individuality (i.e., "violation of the self"; Barber & Harmon, 2002).

Together, each of these conceptualizations correspond to Barber's original definition of psychological control (1996; Barber & Harmon, 2002) as involving parental thrust that is callous to children's emotional and psychological needs. According to Barber (1996; Barber & Harmon, 2002), psychological control involves parental pressure which suppresses children's independent expression and autonomy and its insidious intrusiveness and manipulation targets children's thoughts, feelings and attachment to the parental figure (Barber & Harmon 2002).

Recently, Soenens and Vansteekiste (2010) have proposed a conceptual distinction between different forms of psychological control. They argue that the type of parental pressure felt by the child and which motivates his/her conduct defines the types of psychological control. When children come to put internal pressure on themselves to become or act in specific way, more covert types of psychological control were used (e.g.,

providing conditional love). Conversely, abiding to external pressures out of fear of the parent was related to more overt types of psychological control (e.g., threats). The distinction between overt and covert forms of psychological control will be used in this thesis.

Self-determination theory and Parenting

According to self-determination theory (SDT; Deci & Ryan, 1980, 1985, 2000, 2008b; Deci, Ryan, Guay, 2013) psychological control is a risk factor for child welfare because it stifles the need for autonomy (or self-determination). Autonomy is one of the three basic psychological needs proposed by SDT (Deci & Ryan, 1980, 1985, 2000, 2008b; Deci et al., 2013), along with competence and relatedness. The need for competence (White, 1959) is the need to feel adept in undertaken activities. Experiencing competence promotes intrinsic motivation towards pursuing activities at hand, and in turn incites development and learning. The need for relatedness refers to a sense of security and affection (Ainsworth, Blehar, Waters, & Wall, 1978; Grolnick, Deci, & Ryan, 1997). Similar to attachment theories, SDT stipulates that exploration behaviours can only be enabled when a child senses security and warmth from his/her primary caregiver. Finally, the need for psychological autonomy does not translate into independence. Rather it transcribes into the sense of volition, choice, and personal endorsement of one's actions; to authentically reconcile the internal or external forces that influence behaviours (Deci & Ryan 2000, 2008a; Ryan & Deci, 2000). Autonomy is thus about harmonious and integrated functioning, in contrast to more pressured, conflicted or alienated experiences often related with psychological control.

A central tenet of SDT is that all humans have a natural propensity toward intrinsic motivation and internalization – the two underlying processes of development. However, this natural self-motivation and healthy psychological development can be either facilitated or forestalled by one's social context through the un-/fulfillment of the three essential psychological needs (Deci et al., 2013; Ryan & Deci, 2000). Intrinsic motivation refers to activities for which the only reward is the inherent engagement in those activities. These actions do not require external prompts or reinforcement contingencies, as they are usually spontaneous and express one's natural inclinations (Deci, 1975; Grolnick et al., 1997). In contrast, internalization is the process by which children integrate less interesting but important behaviours and values of their social environment (Deci, Eghrari, Patrick, & Leone, 1994; Deci et al., 2013; Schafer, 1968). Much of people's activities are not strictly intrinsically motivated, perhaps especially during early childhood, when numerous requests are often part of the socialization context. The integration of societal rules, and thus parental demands, are imposed quite early in children's development, while parents hope they integrate them well and act accordingly. Internalization is often seen as the central goal of socialization, when children "take in" social regulations, make them their own, and eventually self-regulate autonomously (e.g., Lepper, 1983; Schafer, 1968).

Compliance, Internalization and Self-Regulation

For parents, fostering children's optimal internalization represents more of a challenge then to simply let their children's intrinsic motivation flourish. While it can be relatively simple for socialisation agents to attain compliance from a child, the challenge lays in doing so without damaging the child's need for self-determination (i.e.,

psychological autonomy; Deci & Ryan, 2000, 2008b; Deci et al., 2013; Grolnick, 2003). Interestingly, compliance to one's demands does not always indicate any level of integration of the demand, as it may only speak of its obedience (Kochanska & Aksan, 1995). Yet, young children's internalization of parental requests and prohibitions has typically been assessed with compliance measures.

Developmental researchers differentiate between *committed* compliance, *situational* compliance and *non*compliance, and this distinction is hypothesized to relate differentially to the internalization of rules (Kochanska, 2002; Kochanska & Aksan, 1995). Toddlers' committed compliance is conceptualized as an eagerness to abide to the caregivers agenda, a sincere willingness to follow parental request or prohibition ("do" and "don't" contexts, respectively; Kochanska & Aksan, 1995). This construct is predictive of internalization of rules (e.g., Kochanska & Aksan, 1995; Kochanska, Tjebkes, & Forman, 1998). On the other hand, situational compliance, a behaviour characterized by children's obedience elicited by and contingent upon parental prompts, is not related to rule internalization, whereas noncompliance is negatively related to it (Kochanska, 2002; Kochanska & Aksan, 1995).

In addition to representing preschooler's internalization of rules, compliance has also been used as a measure of self-regulation. Developmental researchers have defined self-regulation as the capacity to suppress a first spontaneous response in order to enact a secondary action, which has been shown to be a strong protective determinant of mental health (Rothbart, 2011). According to this definition, committed compliance could be a quality manifestation of this ability. More specifically, committed compliance is thought

to symbolize behavioral self-regulation in a naturalistic parent-child environment (Murray & Kochanska, 2002; Kim & Kochanska, 2012). This ability has been shown to be a strong predictor of resilience, most particularly when assessed in a frustrating, prohibition context ("Don't"; Kim, Nordling, Yoon, Boldt, & Kochanska, 2013; Murray & Kochanska, 2002).

"Healthy" Self-Regulation

According to SDT (Deci & Ryan, 1980, 1985, 2000, 2008b; Deci et al., 2013), the mere assessment of a child's compliance is not sufficient to assess healthy internalization and development. It is believed that the quality, and not the quantity, of self-regulation motivating behaviour and obedience is the true determinant of well-being. For instance, there is a large distinction between a child who follows a parental rule out of pressure (e.g., in order to obtain a reward or to avoid feeling ashamed), as compared to a child who enacts it because s/he understands its importance and has assimilated it to his/her core belief system. In both cases the behavioral outcome is the same: the child complies, self-regulates. Yet, the quality of the self-regulation that motivates their actions is different, and this is of paramount importance to their well/ill-being.

According to SDT, the main purpose of self-regulation is thus not simply to control actions (i.e., diminish or suppress), but to facilitate the flexible use of emotions and desires (Grolnick, McMenamy, & Kurowski, 2006) and to use them harmoniously to motivate conduct. When qualifying self-regulation, SDT underlines the importance of the degree of self-determination, which qualifies the motivated behaviour (level of flexibility vs. rigidity). Hence, self-regulation and its respective degree of self-determination refers to

the quality of reconcilement between the internal and external forces that influence behaviour.

As such, behavioral self-regulation is not necessarily a resilient, protective factor (as described in the development literature) as it may be pressured, overcontrolled and rigid. This overly rigid self-regulation often results in a form self-deception where the individual believes s/he desires what the authority is pressuring him/her to do or to be (Ryan, Deci, Grolnick, & La Guardia, 2006). This false self (Winnicott, 1965), makes one relinquish aspects of his/her own organismic nature (Ryan et al., 2006). This leaves the individual to feel heteronomous, which is manifested by threats and anxieties driving one's actions, and inflexible, which is reflected by the lack of openness to alternative ways of doing things or alternative value considerations (Ryan et al., 2006). As such, overly rigid self-regulation is believed to be associated with internalizing problems (Ryan et al., 2006). Disowning one's own organismic nature and replacing it with a recurrent sense of threat, anxiety and incompetency, after always trying to live up to someone else's standards, as well as feeling unable to alter this course comes at the expensive price of unhealthy self-regulation and internalizing problems (Ryan et al., 2006).

Consistent with SDT is the finding that too rigid adherence to parental socialization is related to internalizing problems (Murray & Kochanska, 2002). According to Murray and Kochanska (2002), while average levels of self-regulation are healthy, very high levels were maladaptive for children. In their study, preschooler's behavioural self-regulation presented an inverted U-shaped relationship with total problem behaviours. The higher

end of the inverted U-shaped relationship, as represented by higher behavioural self-regulation abilities, was predictive of preschoolers' internalizing behaviours.

Consequently, SDT is in line with the parenting literature by pointing to children's unhealthy self-regulation as a threat to mental health. SDT stipulates that the level of psychological autonomy in one's conduct qualifies their motivation and self-regulation (Deci & Ryan, 1985, 2000, 2008b; Deci et al., 2013). When the need for self-determination (autonomy) is thwarted, not only is the internalization process impaired but it also has repercussions on emotional self-regulation, and thus on adaptive responding to one's environment (Ryan et al., 2006). Experiencing psychological control is thus said to represent a risk for psychopathology (Ryan et al., 2006). In contrast, satisfaction of the need for autonomy facilitates the natural tendency for healthy internalization, self-regulation and psychological well-being, through harmonious integration of behaviour and affect.

In sum, SDT points to the need for autonomy (self-determination) for an optimal internalization, self-regulation and mental health. As such, SDT adds an interesting prospect to understanding the development of internalizing problems by suggesting that supporting children's need for autonomy in parental socialization may prevent this unfolding. It is therefore believed that the socializing context can either encourage or forestall the development of healthy self-regulation and psychological development.

The parent-child relationship is thus ideal to assess the level of psychological control and the degree of support for children's need for autonomy which are thought to be pointedly related and preventive of internalizing problems, respectively. Likewise, this

social environment also caters to assessing the quality of the child's self-regulation when appraised in a disciplinary setting, and its respective links to internalizing problems.

Autonomy Support

Certain environments do cater to autonomous, self-determined internalization and promote children's adjustment (Grolnick & Ryan, 1989). This type of socialization context is called *autonomy-supportive,* which is characterized as follows. There are four typical contextual elements that help support children's autonomy in the process of internalization, when rules and demands are made. First, the provision of a personally meaningful *rational* aids in understanding why the activity would have personal utility or relevance (Deci et al., 1994). For instance, to facilitate the internalization of a cleaning-up rule, a parent can explain to her child that someone could step on the toys and break them if left on the floor. The second ingredient is *empathy*, or the acknowledgement of the individual's feelings about the request and their inclination (Koestner, Ryan, Bernieri, & Holt, 1984). Doing so conveys respect and legitimacy for children's desires (Deci et al., 1994). The next ingredient relates to the provision of *choices* in the manner to tackle the task at hand, which encourages initiative (Deci et al., 1994). Finally, the forth element concerns the *manner in which the request is made* to the child. The issue here is whether they are provided in a way that is either controlling / pressuring ("should", "musts", and "have to's") or in a low pressure, respectful and agency granting manner (Ryan, 1982). The chosen words in the request are the key elements (Deci, Driver, Hotchkiss, Robbins, & McDougal Wilson, 1993).

Subsequent experimental studies have shown that autonomy support, operationalized in this manner, is associated with higher quality internalization and greater integration of important but uninteresting activities (Deci et al., 1994; Joussemet, Koestner, Lekes, & Houlfort, 2004). It has also been shown to be associated with children's academic achievement and psychosocial adjustment. For instance, Grolnick and Ryan (1989) found that autonomy-supportive parenting predicts children's higher teacher-rated competence, better standardized achievements scores and grades, as well as less behavioural acting out. It was also related to children exhibiting fewer learning problems and perceiving themselves as more competent. Similarly, autonomy-supportive parenting has been found to predict better social and academic adjustment, reading achievement, and interest-focused academic engagement (Joussemet, Koestner, Lekes, & Landry, 2005; Roth, Assor, Niemiec, Ryan, & Deci, 2009). It has also been associated with better adolescent emotional regulation skills. Roth et al. (2009) found that autonomy-supportive parenting predicted a sense of choice, which in turn predicted a flexible, integrated regulation of negative emotions.

With regards to preschool children specifically, Cleveland, Reese, and Grolnick (2007) found that it was predictive of preschoolers' engagement in conversation with their parents, an indicator of children's strong affiliation to their parents. Landry et al. (2008) has also shown that autonomy-supportive parenting was related to fewer behavioural problems over time, above and beyond their initial adaptation level and temperament. Maternal autonomy support during early childhood has recently been studied. It was found to be a predictor of 15-month-old toddlers' security of attachment, explaining additional

variance beyond that of maternal sensitivity and the family's socio-economic-status (Whipple, Bernier, & Mageau, 2011). Actually, maternal sensitivity and autonomy support had equal regression weights in predicting infant security of attachment (Whipple et al., 2011). Maternal autonomy support of 15-month-old toddlers was also the strongest predictor of 18- and 24-month-old toddlers' self-regulation skills (Bernier, Carlson, & Whipple, 2010). Hence, experimental, observational, and correlational studies corroborate the finding that autonomy-supportive parenting has a healthy impact on children's development and well-being and recent studies suggest that this positive impact may take place early in children's lives.

Psychological Control (Autonomy Thwarting)

Conversely, many studies have shown the detrimental impact that parental psychological control holds on children's psychosocial adjustment. For instance, Baumrind et al. (2010) have found that the use of parental psychological control during the preschool years is associated with lower cognitive competence during adolescence. Moreover, although having a parent that puts pressure and emphasis on school performance has sometimes been found to be related with better academic achievements (reading and math) and adjustment, this parenting practice has also been shown to be associated with children faring poorly socially (Joussemet et al., 2005). Psychological control has also been related to problematic school engagement. For instance, Roth et al. (2009) have found that having a parent who provides conditional love to their adolescents was related to academic disengagement and a grade-focused approach.

Furthermore**,** psychological control has also been associated with children performing more rigidly and experimenting less in their undertakings. Joussemet and Koestner (1999) illustrated this rigidity of expression in an experimental study where they found that performance-contingent rewards induced children to be less creative in their drawings. In accordance with this study, Baumrind and colleagues (2010) found that preschoolers of controlling parents grew up to become adolescents that had less personal agency, defined as lower confidence, individuation and self-efficacy. Together, these two studies suggest that psychological control hinders one' ability to put oneself forward, one's confidence to try new things, and one's resourcefulness during endeavours. With psychological pressure, each of these facets fall short, conducive to a more limited and rigid expression. The rigidity of expression fostered by psychological control also seems to influence emotional self-regulation. Roth et al., (2009) found that parental conditional regard for adolescents' *suppression* of negative affect predicted a rigid, suppressive emotional self-regulation style whereas conditional regard for adolescents' *expression* of negative affect predicted emotional dysregulation.

Considering psychological control's cognitive, academic, social and emotional costs, it is unsurprising that this parenting construct is also related to long-term maladjustment. Baumrind et al. (2010) also found that parents who are controlling in the preschool years have maladjusted adolescents. These adolescents had less communal competency (prosocial, cooperative, achievement-oriented behaviour) and they exhibited more externalizing and internalizing problems.

Psychological control is thus a risk factor for children. It has been found to predict externalizing problems in longitudinal research (e.g., Joussemet, Landry, &Koestner, 2008) and in meta-analysis (e.g., Kawabata, Alink, Tseng, van IJzendoorn, & Crick, 2011). More importantly, it is a recognized risk factor for internalizing problems (Aunola & Nurmi, 2005; Ballash et al., 2006; Baumrind et al., 2010; Hollenstein, Granic, Stoolmiller, & Snyder, 2004; Leve, Kim, & Pears, 2005; Mills & Rubin, 1998; Rogers, Buchanan, & Winchell, 2003), and this relationship is present across different age ranges (Mills & Rubin, 1998). For example, the parenting practices of over-involvement and lack of autonomy-granting explained the greatest proportion of the variance in childhood anxiety in McLeod et al. (2007)'s meta-analysis (accounting for 5% and 18%, respectively).

There are many variations in the assessment and operationalization of psychological control and these may obscure the conclusions that can be drawn (see Barber et al., 2012; Baumrind et al., 2010; Soenens & Vansteekiste, 2010; Zuk, 2012 for a review). Also, despite recommendations that the different dimensions of parenting (warmth vs. rejection, behavioral control vs. permissiveness, psychological autonomy vs. control) should be assessed separately (e.g., Bean, Bush, McKenry, & Wilson, 2003), many studies still agglomerate together some of these dimensions using generic, "negative" or "positive" parenting labels instead (e.g., Barber, 1996; Baumrind, 1966, 1971; Ginsburg, Grover, Cord, & Ialongo, 2006), contributing to the confusion and lack of precision (Barber, 1996). The present thesis aims to assess this construct and other important parenting dimensions separately, thus aiding in distinguishing each of their respective contributions to the development or prevention of internalizing problems. In

particular, overt and covert psychological control, as well as autonomy support and behavioural control will be assessed during toddlerhood.

Optimal Parenting in Toddlerhood Population

These literature overviews and conceptualizations of the construct of psychological control are useful to further our understanding of the construct. Yet, despite being crucial guides, the studies from which these categories are based rely primarily on adolescent populations, sometimes on school-aged children, while never on toddlers. To our knowledge, there are no studies assessing overt and covert psychological control among toddlers. Unfortunately, the same reality applies to the autonomy support construct, as it is implied from school-aged, adolescent and adult population research. Thus, very few studies can attest of the beneficial impact that autonomy-supportive parenting hold on toddlers. On the rare occasions where it is explored with preschoolers, it was frequently coded in a game context (15-month-old; Bernier, Carlson, Deschênes, & Matte-Gagné, 2011; Bordeleau, Bernier, & Carrier, 2012; Matté-Gagné & Bernier, 2011; Matté-Gagné, Bernier, & Gagné, 2012; Whipple, Bernier, Mageau, 2010; Whipple et al., 2011; Zuk, 2013), or during parent-child memory conversations (46-months; Cleveland et al.,2007), but never in a socialization or disciplinary context.

This socialisation context is interesting for many reasons. Disciplinary contexts where parents impose rules on children are ubiquitous to all families, while children learning to self-regulate and internalize these rules are a primary focus for socialization. Moreover, “hot”, emotionally frustrating contexts have been shown to singularly predict children’s mental health, as compared to emotionally neutral self-regulatory contexts (Kim

et al., 2013). Being interested in the development of internalizing problems, disciplinary settings thus seem most adequate.

Similarly, targeting the developmental period of toddlerhood onwards is particularly relevant when one is interested in better understanding the development of internalizing problems, as some have reported increases in internalizing problems during the preschool years (Côté et al., 2009; Gilliom & Shaw, 2004). In addition, it is a time where parental discipline becomes common practice, simultaneously as the child's first movement toward agency takes place. Parenting practices and family dynamics can get forged during this early period. Moreover, these socializing factors foster the emergence of self-control and regulation (Fox & Calkins, 2003). Consequently, the present thesis aimed to assess covert and overt forms of psychological control toward this toddler population, as well as the traditional elements of autonomy support, along with other practices that were thought to be fitting for this population and socialization context.

The Present Studies

The present thesis aims at extending the understanding of the impact of parenting (psychological control and autonomy support) on toddlers with regards to their future development of internalizing problems. Two studies were conducted (See Appendix A). The first study provides a distal, population-based understanding of these variables, while the second is an observational study, providing a more proximal analysis, specific to a discipline context.

The first article is set in a Quebec population-based study ($N = 2120$ children). It explores the contribution of overt and covert forms of psychological control (coercion and

overprotection, respectively) on childhood anxiety, modeled over time with developmental trajectories. The parenting styles measured were based on how parents describe their general disciplinary styles. Both overt and covert types of parental psychological control were measured when the children were 2.5-years-old. The child outcome variable, the anxiety trajectories, ranges from 2.5- to 8-years-old.

The second article is an observational study of parental practices set in a disciplinary context in which toddlers are asked to follow various requests and rules, made by their parent. The parenting practices were assessed through video coding when 2-year-old children were asked to clean-up toys. Both covert (ridiculing, bribes) and overt (threat/punishment, physical force) psychological control practices were coded. This study also explores autonomy-supportive parenting practices by examining the relevance of the traditional elements for toddlers, and by assessing some novel, potentially appropriate practices for this population. In this study, the dependent variable is later child internalizing symptoms (subclinical and clinical ranges) at 4.5-years-old. Moreover, children's self-regulation was also coded at 2- and 3-years-old, to examine how it relates with later internalizing symptoms, as well as with parenting practices. This was done using Kochanska's codification of committed compliance and noncompliance during disciplinary request ("do") and prohibition rule ("don't") contexts (Kim & Kochanska, 2012; Kochanska & Aksan, 1995; Kochanska, Coy, & Murray, 2001).

Finally, both studies take into account child and family potential risk factors, such as child's sex and temperament, maternal depression, family climate and family status (Bayer et al., 2008; Calkins, Blandon, Williford, & Keane, 2007; Côté et al., 2009;

Garstein, Putnam, & Rothbart, 2012; Gilliom & Shaw, 2004; Grolnick, 2003; Karevold, Røysamb, Ystrom, & Mathiesen, 2009: Letcher et al., 2010; van Oort et al., 2011).

Article 1

Early Forms of Controlling Parenting and the Development of Childhood Anxiety

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Julie C. Laurin: Article conceptualization, statistical analyses, results interpretation, article writing and editing.

Mireille Joussemet: Article conceptualization, results interpretation assistance, article editing.

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Early Forms of Controlling Parenting and the Development of Childhood Anxiety

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Abstract

We examined the distinct effects of two early forms of psychological control (coercion and overprotection) on the development of childhood anxiety, while controlling for other important risk factors. Developmental trajectories of child anxiety were modeled from a Quebec representative sample (N = 2120 children; 2.5- to 8-years of age). The relative impact of a host of putative child, mother, and family risk factors measured in early childhood was assessed using multinomial regressions. In addition to child shyness, maternal depression and family dysfunction, both coercive and overprotective parenting increase the risk for higher child anxiety. An interaction between maternal depression and overprotection was found, indicating that overprotection only increases child anxiety when maternal depression is high. Finally, maternal overprotection was also found to predict second grade teacher reports of children's anxiety.

Early Forms of Controlling Parenting and the Development of Childhood Anxiety

Anxiety

Everyone feels anxious at one point or another. The difference between normal and pathology lies in the severity and frequency of symptoms (Kring & Werner, 2004). Anxious feelings are adaptive responses to threats and are useful for survival; it is its excess that can impair adaptive functioning and well-being (Akiskal, 1998).

Anxiety problems are among the most prevalent psychiatric disorders in both adulthood and childhood (Breton et al., 1999). Ten to 25 % of the population will be affected by an anxiety disorder during the course of their lifetime (Kessler, McGonagle, Zhao, & Nelson, 1994), with as many as 3% to 24% of children will develop one before they reach adolescence (Cartwright-Hatton, McNicol, & Doubleday, 2006). Anxiety problem's early onset, its high prevalence rates, along with its social and economical costs all underline the imperative need for research to further our understanding in its development and prevention.

The present study explores the early emergence of anxiety, from toddlerhood to 2nd-grade. Its goal is to examine how different forms of parental control influence anxiety development during early and middle childhood.

Anxiety & Parenting

One's family makes its mark on one's proneness to anxiety problems as they tend to aggregate in families (Bögels & Brechman-Toussaint, 2006). Children of

parents with anxiety disorders are five to seven times more likely to also be diagnosed with one, as compared to children of parents without an anxiety disorder (Beidel & Turner, 1997). This holds true, even though family and twin studies suggest only a moderate heritability of anxiety problems (30 to 40% of the overall variance; Hettema, Neale & Kendler, 2001), thus allowing for the majority of the variance to be influenced by the child's environment. Above and beyond genetic influences, maternal psychopathology is still predictive of child functioning deficits (Hammen, Burge, & Stansbury, 1990). Interestingly, many researchers have found that maternal diagnosis is a secondary factor to maternal behaviours toward one's child, when addressing the aetiology of childhood anxiety (e.g., Laskey & Cartwright-Hatton, 2009; Murray Creswell, & Cooper, 2009).

As such, over the last 15 years, seven meticulous literature reviews or meta-analyses targeting the impact of childrearing practices on the development of anxiety have been conducted (Ballash, Leyfer, Buckley & Woodruff-Borden, 2006; DiBartolo & Helt, 2007; McLeod, Wood & Weisz, 2007; Murray et al., 2009; Rapee, 1997; van der Bruggen, Stams, & Bögels, 2008; Wood, McLeod, Sigman, Hwang, & Chu, 2003). Each suggest that the constructs of parental *overcontrol* and *overinvolvement* are the strongest and most consistent parenting predictors of childhood anxiety, while parental harshness seem to yield an inconsistent effect on child anxiety.

Within the field of childhood anxiety, most parenting research examines the impact of broad parenting dimensions, such as the rejection and control of one's child. In order to clarify some discrepancies in results associated with these broad dimensions, McLeod et al. (2007) conducted a meta-analysis to inquire whether

subdimensions of these broad parenting dimensions have differential associations with childhood anxiety. The parental rejection dimension comprised parental withdrawal, aversiveness, and lack of warmth as subdimensions, while the parental control dimension comprised parental overinvolvement and lack of autonomy-granting conducts. Overall, each parenting subdimension was associated with child anxiety, with lack of autonomy-granting and overinvolvement explaining the greatest proportion of variance in childhood anxiety (18% and 5% respectively), while lack of warmth accounted for the least explained variance (< 1%). These results underline the role of controlling parenting as a risk factor to the development of anxiety problems.

Basic parenting research also points to the significance of controlling parent practices (e.g., Barber, Stoltz & Olsen, 2005) in child non-optimal development. Indeed, psychological control is one of the three main parenting dimensions, along with structure and involvement (Steinberg, 1990). It is important to differentiate *psychological* control from *behavioural* control. Behavioral control refers to parental communication of clear expectations about appropriate behaviours, as well as parental monitoring of children's behaviour to assure that those expectations are met (Barber et al., 2005). Its opposite is permissiveness (Baumrind, 1966), a parenting style that has long been recognized as detrimental, especially for externalized disorders (Barber, Olsen, Shagle, 1994; Rinaldi & Howe, 2012).

Parental psychological control, on the other hand, is defined as parental intrusions onto the child's psychological world (Ryan, 1982), whereby its objective is to pressure the child to think, feel or be a certain way (Deci & Ryan, 2008b). Parental psychological control or *controlling parenting* is characterized by pressure, intrusion,

and power assertion, which can be either overt (e.g., coercive threats) or covert (e.g., overprotection; Soenens & Vansteenkiste, 2010). Thus, psychological control leads children to feel pressure, which can be experienced as external (e.g., coercion, which the child abides to out of fear of the other) and/or internal (e.g., anxiety provoking beliefs that the child has internalized or pressure the child puts on himself; Ryan & Deci, 2000).

While the competence-support inherent in the structure of behavioural control fosters healthy development, the power assertion inherent to psychological control is detrimental for children, especially for internalizing problems (Ballash et al., 2006; Hollenstein, Granic, Stoolmiller, & Snyder, 2004). The goal of the present study is to examine how different forms of parental control (i.e., overt and covert) affect the early development of child anxiety, in the context of other key risk factors.

Anxiety problems are influenced by many variables, including children's sex and temperament (behavioural inhibition; Grant, Bagnell, Chambers & Stewart, 2009). Girls have been found to be more at risk for higher anxiety problems than boys, although this discrepancy is generally occurs in adolescence (Bosquet & Egeland, 2006). Behavioral inhibition is the child's early aversion to novelty, accompanied by physiological responses (e.g., heart rate, blood pressure, pupil dilation, cold tip of fingers, saliva concentration of cortisol (Kagan, Snidman, Kahn, & Towsley, 2007; Kagan, Snidman, Zentner, & Peterson, 1999; Snidman, Kagan, Riordan, & Shannon, 1995; Zimmerman, & Stansbury, 2004).

It is also shown that the familial environment accounts for a sizeable part of environmental influences. Lower family cohesion, expressiveness and support, as well

as inter-parental conflict and stressful negative family environments are all risk factors for childhood anxiety (Hudson & Rapee, 2009). Furthermore, poverty, adversity in marital relations and marital break-ups occurring before the age of five has been reported to increase the risk for emergence of anxiety during adolescence (Spence, Najman, Bor, O'Callaghan & Williams, 2002). Finally, maternal characteristics, notably depressive symptoms, have been linked with child internalizing problems in several studies (e.g., Biederman et al.,2001; Laskey & Cartwright-Hatton, 2009; Murray et al., 2009). Moreover, both parent and child characteristics influence the parent-child interactions, as some attributes can pull for more controlling parenting and/or more disengaged parenting (Field, Hernandez-Rief & Diego, 2006; Grolnick, Weiss, McKenzie, & Wrightman, 1996). We thus will assess whether mothers' and children's affective tendency will moderate the impact of controlling parenting on child anxiety (i.e., child inhibition and maternal depression).

The Development of Child Anxiety

It is quite informative to examine the continuity and change of children's anxiety symptoms over time (Weems, 2008). We cannot assume that problematic behaviors are stable over time, nor that they evolve the same way for all children. By using a heterogeneous approach, (Nagin, 2005), distinct developmental trajectories can be isolated, over time.

To our knowledge, only two studies have modeled child anxiety trajectories and have attempted to identify their predicting risk factors (Feng, Shaw & Silk, 2008; Duchesne, Larose, Vitaro, & Tremblay 2010). Of these two, only Feng et al. (2008)'s study assessed controlling parenting as a potential risk for children to follow a higher

anxiety trajectory. In this study (N = 228 boys, 2- to 10-years-old), an observed measure of maternal "negative control" was found to put these boys at higher risk, no matter their initial anxiety level at age two, and above and beyond the impact of other significant risk factors. Though the sample was gender-specific and the negative control variable was very broad, including both overt and covert forms of control, this observational study was informative in pointing out the impact of a controlling stance on the anxiety trajectory children may follow.

In Duchesne et al. (2010)'s study (N = 2000 children, 6- to 12-years-old), a measure of maternal discipline (i.e., behavioural control) increased the probability for children to belong to the high-stable anxiety trajectory, as opposed to the low-stable one. These results were in the opposite direction of the authors' hypothesis, namely that discipline would protect against the development of anxiety. A closer look at the discipline measure reveals that behavioural control items (e.g., "It is important for a child to have a fixed bedtime") may have been aggregated with more controlling items (e.g., "I don't tolerate temper tantrums"). Although the study was based on a population-based sample, the absence of a controlling parenting measure and the broad definition of discipline limit the study's conclusion about the impact of parenting on child anxiety trajectories.

Together, these studies suggest that some form of parental control contributes to the development of childhood anxiety but further research is needed to clarify what aspects of parental control are involved. The present study will build on the recent research studying child anxiety trajectories (Feng et al., 2008; Duchesne et al., 2010), combining some of their strengths. Similarly to the study conducted by Duchesne et al.

(2010), we will examine data from a population-based sample to model child anxiety trajectories. Next, similarly to Feng et al. (2008), we will examine the impact of controlling parenting onto child anxiety trajectories. Finally, in addition to distinguishing psychological from behavioral control, both overt and covert forms of psychological control (coercion and overprotection) will be differentiated, to examine their unique contribution.

Present Study

The goal of the present study was to examine the weight of two types of controlling parenting (overprotection and coercion) in distinguishing different anxiety trajectories that children can follow from early- to mid-childhood (from 2.5- to 8-years of age; mother-rated). We aimed to examine the relative contribution of such controlling parenting in the context of other key parenting dimensions (i.e., warmth/involvement, behavioural control and permissiveness) and other putative risk factors for anxiety (e.g., child's sex and behavioural inhibition, maternal depressive symptoms, familial intactness/status, family dysfunction and SES). In addition, we wished to assess whether the impact of parenting was moderated by children's or mothers' characteristics (i.e., child's behavioral inhibition and maternal depressive symptoms). Finally, we tested whether these same risk factors would also predict child anxiety, as rated by an additional informant (2^{nd}-grade teachers).

The first hypothesis is that both forms of psychological control will have a detrimental impact on the development of child anxiety. We expect that overt and covert controlling parenting will be related to greater risk of following higher anxiety trajectories and of being rated as more anxious by school teachers. Also, while

parental warmth/involvement and behavioural control are expected to protect children from following a high anxiety trajectory, permissive parenting and family dysfunction are hypothesized to increase the risk for higher child anxiety. Next, we expect that the negative impact of controlling parenting styles will be exacerbated by mother and child vulnerabilities. It is expected that the impact onto anxiety trajectories will be heightened when mothers' experience more depressive symptoms, as well as when toddlers show a vulnerability toward anxiety (i.e., inhibition).

Method

Participants

The present study used data from the Québec Longitudinal Study of Child Development (QLSCD), conducted by Institut de la statistique du Québec (Santé Québec division; for more detailed QLSCD methodology see Jetté, 2002; Jetté & DesGroseilliers, 2000). It is a longitudinal study that annually follows a Quebec representative birth cohort of 2,120 children and their families. The target population represented approximately 96.6% of the Quebec newborn population born between October 1997 and July 1998. The infants born in the Cree, Inuit territories and Indian reserves were excluded, as well as those whose pregnancy details were unknown. Only mothers who gave single births and who lived in the province at least until the target child was four-years-old were eligible to participate and included in the study. Infants were selected from the 1997-1998 Master Birth Register of the Ministry of Health and Social Services, which contains records of all birth certificates by calendar year. Attrition for this study is low, as 92.8% of the families in the 1998 pool (N = 2120 infants) completed the full longitudinal study until 2002. Reasons for withdrawing

from the study were varied, including moving out of the province, target child death, or inability to correspond with families.

At birth, the majority of the parents were 30 to 34 years of age, with most living in a nuclear family (80%), as compared to blended (10.8%) and single parent (9.2%) families. Forty-two percent of child participants were from only child households, while 58.3 % had at least one sibling at birth. The majority of the sample spoke only French at home (75.2%) and the majority of parents had postsecondary education (70.7% of mothers).

Procedure and Measures

Apart from the child's sex (collected from birth medical records) and teacher ratings of child anxiety, all other variables examined in the present study were reported by the primary caregiver (the mother in 99 % of cases). The familial status and the maternal overprotection information were collected through a self-report questionnaire answered by the mother. All other variables were collected as part of a computerized questionnaire administered during a face-to-face interview in the child's home with its primary caregiver.

The child's sex was collected at 5-months, while maternal depressive symptoms and family dysfunction measures were collected when the child was 1.5-years of age. All other putative predictors used in the present study were measured when children were 2.5-years of age.

Dependent Variables: Child Anxiety

Six maternal reports of child anxiety were used, between the ages of 2.5- and 8-years-old (see Table 1). At each of these time points, the three same questions were

asked: *How often would you say that (name) is nervous, is high-strung or tense?; is too fearful or anxious?; is worried?* This consistency enabled us to use these same anxiety measures over time to model anxiety trajectories. The items came from Preschool Behaviour Questionnaire (Behar & Stringfeld, 1974). Items on the anxiety scale ranged from 0 (*does not apply or never*) to 2 (*frequent behaviour/often*). Internal cohesion for all six maternal reports on this dimension ranges between .50 to .67.

Children anxiety was also assessed by their second grade teachers when they were 7-years-old, the year mother reports of their child's anxiety were not collected. Essentially the same items were provided to the teachers as to the parents, including: *Over the last 6 months, how often would you say that (name) is nervous, high-strung or tense?; is too fearful or anxious?; is worried? has cried a lot?* Similarly, items on this anxiety scale ranged from 0 (*does not apply or never*) to 2 (*frequent behaviour/often*; Cronbach $\alpha = .65$).

Independent Variables

Child characteristics.

Sex. The child's sex was included as a variable of interest in this study, as being a girl has sometimes been associated with anxiety levels, although this sex effect is generally reported to take place starting in adolescence (Bosquet & Egeland, 2006).

Behavioral inhibition. We included the measure of children's shyness because behavioural inhibition is a robust temperamental risk factor for childhood anxiety. The scale comprises the following three items: *How often would you say that (name) is shy with children he/she does not know?; readily approaches children he/she does not know?; takes a long time getting used to being with children he/she does not know?* The questions were adapted from the Parental Inhibition Scale (Asendorpf, 1990) and

the scale has been found to have good reliability scores in previous studies (e.g., Boivin et al., 2005). In the present study, the reliability coefficient is satisfactory (Cronbach α = .72).

Mother and family characteristics. Maternal depressive symptoms, family dysfunction, familial status and socio-economic status (SES) were also selected as putative predictive risk factors.

Maternal depressive symptoms. The measure of maternal depressive symptom was adapted from the Center for Epidemiologic Studies Depression Scale (Radloff, 1977; Cronbach α = .81). This 12-items scale measures the frequency of depressive symptoms (e.g., *How often have you felt or behaved this way during the past week: I did not feel like eating; my appetite was poor*) and their relative severity during the mothers' previous week (i.e., 0: *Rarely or none of the time [Less than 1 day]* to 3: *Most or all of the time [5-7 days]*).

Family dysfunction. The family dysfunction scale was adapted from a validated instrument (Offord et al., 1987). This shortened version is composed of 7 items, targeting mutual acceptance, freedom of affect expression and of resolving problems, respect, and support (Cronbach α = .83). Examples of items are as follows: *Individuals (in the family) are accepted for what they are (reversed item); There are lots of bad feelings in our family; We don't get along well together.* Higher scores indicate higher levels of relationship difficulties within the family.

Family status. Familial status was reported to be either intact/nuclear, blended or a single parent dwelling. For this variable, the mother needed to indicate whether she had a spouse, whether he lived in the same house and clarify the nature of his

relationship to her child: *I do not have a spouse/partner; I have a spouse/partner but do not live with him; How is the spouse/partner with whom you are currently living with related to your child (Circle only one answer) He is: biological father, adoptive or step-father.* This measure was used in previous studies (e.g., Côté et al., 2007; Huijbregts, Séguin, Zoccolillo, Boivin & Tremblay, 2008). To yield a family intactness/status score, we recoded this scale into a dichotomous one (either intact or not-intact families).

SES. In order to yield a SES index, a combination of the following measures was used: professional prestige, level of education and financial/economic position of the parents of the target child. This calculation method is described in Desrosiers (2000).

Parenting. Key parenting dimensions were assessed by using mothers' reports of their beliefs and behavioural tendencies toward their child. In the present study, we extracted measures of key parenting dimensions on the basis of a factor-analysis and theory (Barber, 2002; Deci & Ryan, 2008a; Soenens & Vansteenkiste, 2010), allowing us to distinguish between parenting dimensions and three types of control constructs.

Parental warmth/involvement. A four-items subscale of parental warmth/involvement (Cronbach $\alpha = .62$) assesses the extent to which mothers spend time with their child, enjoy it and express warmth (e.g., *In the past 12 months, how often did you and he/she talk or play with each other, focusing attention on each other for five minutes or more, just for fun?)*. These items were initially part of a larger, general "positive parenting/interactions" scale used in previous studies (Bigras et al., 2010).

Behavioural control. In order to assess the level of structure or behavioural control provided by mothers, we used five items loading on a behavioural control dimension (Cronbach α = .61). These items tap into the degree of consistency and induction in discipline, as well as explanation about problems and alternative ways to behave (e.g., *In the past 12 months, when you gave him/her a command or order to do something, what portion of the time did you make sure that [name] did it?*).

Permissiveness. To assess parental laxness towards rules and disciplines, we used four items loading on a lack of behavioural control (Cronbach α = .62; e.g., *In the past 12 months, when [name] broke the rules or did things that he/she was not supposed to, how often did you: ignore it; do nothing?).*

Coercion. The coercion subscale comprises eight items (Cronbach α = .74) and generally refers to critical, threatening and power assertive strategies and comments (e.g., *In the past 12 months, how often did you tell him/her that he/she was bad or not as good as others?; when (name) broke the rules or did things that he/she was not supposed to, how often did you use physical punishment?*). This variable represents an overt form of controlling parenting.

Overprotection. The four-item overprotection subscale taps behaviours reflecting mothers' reluctance of separating from their child and concern for the safety and protection of their child (Cronbach α = .69). Examples of items include: *I insist upon keeping my child close to me at all times, within my eye sight and in the same room as I am; When I leave my child with a baby-sitter, I miss him/her so much that I cannot enjoy myself.* This variable is seen as a covert form of controlling parenting.

Analyses

First, we modeled developmental trajectories of children's anxiety from 2.5- to 8-years-old, using the TRAJ procedure with SAS (Nagin, 2005; Nagin & Tremblay, 2001). Trajectory analyses enable the description of how groups of children display distinct levels of anxiety over time. First, the developmental trajectories of anxiety were assessed using a semiparametric mixture model (for details see Nagin, 2005; Nagin & Tremblay, 2001). Next, 11 potential risk factors were assessed independently, using logistic regression analyses to assess their relative predictive value in distinguishing anxiety trajectories from one another. Third, the variables identified as significant risk factors were entered together as independent variables in multinomial regression analyses in order to examine their relative contribution in distinguishing anxiety trajectories. Fourth, we examined whether the effect of identified parenting risk factors would be moderated by children's temperament (inhibition) and/or mothers' depressive symptom level. Fifth, we aimed to examine how these child, maternal, and familial measures would predict children's anxiety, as reported by children's 2nd-grade teachers. The relative association value of the 11 putative risk factors was examined in relation to teachers' reports of children's anxiety, at seven years of age, using correlation analyses. Next, a linear regression was conducted to assess the relative predictive contribution of the variables found to correlate with the teacher-rated child anxiety.

Data Preparation

For each variable other than SES and the anxiety scores used in the trajectories, averages were calculated and scores were then standardized, rendering variables ranging from 0 - 10. The anxiety scores used in the trajectories were standardized on a

0 to 6 scale. Participants had missing values when more than two-thirds of the items for a variable were missing. The SES scale was carefully calculated into an index following the procedure described in Desrosier (2000).

Descriptive statistics for all variables included in the study are shown in Table 1. Both maternal warmth/involvement and depressive symptoms did not follow a normal kurtosis distribution (above ± 3.00; Kline, 1998). The mothers' warmth and depression scores had little variance and were too closely distributed around the mean to attain a normal kurtosis distribution. This should be kept in mind when interpreting analyses including these variables, as relationships may be over- and underestimated, respectively. As for the anxiety variables used to yield the trajectories, the missing data were considered as missing at random (MAR, Little & Rubin, 1987). In these cases, a participant is kept even if it has only one assessment. Table 2 presents the zero-order correlations among all predictor variables and the teacher-rated anxiety.

Results

Developmental Trajectories of Childhood Anxiety

With the aid of a semiparametric mixture model, we distinguished groups of children displaying distinct anxiety patterns over time. This method detects population heterogeneity across time as its parameters are at liberty to differ between groups (Nagin & Tremblay, 2001). Following the Bayesian Information Criterion (BIC criteria; Nagin, 2005), models with two- to four- anxiety groups were estimated. Semiparametric mixture model estimation yields output identifying each trajectory (patterns of stability and variations), the respective estimated proportion of the population belonging to each of them, as well as, at the individual level, the estimated

posterior probability of participants belonging to each trajectory group. In other words, the model coefficients indicate, for each child, the estimated probability that s/he would follow each trajectory.

The models with three- and four- anxiety groups had relatively close BICs (-15 149.43 and -15 123.58, respectively). Although larger BICs are generally considered to best fit the data (Nagin, 2005), we selected the three-groups model for parsimony. As seen in Figure 1, anxiety levels are generally not very elevated, representing the general population rather than a clinical population.

The first trajectory is very low and stable, with children demonstrating very little or no anxiety symptoms overall. An estimated proportion of 22.5 % of the children follow this *lowest anxiety trajectory*. The second and most common trajectory starts with low levels of anxiety at 2.5 years of age and exhibits a gradual increase in anxiety, reaching a moderate level of anxiety at 8-years-old. Approximately 51.8 % of the children exhibit this *low-rising trajectory*. The third and highest trajectory begins with a higher anxiety level among toddlers. There is a gradual increase until six years of age, followed by a steadier path onward. The estimated proportion of the sample following this *highest trajectory* is 25.9 %.

Predictors of High Childhood Anxiety

Preliminary analyses: Logistic regressions. In order to identify which factors significantly distinguished anxiety trajectories from one another, a series of logistic regressions were performed. Given the potential uncertainty in "assigning" children to a trajectory, all regressions were weighted by posterior probabilities. Table 3 summarizes the singular effect of each independent factor in distinguishing anxiety

trajectories from one another resulting from these regressions. As can be seen in Table 3, children's inhibition, family status, dysfunction and SES, as well as maternal depressive symptoms, coercion, overprotection and permissiveness each distinguished anxiety trajectories from one another. On the other hand, neither the child's sex, nor the parenting dimensions of maternal warmth/involvement and behavioural control contributed in predicting childhood anxiety trajectories. The latter three variables were dropped from further analyses.

Principal analyses: Multinomial regressions. The goal was to examine the relative and joint contribution of the eight early child, maternal, familial, and parenting variables that were identified as significant risk factors. Multinomial regression was performed with the following predictors, entered together in the model ($N = 1812$): Children inhibition, family status, family dysfunction, SES, maternal depressive symptoms, as well as maternal coercion, overprotection, and permissiveness.

Results of the multinomial regression reveal that five of the eight independent variables remained significant risk factors. The risk factor contributing the most in distinguishing trajectories from one another was children's inhibition (χ^2 [2] = 37.77, $p < .05$). Regarding maternal depressive symptoms, it also remained a significant and strong risk factor (χ^2 [2] = 14.00, $p < .05$). In terms of parenting dimensions, the two forms of controlling parenting emerged as significant risk factors. Maternal coercion had the highest discriminating power across anxiety trajectories (χ^2 [2] = 20.01, $p < .05$), followed by maternal overprotection (χ^2 [2] = 9.72, $p < .05$). Maternal permissiveness did not remain a significant risk factor ($p = .97$). Next, among the familial factors, only family dysfunction significantly discriminated across anxiety

trajectories (χ^2 [2] = 8.40, $p < .05$). Neither the familial status nor the SES level significantly discriminated between anxiety trajectories ($p = .59$, $p = .86$; respectively).

In sum, when the predictive value of all the key risk factors was tested within the same model, thus controlling for their shared variance, five of the previously identified risk factors contributed in distinguishing anxiety trajectories from one another (i.e., children's inhibited temperament, mothers' depressive state, families' dysfunction, as well as coercive and overprotective parenting).

As a second step, moderation effects were assessed in order to examine whether the impact of the controlling parenting styles (coercion and overprotection) onto childhood anxiety trajectories would be moderated by children's and/or mother's affective difficulties (i.e., children inhibition; maternal depressive symptoms). When the four interaction terms were included as independent factors in the model, along with the eight initial independent variables, the interaction between maternal depressive symptoms and overprotection emerged as a significant predictor, distinguishing anxiety trajectories (χ^2 [2] = 6.49, $p < .05$). The variables of maternal depressive symptoms and overprotection were no longer significant risk factors, as their effects were subsumed under this interaction ($p = .43$; $p = .32$, respectively). The main effects of children's inhibition, family dysfunction and maternal coercion prevailed, indicating that these factors still significantly differentiate anxiety trajectories from one another (χ^2 [2] = 15.04, $p < .05$; χ^2 [2] = 8.35, $p < .05$; χ^2 [2] = 18.45, $p < .05$, respectively). No other interaction effect approached significance (all

*p*s > .05) and family intactness, SES and maternal permissiveness remained non-significant factors ($p = .65$; $p = .87$; $p = 97$, respectively).

In order to clarify which anxiety trajectory was predicted by each of these significant factors, contrasts were explored. Table 4 presents the factors that significantly distinguish between a pair of trajectories (e.g., *highest* vs. *lowest*). The reported odd ratios can be translated into effect sizes as follows: for each increase of one unit of a continuous variable, there is an increase in probability ([odd ratio - 1] X 100) for children to follow a higher anxiety trajectory as compared to a lower one. For example, for the inhibition variable, an odd ratio of 1.32 found in the contrast between the highest and lowest trajectory implies that for each increase of one point on the inhibition scale (ranging from 0 to 10), it increases the probability by 32 % for a child to follow the highest trajectory as compared to the lowest one.

Results indicate that inhibition discerned between children following the *highest* trajectory from those following the *lowest* and those following the *low-rising* trajectory course (χ^2 [1] = 12.45, p < .05; χ^2 [1] = 10.53, $p < .05$, respectively). Similarly, maternal coercion differentiated between children trailing on the *highest* anxiety trajectory from those following the *lowest* and the *low-rising* trajectory (χ^2 [1] = 17.72, $p < .05$; χ^2 [1] = 10.10, $p < .05$, respectively). Family dysfunction discriminated children following the *lowest* trajectory from those following the *low-rising* or the *highest* trajectory (χ^2 [1] = 4.84, $p < .05$; χ^2 [1] = 8.21, $p < .05$, respectively).

The interaction term of maternal depressive symptoms by overprotection discriminated between children following the *highest* trajectory from those following

the *lowest* anxiety trajectories (χ^2 [1] = 6.49, $p < .05$). As can be seen in Figure 2, this interaction effect suggests that maternal overprotection predicts children following the highest anxiety trajectory vs. the lowest one only when maternal depressive symptoms are high. The odd ratio and effect size for this interaction term can also be seen in Table 4.

Supplemental analyses: Predicting teacher-rated anxiety. In a first step, a series of One-way ANOVAs was conducted to examine whether the subsample of children for whom teacher ratings of child anxiety were available ($N = 1259$) differed significantly from the larger, representative sample, on the eleven putative risk factors. Results reveal that the subsample differed significantly from the larger one on five variables: There was a larger proportion of girls (53%, F [1, 2222] =18.10, $p < .05$) and of intact families (77%, F [1, 2222] = 85.24, $p < .05$) within the subsample and the average SES was higher ($M_{missing}$ = -.13 vs. $M_{available}$ = .08, F [1, 1973] =19.51, $p < .05$). Parenting was also characterized as more structuring ($M_{missing}$ = 3.48 vs. $M_{available}$ = 3.67, F [1, 1996] = 5.85, $p < .05$) and less overprotective ($M_{missing}$ = 3.55 vs. $M_{available}$ = 3.63, F [1, 1924] = 7.11, $p < .05$).

After examining correlations between the eleven risk factors with teacher-rated anxiety (see Table 2), a linear regression was used to assess which child, family and parenting characteristics would predict child anxiety scores as reported by this other informant, at 7 years of age. Correlational analyses revealed that children's inhibition, family's intactness and SES, as well as overprotective parenting were significantly correlated with child anxiety as reported by second grade teachers. Next, these four variables were included in a linear regression and results suggest that these four early

child, family and parenting characteristics all predicted later child anxiety scores as reported by their 2nd-grade school teachers (R = .18, R^2 = .03, F [4, 1205] = 10.04, p < .05). The children's inhibition (*Stand.* β = .06, p < .05), the family's intactness/status (*Stand.* β = .08, p < .05) and SES (*Stand.* β = -.09, p < .05), and maternal overprotection (*Stand.* β = .07, p < .05) were all significant predictors of teacher-rated anxiety. Thus, at 2.5-years of age, an inhibited temperament, a non-intact family, a lower SES and higher levels of maternal overprotection all predicted teachers' notice of higher anxiety symptoms five years later.

Discussion

Overview of Results

In this study, one goal was to model anxiety growth patterns across early and middle childhood in a representative provincial sample. In addition to examining the particular anxiety trajectories that Quebec children may follow during their early- to mid-childhood (Figure 1), the main objective was to examine the effects of early coercion and overprotection on the development of child anxiety, above and beyond other important anxiety risk factors.

Among a host of child, mother and family characteristics that had the potential to distinguish among anxiety trajectories, five were found to have a singular and concurrent effect onto differential childhood anxiety trajectories. While the child's sex was unrelated to anxiety trajectories, the variable of child temperamental inhibition was found to be a strong predictor of anxiety trajectories. Among maternal and familial characteristics, the level of maternal behavioural control and warmth/involvement were unrelated to anxiety trajectories. Familial status, SES,

family dysfunction, maternal depressive symptoms and permissiveness all discerned between differential pursuits of anxiety trajectories when their impact was examined individually. Yet, only familial dysfunction and maternal depressive symptoms were identified as significant risk factors when joint effects were examined. It seems that socio-demographic variables (i.e., SES, intact or non-intact family) are not as central to childhood anxiety trajectories than the perhaps more experiential factors of family discord and maternal depressive symptoms.

The level of behavioural inhibition at 2.5 years of age was found to increase the likelihood of pursuing the highest anxiety trajectory as opposed to either lower trajectories, suggesting that this temperamental predisposition is specifically related to the highest level of childhood anxiety. In contrast, family dysfunction increases the odds of following either rising trajectories instead of the lowest one, suggesting that familial conflict is associated to the mere presence (vs. absence) of child anxiety.

Together, these findings are consistent with other studies examining child, maternal and familial risk factors for childhood anxiety. For instance, toddler behavioural inhibition has been found to predict early childhood anxiety (Pahl, Barrett & Gullo, 2012), pre-adolescent anxiety (Bosquet & Egeland, 2006) as well as adolescent anxiety (Kagan et al., 2007). Also, less cohesive families has been found to be a risk factor for later child anxiety (Varela, Sanchez-Sosa, Biggs, & Lius, 2009), just as maternal depression has been shown to have a detrimental effect on internalizing problems (Mars et al., 2012) and more specifically on childhood anxiety (Barker, Jaffee, Uher, & Maughan, 2011).

With respect to maternal behaviours, both maternal coercion and overprotection were predictive of higher child anxiety, above and beyond the expected effects of other important child and familial risk factors (i.e., children inhibition, family dysfunction, maternal depressive symptoms). These findings support our hypothesis, whereby both types of controlling parenting hold detrimental effects on the development of childhood anxiety. Similarly to inhibition, coercion was associated with children's higher likelihood of following the highest anxiety trajectory rather than either lower ones. A significant interaction effect indicated that overprotection only increased the likelihood of following the highest anxiety trajectory when the mothers also exhibited depressive symptoms. If the maternal depression level is low, overprotection does not have a detrimental effect on childhood anxiety development. Both the depression and overprotection main effects were subsumed under this interaction term.

Permissive parenting was less closely related to early child anxiety than expected. Although it was related with higher anxiety independently, it did not remain significant when examined along with other predictors. Though a lack of warmth/involvement and structure have sometimes been associated with child anxiety (e.g., Baumrind, Larzelere & Owens, 2010), the present study suggests that compared to autonomy thwarting, these two aspects are not as central to the problem of anxiety.

Teachers' assessment of children's anxiety at seven years of age was included to supplement the maternal assessments of the anxiety displayed by children. The regression predicting teacher-rated anxiety pointed to inhibition, overprotection, low SES and a non-intact family as risk factors. This pattern of results is somewhat

different than the one predicting trajectories based on mother-reports. Although children's inhibition and overprotective parenting also served to predict mother-rated anxiety, the familial status and SES was not significant when joint effects were examined (only singular effects were found; see Table 3 and 4).

One reason that may help understand these differing results is that the subsample of children for whom teacher reports were available differed from the larger, Quebec representative one. Despite easier family conditions and fewer overprotective mothers, there was enough variance within this subsample to identify the variables associated with higher child anxiety. Along with the children's inhibition, overprotection was the only consistent predictors of childhood anxiety, regardless of the informant. While maternal coercion, depressive symptoms and family dysfunction did not relate to teacher-rated anxiety, low SES and non-intact family did, perhaps because of a higher stability over time. It is also possible that these factors are more easily detectable by teachers than a coercive style or low levels of depressive symptoms.

Limitations

As part of a large-scale longitudinal project, the present study made use of a rich array of measures, collected from a representative provincial sample. However, the measures used are not without limits, as there is relatively little information gathered within each domain and the variables' alphas are low. For example, the anxiety measure was based on only three items collected at each time point, limiting the scope and reliability of these assessments. Similarly, the parenting items were extracted from already existing subscales and are less comprehensive in assessing

targeted constructs than originally developed questionnaires. For instance, out of the four items of the overprotection measure, two relate to the difficulty of letting the child be babysat. Although this measure can be seen as a mild form of dependency-oriented controlling parenting (Soenens, Vansteenkiste, & Luyten, 2010), it is interesting that it still relates to higher child anxiety symptoms.

Also, all regression coefficients predicting teacher-rated anxiety were very small. With large sample sizes, it is possible to detect small effects that otherwise would not be found in smaller samples. Because of their small predicting weight, these results should be taken cautiously.

One of the most important limitation of the present study is that both risk factors and child anxiety trajectories were based on measures gathered from the same informant, the mother. The shared variance between these measures may have overestimated the predictive value of studied risk factors. A different picture of the mother's and the child's behaviour may have been obtained by relying on observational measures or other informants (e.g., annual teachers' ratings of child anxiety). A teacher's assessment of the child's anxiety was included, but only at seven years of age. Having dual informants across the years would have been helpful in assessing children's anxiety over time. On the other hand, the present study had the advantage of examining a host of key risk factors simultaneously. While controlling for shared variance among the different factors, analyses could assess the relative impact of each of them.

Another critical limitation of this study regards the directionality of effects, as non-experimental studies cannot rule out child to parent effects. It is very likely that

there are bidirectional effects with regards to the construct of parental overprotection. First, as parental overprotection is related to inhibition, it could certainly be understood that parental worry could facilitate inhibition. Yet, as a largely temperamental dimension, it is also possible that inhibition results in parents worrying about leaving their anxious children with babysitters (two of the items on the overprotection questionnaire). Moreover, maternal overprotection is also associated with anxiety. The possibility of a bidirectional effect here needs to also be entertained.

Contributions

The present study is not the first one to examine the effects of children's temperament, family dysfunction, maternal depressive symptoms, as well as maternal coercion and power assertion onto *internalizing* trajectories (e.g., Côté et al., 2009; Letcher, Smart, Sanson & Toumbourou, 2009). However, to our knowledge, this is the first study to compare different forms of controlling parenting (overprotection and coercion) onto the specific problem of *anxiety* trajectories on a representative provincial sample, as well as to assess the moderating effects of maternal and child characteristics on parenting variables.

Two distinct forms of psychological control. In the present study, the main goal was to examine the impact of two types of controlling parenting. Results showed that while both coercion and overprotection play important roles in anxiety development, they seem to affect differently. One indication of these different and respective links to childhood anxiety was found when interaction effects were investigated. For each form of controlling parenting, the potentially moderating role of child (inhibition) and mother (depressive symptoms) characteristics was tested. Out

of the four possible interactions, only one was found to be significant. Maternal overprotection only increases the likelihood that a child follows the highest anxiety trajectory when his/her mother is also depressed. In contrast, the main, negative impact of coercion, discerning children following the highest anxiety trajectory from both lower ones (lowest and low-rising), is influenced by neither child or maternal characteristics.

Other researchers have also found interesting interactions effects involving controlling parenting. For instance, Aunola and Nurmi (2005) found that both high psychological control (e.g., love withdrawal, guilt induction) and high involvement were associated with a higher likelihood that a child will develop internalizing problems. However, in the absence of psychological control, there was no detrimental impact of parental involvement on child anxiety. Similarly, Grolnick (2003) reported that children of parents exhibiting both low levels of autonomy support and a high level of involvement had higher levels of symptoms. In other words, being close to a controlling parent can have harmful effects.

Potential distinct mechanisms

Interesting parallels can be made between the present findings and this prior research. Unsurprisingly, overt maternal coercion, a variable said to elicit fear of the other, differentiated the highest from both lower (vs. *lowest* and vs. *low-rising)* anxiety trajectories in our study. It thus seems that eliciting fear in children simply increases anxiety. On the other hand, maternal overprotection, a variable said to elicit self-doubt (Affrunti & Ginsburg, 2012) was also linked to the highest anxiety symptom level but only when mothers were also feeling depressed or when anxiety was rated by

the teacher. Perhaps a depressed and/or overprotective parent diminishes children's confidence in their own capacities (dependency, self-doubt) and in the outside world (Dadds, Barrett, & Rapee, 1996). Affrunti and Ginsburg (2012) found that perceived competence partially mediated the link between maternal overprotection and child anxiety. Further studies are needed to explore the distinct mechanisms underlying the links between various forms of psychological control and childhood anxiety.

Clinically speaking, it is possible to hypothesize that the more parents suffer from depressive symptoms, the more they will be preoccupied by their own needs. Donatelli, Bybee and Buka (2007) suggest that this is the case. According to their study, parents with a history of depression tend to use higher levels of self-serving psychological control, giving their own needs prominence over their child's. In the present study, there was a positive but modest ($r = .16$, $p < .05$) correlation between maternal depressive symptoms and overprotection. Future studies could explore whether the impact of maternal depressive symptoms onto child anxiety is mediated by overprotection. For example, Rakow et al. (2011) recently found that guilt induction completely mediates the link between maternal depression and child internalizing problems.

Future applications and implications

In our study, two forms of psychological control (i.e., coercive and overprotective practices) were identified as important risk factors. As such, it would be advisable to prevent these parental practices in order to minimize childhood anxiety. Research conducted within the self-determination theory framework places paramount value on autonomy, one of the essential psychological needs (Deci &

Ryan, 2008a). In addition to demonstrating that psychological control hinders development by thwarting this basic need, SDT research also studies how autonomy support fosters optimal development. In addition to warning against psychological control, research may also promote parenting that can prevent or reduce children's anxiety.

Parenting in an autonomy-supportive manner fosters children's development and learning that is void of internal pressure or fear of the parent. Rather, it fosters children's development and learning by encouraging children's own volition (Joussemet, Landry, & Koestner, 2008). Autonomy support is known to be one of the three key components of optimal parenting, along with warmth/involvement and structure (Steinberg, 1990). Koestner, Ryan, Bernieri and Holt (1984) have defined autonomy support as 1) providing explanations or rationales for requests, 2) offering choices and encouraging initiatives, 3) recognizing the feelings and perspective of the child, and 4) minimizing controlling techniques. This interpersonal style essentially respects the child's individuality. It must be differentiated from permissiveness (i.e., lack of structure) and independence promotion (i.e., not relying on others for aid or support), which have negative childhood consequences (see Baumrind, 1966; Soenens et al., 2007).

Better understanding the risk factors of childhood anxiety as well as the underlying mechanisms by which they operate is crucial. Psychologically controlling parenting seems to be a principal determinant of childhood anxiety, a common mental health problem. Since this determinant is malleable, empirical and applied efforts should be made to help parents support their children's need for autonomy and avoid

thwarting it. Clinical interventions could also incorporate knowledge from the parenting research, since depressive symptoms interacts significantly with overprotection. With such further work, we can hope to better address and prevent children's anxiety, and in turn foster more optimal life trajectories.

References

Affrunti, N. W., & Ginsburg, G. S. (2012). Maternal overcontrol and child anxiety: The mediating role of perceived competence. *Child Psychiatry & Human Development, 43*, 102–112. doi:10.1007/s10578-011-0248-z

Akiskal, H. S. (1998). Toward a definition of generalized anxiety disorder as an anxious temperament type. *Acta Psychiatrica Scandinavia, 98*(s393), 66–73. doi: 10.1111/j.1600-0447.1998.tb05969.x

Asendorpf, J. B. (1990). Development of inhibition during childhood: Evidence for situational specificity and a two-factor model. *Developmental Psychology, 26*(5), 721-730. doi: 10.1037/0012-1649.26.5.721

Ballash, N. G., Leyfer, O., Buckley, A. F., & Woodruff-Borden, J. (2006). Parental Control in the Etiology of Anxiety. *Clinical Child and Family Psychology Review, 9*(2), 113-133. doi: 10.1007/s10567-006-0007-z

Barber, B. K., & Harmon, E. L. (2002). Violating the self: Parental psychological control of children and adolescents. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 15–52). Washington, DC: APA.

Barber, B. K., Olsen, J. E., & Shagle, S. C. (1994). Associations between parental psychological and behavioral control and youth internalized and externalized behaviors. *Child Development*, *65*(4), 1120-1136. doi: 10.1111/j.1467-8624.1994.tb00807.x

Barber, B. K., Stolz, H. E., & Olsen, J. A. (2005). Parental support, psychological control, and behavioral control: Assessing relevance across time, culture, and

method. *Monographs of the Society for Research in Child Development*, 70(4, Serial No. 282). Retrieved from http://www.jstor.org/stable/3701442

Barker, E. D., Jaffee, S.R., Uher, R., & Maughan, B. (2011). The contribution of prenatal and postnatal maternal anxiety and depression to child maladjustment. *Depression and Anxiety. 28*(8), 696-702. doi: 10.1002/da.20856

Baumrind, D. (1966). Effects of authoritative parental control on child behavior. *Child Development, 37*(4), 887–907. Retrieved from http://www.jstor.org/stable/1126611 .

Baumrind, D., Larzelere, R.E., & Owens, E. B. (2010). Effects of preschool parents' power assertive patterns and practices on adolescent development. *Science and Practice, 10*(3), 157–201. doi: 10.1080/1529519090329079

Behar, L. B., & Stringfield, S. (1974). A behavior rating scale for the preschool child. *Developmental Psychology, 10*, 601-610. doi: 10.1037/h0037058

Beidel, D. C., & Turner, S. M. (1997). At risk for anxiety: I. Psychopathology in the offspring of anxious parents. *Journal of the American Academy of Child & Adolescent Psychiatry, 36*(7), 918-924. doi: 10.1097/00004583-199707000-00013

Biederman, J., Faraone, S. V., Hirshfeld-Becker, D. R., Friedman, D., Robin, J. A., & Rosenbaum, J. F. (2001). Patterns of psychopathology and dysfunction in high-risk children of parents with panic disorder and major depression. *American Journal of Psychiatry*, *158*(1), 49-57. doi: 10.1176/appi.ajp.158.1.49

Bigras, N., Bouchard, C., Cantin, G., Brunson, L., Coutu, S., Lemay, L., ... & Charron, A. (2010). A comparative study of structural and process quality in center-

based and family-based child care services. In *Child & Youth Care Forum*, *39*(3), 129-150. doi: 10.1007/s10566-009-9088-4

Boivin, M., Perusse, D., Dionne, G., Saysset, V., Zoccolillo, M., Tarabulsy, G. M., … Tremblay, R. E. (2005). The genetic-environmental etiology of parents' perceptions and self-assessed behaviours toward their 5-month-old infants in a large twin and singleton sample. *Journal of Child Psychology and Psychiatry. 46*(6), 612-630. doi: 10.1111/j.1469-7610.2004.00375.x

Bögels, S. M., & Brechman-Toussaint, M. L. (2006). Family issues in child anxiety: Attachment, family functioning, parental rearing and beliefs. *Clinical Psychology Review, 26*(7), 834-856. doi: 10.1016/j.cpr.2005.08.001

Bosquet, M., & Egeland, B. (2006). The development and maintenance of anxiety symptoms from infancy through adolescence in a longitudinal sample. *Development and Psychopathology. 18*(2), 517-550. doi: 10.1017/S0954579406060275

Breton, J.-J., Bergeron, L., Valla, J.-P., Berthiaume, C., Gaudet, N., Lambert, J., … Lépine, S. (1999). Quebec Child Mental Health Survey: Prevalence of DSM-III--R mental health disorders. *Journal of Child Psychology and Psychiatry, 40*(3), 375-384. doi: 10.1111/1469-7610.00455

Cartwright-Hatton, S., McNicol, K., & Doubleday, E. (2006). Anxiety in a neglected population: Prevalence of anxiety disorders in pre-adolescent children. *Clinical Psychology Review, 26*(7), 817-833. doi: 10.1016/j.cpr.2005.12.002

Côté, S. M., Boivin, M., Liu, X., Nagin, D. S., Zoccolillo, M., & Tremblay, R. E. (2009). Depression and anxiety symptoms: Onset, developmental course and

risk factors during early childhood. *Journal of Child Psychology and Psychiatry, 50*(10), 1201–1208. doi: 10.1111/j.1469-7610.2009.02099.x

Côté, S. M., Boivin, M., Nagin, D. S., Japel, C., Xu, Q., Zoccolillo, M., … & Tremblay,R. E. (2007). The role of maternal education and nonmaternal care services in the prevention of children's physical aggression problems. *Archives of General Psychiatry, 64*(11), 1305-1312. doi:10.1001/archpsyc.64.11.1305

Dadds, M. R., Barrett, P. M. & Rapee, R. M. (1996). Family process in child anxiety and aggression: An observational analysis. *Journal of Abnormal Child Psychology, 24*(6), 715-734. doi: 10.1007/BF01664736

Deci, E. L., & Ryan, R. M. (2008a). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/Psychologie canadienne*, *49*(1), 14-23. doi:10.1037/0708-5591.49.1.14

Deci, E. L. & Ryan, M. R. (2008b). Self Determination Theory: A macrotheory of human motivation, development and health. *Canadian Psychology, 49*(3), 182-185. doi: 10.1037/a0012801

Desrosiers, H. (2000). Longitudinal Study of Child Development in Québec (ELDEQ 1998–2002; Vol. 1, No. 2). Family, child care and neighborhood characteristics. *Québec, Canada: Institut de la statistique du Québec.* Retrieved from http://www. jesuisjeserai. stat. gouv. qc. ca/bebe/bebe_no2. htm.

DiBartolo, P. M. & Helt, M. (2007). Theoretical models of affectionate versus affectionless control in anxious families: A critical examination based on

observations of parent–child interactions. *Clinical Child and Family Psychology, 10*(3), 253-274. doi: 10.1007/s10567-007-0017-5

Donatelli, J. L., Bybee, J., & Buka, S. L. (2007). What do mothers make adolescents feel guilty about? Incidents, reactions, and relation to depression. *Journal of Child and Family Studies*, 16, 859–875. doi: 10.1007/s10826-006-9130-1

Duchesne, S., Larose, S., Vitaro, F., & Tremblay, R. E. (2010). Trajectories of anxiety in a population sample of children: Clarifying the role of children's behavioral characteristics and maternal parenting. *Development and psychopathology*, *22*(2), 361.doi : 10.1017/S0954579410000118

Feng, X., Shaw, S., & Silk, S. (2008). Developmental trajectories of anxiety symptoms among boys across early and middle childhood. *Journal of Abnormal Psychology. 117*(1), 32-47. doi: 10.1037/0021-843X.117.1.32

Field, T., Hernandez-Reif, M., &Diego, M. (2006). Intrusive and withdrawn depressed mothers and their infants. *Developmental Review, 26*(1), 15-30. doi: 10.1016/j.dr.2005.04.001

Grolnick, W. S. (2003). *The psychology of parental control: How well-meant parenting backfires*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Grolnick, W. S., Weiss, L., McKenzie, L., & Wrightman, J. (1996). Contextual, cognitive, and adolescent factors associated with parenting in adolescence. *Journal of Youth and Adolescence*, *25*(1), 33-54. doi: 10.1007/BF01537379

Grant, V. V., Bagnell, A. L., Chambers, C. T., Stewart, S. H. (2009). Early temperament prospectively predicts anxiety in later childhood. *Canadian*

Journal of Psychiatry, 54(5) (05): 320-30. Retrieved from http://search.proquest.com/docview/222845140?account id=12543

Hammen, C., Burge, D., & Stansbury, K. (1990). Relationship of mother and child variables to child outcomes in a high-risk sample: A causal modeling analysis. *Developmental Psychology, 26*(1), 24-30. doi: 10.1037/0012-1649.26.1.24

Hettema, J. M., Neale, M. C., & Kendler, K. S. (2001). A review and meta-analysis of the genetic epidemiology of anxiety disorders. *American Journal of Psychiatry, 158*(10), 1568-1578. doi: 10.1176/appi.ajp.158.10.1568

Hollenstein, T., Granic, I., Stoolmiller, M., & Snyder, J. (2004). Rigidity in parent-child interactions and the development of externalizing and internalizing behavior in early childhood. *Journal of Abnormal Child Psychology, 32*(6), 595-607. doi: 10.1023/B:JACP.0000047209.37650.41

Hudson, J. L., Rapee, R. M. (2009). Familial and social environments in the etiology and maintenance of anxiety disorders. In M. M. Antony and M. B. Stein (Eds.), *Oxford handbook of anxiety and related disorders.* (pp.173-189.) Oxford University Press: New York.

Huijbregts, S. C., Séguin, J. R., Zoccolillo, M., Boivin, M., & Tremblay, R. E. (2008). Maternal prenatal smoking, parental antisocial behavior, and early childhood physical aggression. *Development and psychopathology*, *20*(02), 437-453. doi: 10.1017/S0954579408000217

Jetté, M. (2002). Quebec Longitudinal Study of Child Development (QLSCD 1998-2000, Vol. 2, No. 1). Survey description and methodology (Part I: Logistics

and longitudinal data collections). Québec, Canada: Institut de la statistique du Québec. Retrieved from http://www. jesuisjeserai.stat.gouv.qc.ca/bebe/bebe_v2no1.htm

Jetté, M., & Des Groseilliers, L. (2000). Longitudinal study of child development in Québec (ELDEQ 1998-2000, Vol. 1, No. 1). Survey description and methodology. Québec, Canada: Institut de la statistique du Quebec. Retrieved from http://www.jesuisjeserai. stat.gouv.qc.ca/bebe/bebe_no1.htm

Joussemet, M., Landry, R., & Koestner, R. (2008). A Self-Determination Theory perspective on parenting. *Canadian Psychology, 49*(3), 194–200. doi: 10.1037/a0012754

Kagan, J., Snidman, N., Kahn, V., & Towsley, S. (2007). The preservation of two infant temperaments into adolescence. *Monographs of the Society for Research in Child Development, 72*(2, Serial No. 287), i-95.

Kagan, J., Snidman, N., Zentner, M., & Peterson, E., (1999). Infant temperament and anxious symptoms in school-aged children, *Development and Psychopathology, 11*(2), 209-224. . doi:10.1017/S0954579499002023

Kessler, R. C., McGonagle, K. A., Zhao, S., & Nelson, C. B. (1994). Lifetime and 12-month prevalence of DSM-III--R psychiatric disorders in the United States: Results from the National Comorbidity Study. *Archives of General Psychiatry, 51*(1), 8-19. doi:10.1001/archpsyc.1994.03950010008002

Kline, R. B. (1998). *Principales and practices of structural equation modeling*. New York: Guildfors Press.

Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling versus informational styles on intrinsic motivation and creativity. *Journal of Personality, 52*(3), 233-248. doi: 10.1111/j.1467-6494.1984.tb00879.x

Kring, A. M., & Werner, K. H. (2004). Emotion regulation and psychopathology. In P. Philippot and R. S. Feldman (Eds.), *The regulation of emotion*. (pp. 359-385): Lawrence Erlbaum Associates Publishers.

Laskey, B. J., & Cartwright-Hatton, S. (2009). Parental discipline behaviours and beliefs about their child: Associations with child internalizing and mediation relationships. *Child: Care, Health and Development, 35*(5), 717-727. doi:10.1111/j.1365-2214.2009.00977.x

Letcher, P., Smart, D., Sanson, A., & Toumbourou, J. W. (2009). Psychosocial precursors and correlates of differing internalizing trajectories from 3 to 15 Years. *Social Development, 18*(3), 618-646. doi: 10.1111/j.1467-9507.2008.00500.x

Little, R. J. A., and Rubin, D. B. (1987) *Statistical Analysis with Missing Data*. New York: Wiley Press.

Mars, B., Collishaw, S., Smith, D., Thapar, A., Potter, R., Sellers, R., … & Thapar, A. (2012). Offspring of parents with recurrent depression: Which features of parent depression index risk for offspring psychopathology*? Journal of Affective Disorders. 136*(1-2), 44-53. doi:10.1016/j.jad.2011.09.002

McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review, 27*(2), 155-172. doi: 10.1016/j.cpr.2006.09.002

Murray, L., Creswell, C., & Cooper, P. J. (2009).The development of anxiety disorders in childhood: An integrative review. *Psychological Medicine, 39*, 1413–1423. doi:10.1017/S0033291709005157

Nagin, D. S. (2005). *Group-based modeling of development*. Cambridge, MA, US: Harvard University Press.

Nagin, D. S. & Tremblay, R. E. (2001). Analyzing developmental trajectories of distinct but related behaviors: A group-based method. *Psychological Methods. 6(*1), 18-34. doi: 10.1037/1082-989X.6.1.18

Offord, D. R., Boyle, M. H., Szatmari, P., Rae-Grant, N., Links, P. S., Cadman, D. T., … Woodward, C. (1987). Ontario Child Health Study: six-month prevalence of disorder and rates of service utilization. *Archives of Central Psychiatry, 44*(9), 632–836. doi:10.1001/archpsyc.1987.01800210084013.

Pahl, K. M., Barrett, P. M., & Gullo, M. J. (2012). Examining potential risk factors for anxiety in early childhood. *Journal of Anxiety Disorders, 26*(2), 311-320. doi:10.1016/j.janxdis. 2011.12.013

Radloff, L. S. (1977). *The CES-D Scale: A self-report depression scale for research in the general population*. Applied Psychological Measurement. 1(3), 385-401.

Rakow, A., Forehand, R., Haker, K., McKee, L. G., Champion, J. E., Potts, J., … & Compas, B. E. (2011). Use of parental guilt induction among depressed parents. *Journal of Family Psychology. 25*(1), 147-151. doi: 10.1037/a0022110

Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review, 17*(1), 47-67. doi: 10.1016/S0272-7358(96)00040-2

Rinaldi, C. M., & Howe, N. (2012). Mothers' and fathers' parenting styles and associations with toddlers externalizing, internalizing, and adaptive behaviors. *Early Childhood Research Quaterly, 27*(2), 266-273. doi: 10.1016/j.ecresq.2011.08.001

Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43*(3), 450-461. doi: 10.1037/0022-3514.43.3.450

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. doi: 10.1037/0003-066X.55.1.68

Snidman, N., Kagan, J., Riordan, L., & Shannon, D. C. (1995). Cardiac function and behavioural activity. *Psychophysiology, 32*(3), 199-207. doi: 10.1111/j.1469-8986.1995.tb02949.x

Soenens, B., & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of Self-Determination Theory. *Developmental Review, 30*, 74–99. doi:10.1016/j.dr.2009.11.001

Soenens, B., Vansteenkiste, M., Lens, W., Luyckx, K., Goossens, L., Beyers, W., & Ryan, R. M. (2007). Conceptualizing parental autonomy support: Adolescent perceptions of promotion of independence versus promotion of volitional

functioning. *Developmental Psychology, 43*(3), 633–646. doi: 10.1037/0012-1649.43.3.633

Soenens, B., Vansteenkiste, M., Luyten, P. (2010). Toward a domain-specific approach to the study of parental psychological control: distinguishing between dependency-oriented and achievement-oriented psychological control. *Journal of Personality, 78*(1), 217-256. doi: 10.1111/j.1467-6494.2009.00614.x

Spence, S. H., Najman, J. M., Bor, W., O'Callaghan, M. J., & Williams, G. M. (2002). Maternal anxiety and depression, poverty and marital relationship factors during early childhood as predictors of anxiety and depressive symptoms in adolescence. *Journal of Child Psychology and Psychiatry, 43*(4), 457-469. doi: 10.1111/1469-7610.00037

Steinberg, L. (1990). Autonomy, conflict, and harmony in the family relationship. In S. Feldman and G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 255-277). Cambridge, MA, US Harvard University Press.

van der Bruggen, C. O., Stams, G. J. J. M., & Bögels, S. M. (2008). Research review: The relation between child and parent anxiety and parental control: A meta-analytic review. *Journal of Child Psychology and Psychiatry, 49*(12), 1257–1269. doi:10.1111/j.1469-7610.2008.01898.x

Varela, R. E., Sanchez-Sosa, J. J., Biggs, B. K., & Luis, T. M. (2009). Parenting strategies and socio-cultural influences in childhood anxiety: Mexican, Latin American descent, and European American families. *Journal of Anxiety Disorders. 23*(5), 609-616. doi:10.1016/j.janxdis.2009.01.012

Weems, C. F. (2008). Developmental trajectories of childhood anxiety: Identifying continuity and change in anxious emotion. *Developmental Review 28*, 488–502. doi:10.1016/j.dr.2008.01.001

Wood, J. J., McLeod, B. D., Sigman, M., Hwang, W.-C., & Chu, B. C. (2003). Parenting and childhood anxiety: Theory, empirical findings, and future directions. *Journal of Child Psychology and Psychiatry, 44*(1), 134-151. doi: 10.1111/1469-7610.00106

Zimmerman, L. K., & Stansbury, K. (2004). The influence of emotion regulation, level of shyness, and habituation on the neuroendocrine response of three-year-old children. *Psychoneuroendocrinology, 29*(8), 973-982. doi:10.1016/j.psyneuen.2003.09.003

Table 1

Descriptive Statistics

Variables	Child age	*N*	*M*	*SD*	Min	Max
Anxiety Symptoms (MR)						
	2.5	1996	1.03	1.54	0	6
	3.5	1948	2.40	1.82	0	6
	4.5	1942	2.04	1.79	0	6
	5	1759	2.50	1.90	0	6
	6	1492	2.63	2.00	0	6
	8	1450	1.59	1.32	0	6
Anxiety Symptoms (TR)						
	7	1259	2.31	2.34	0	10
Continuous Risk Factors:						
Inhibition	2.5	1996	2.71	2.57	0	10
Family Dysfunction	1.5	1942	1.27	1.28	0	7.14
Maternal Depression	1.5	2034	1.36	1.37	0	9.72
SES	2.5	1974	.00	1.00	-3.03	3.62
Coercion	2.5	1989	2.57	1.15	0	8.12
Overprotection	2.5	1925	3.80	2.31	0	10
Permissiveness	2.5	1989	4.27	1.26	0.50	10
Warmth/Involvement	2.5	1519	3.41	.89	1	9
Behavioural Control	2.5	1989	7.38	1.11	2.80	10
Dichotomous Risk factors:						
Child Sex :	2.5	2223				
Boys (1)		1138	51.20%			
Girls (2)		1085	48.80%			
Family Status	2.5	2223				
Intact (1)		1544	69.50%			
Non-intact (2)		679	30.50%			

Note. MR = mother report; TR = teacher-report. The table depicts observed minimum and maximum scores. Other than the SES and anxiety variables, every variable was standardized on a 0 to 10 scale.

Table 2

Bivariate Correlations Among Predictors and Teacher-Rated Child Anxiety

	1	2	3	4	5	6	7	8	9	10	11
1. Sex	--	--	--	--	--	--	--	--	--	--	--
2. Inhibition	.03	--	--	--	--	--	--	--	--	--	--
3. Family Status	-.02	.00	--	--	--	--	--	--	--	--	--
4. Family Dysfunction	.01	.05 *	.19 *	--	--	--	--	--	--	--	--
5. Depression	-.04	.05 *	.15 *	.38 *	--	--	--	--	--	--	--
6. SES	.02	.00	-.27 *	-.15 *	-.22 *	--	--	--	--	--	--
7. Coercion	-.12 *	.03	.01	.15 *	.19 *	-.14 *	--	--	--	--	--
8. Overprotection	-.01	.06 *	.07 *	.10 *	.16 *	-.33 *	.09 *	--	--	--	--
9. Permissiveness	-.04	.02	.10 *	.13 *	.12 *	-.14 *	.36 *	.19 *	--	--	--
10. Warmth/ Involvement	-.04	.00	-.05 *	-.06 *	-.02	.11 *	-.06 *	.05 *	.02	--	--
11. Behavioural Control	-.04	-.06	-.03	-.17 *	-.13 *	.20 *	-.05 *	-.21 *	-.30 *	-.05	--
12. Anxiety - 7yo (Teacher)	-.04	.06 *	.11 *	.04	.03	-.13 *	.02	.11 *	.02	-.01	-.03

Note. All variables are in continuous forms. $p < .05$ * (two tailed tests).

Table 3

Individually Modeled Factors Assessing Predictability of Anxiety Trajectories

Risk factors		χ^2 joint test of significance (*df* = *2)*	*p* value
	Child Sex	0.15	0.93
	Child Inhibition	48.12	< .001
	Family Status	7.23	0.03
	Family Dysfunction	37.02	< .001
	Maternal Depression	51.38	< .001
	SES	9.82	0.01
	Maternal Coercion	42.44	< .001
	Maternal Overprotection	19.83	< .001
	Maternal Permissiveness	12.25	< .01
	Maternal Warmth/Involvement	0.44	0.80
	Maternal Behavioural Control	0.27	0.87

Table 4

Predictors Significantly Distinguishing Between Anxiety Trajectories & Respective Effect Sizes

Low-rising vs. Lowest				Highest vs. Lowest				Highest vs. Low-rising			
	OR	*ES (% increase)*	95% CI		*OR*	*ES (% increase)*	95% CI		*OR*	*ES (% increase)*	95% CI
		--		Inhibition:	1.32 *	*32%*	[1.13 - 1.53]	Inhibition	1.22 *	*22%*	[1.08 - 1.37]
Family Dysfunction	1.13 *	*13%*	[1.01 - 1.27]	Family Dysfunction	1.20 *	*20%*	[1.06 - 1.36]			--	
		--		Coercion	1.58 *	*58%*	[1.28 - 1.96]	Coercion	1.33 *	*33%*	[1.12 - 1.59]
		--		Depression X Overprotection	1.07 *	*7%*	[1.02 - 1.12]			--	

Note. *OR* = odds ratio; *ES* = effect size; CI = confidence interval. N = 1812. All of the eight significant putative predictors were included in these multinomial regression analyses (i.e., child shyness; family SES, intactness and dysfunction; maternal depressive symptoms, coercion, overprotection, and permissiveness).

* $p < .05$ (two tailed tests).

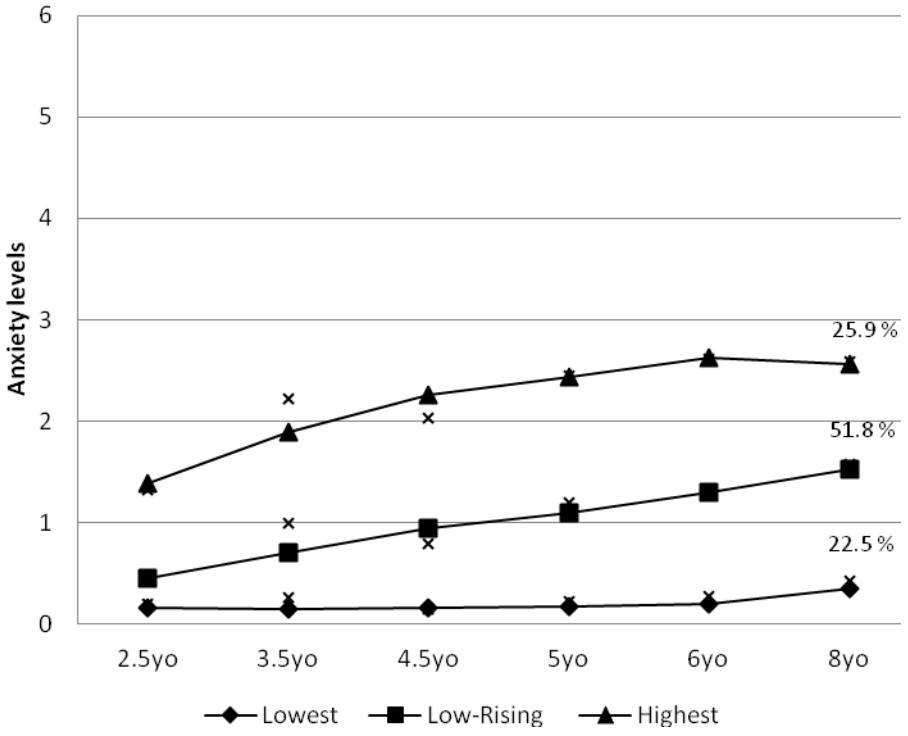

Figure 1. Trajectories of childhood anxiety from 2.5- to 8-years of age. Percentages indicate the estimated proportion of the population that follow each trajectory.

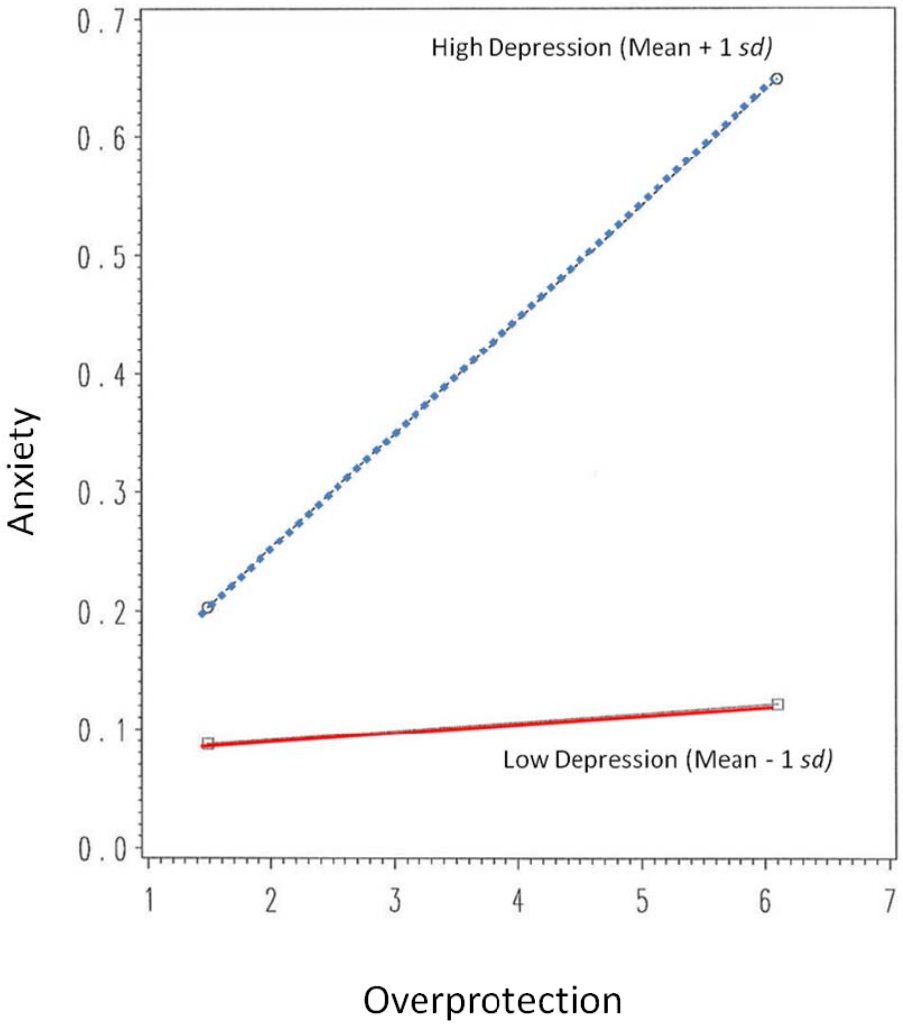

Figure 2. Interaction between maternal overprotection and depression when predicting children's likelihood of following the highest (vs. the lowest) anxiety trajectory.

Article 2

Disciplinary practices, toddlers' obedience and mental health: A prospective observational study

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Julie C. Laurin: Article conceptualization, observational codification, statistical analyses, results interpretation, article writing and editing.

Mireille Joussemet: Article conceptualization, results interpretation assistance, article editing.

David R. Forman: Article editing, funded and provided research laboratory for data collection

Disciplinary practices, toddlers' obedience and mental health: A prospective observational study

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Abstract

Although toddlers' committed compliance (CC) is typically seen as adaptive, high levels of obedience has been linked with internalizing problems, and noncompliance (NC) has been found to be beneficial self-assertion. The present observational study investigated how toddlers' CC/NC (coded in both "do" and "don't contexts; 2 and 3yo) relate to later internalizing problems (parent-rated; 4.5yo), and explored how parental discipline practices (controlling and autonomy-supportive; "do" context; N = 102; M = 26.4 months) relate to these child outcomes. CC and NC were aggregated into a parsimonious self-regulated obedience index (SRO). Analyses revealed that 3yo- prohibitions-SRO prevented children to have a level of anxious/depressed problems falling in the sub- and clinical ranges. No curvilinear effect was found, indicating that no level of SRO led to later internalizing problems. Autonomy-supportive parenting was positively related to 3yo-request-SRO. In contrast, overt and covert controlling parenting had detrimental effects on SRO; while covert control increased the odds of showing clinically relevant levels of internalizing problems. This prospective observational study supports the idea that toddlers' SRO is a protective factor. It also suggests that while supporting toddlers' need for autonomy has a positive impact, thwarting it impedes SRO and fosters internalizing problems.

Keywords: Parenting, Anxiety, Self-Regulation, Risk Factors

Disciplinary practices, toddlers' obedience and mental health: A prospective observational study

The parent-child relationship can be very fulfilling. Regardless, parental discipline can be challenging on both parent and child, perhaps particularly during toddlerhood. In this period, the child's first movement toward autonomy and agency occurs simultaneously as increasing demands are placed on him and as he is increasingly capable of initiating and regulating his conduct (Maccoby, 1984). Thus, toddlers' socialization can be a strain on both parties. In a disciplinary context, parenting typically refers to bidding toddlers to perform a requested conduct or refrain from exhibiting a prohibited action ("do" and "don't"; Kochanska & Aksan, 1995).

On the one hand, parents would love their toddler to cooperate and follow their socialization rules. On the other hand, some research has showed that obtaining absolute obedience may negatively impact the child's individuality, development and well-being (e.g., Dix, Stewart, Gershoff, & Day, 2007). If parents aim to foster both their toddler's cooperation and well-being, deciding what parenting practice to favor may represent a challenge. The present study will explore all three of these topics (i.e., toddlers' compliance, adjustment and parenting practices).

Compliance as a Protective Factor

In the parent-child relationship, the child's (non)compliance begins following a parental demand, requesting the child to act in a specified way. The internalization process is the evolution from which these parental socialization attempts eventually become transformed into self-endorsed standards for child behaviour which occur with

distal parental monitoring (Forman, 2007; Gralinski & Kopp, 1993; Kochanska & Aksan, 1995; Lepper, 1983; Maccoby, 1984). Toddler's internalization of rules has traditionally been measured through levels of compliance (e.g., Blandon & Volling, 2008; Feldman & Klein, 2003; Forman, 2007; Kochanska & Aksan, 1995; Kochanska, Tjebkes & Forman, 1998 Kuzynski & Kochanska, 1990). Committed compliance describes a child's full endorsement of parental agenda as its own; a type of compliance which takes place without parental cues or reminders. It has been found to be a good predictor of internalization of rules (e.g., Kochanska & Aksan, 1995; Kochanska et al., 1998), children's moral development (Kochanska, 2002), and mental health (Kuczynsky & Kochanska, 1990; Kochanska, Barry, Aksan, & Boldt, 2008). In contrast, noncompliance is negatively related to the internalization of rules (Kochanska Coy, & Murray, 2001) and has been found to hinder children's socio-affective development (Kuzynski & Kochanska, 1990). Situational compliance (obedience contingent on parental cues or reminders) is not related to rule internalization (Kochanska et al., 2001).

Committed compliance to parental requests and prohibitions has also been thought to be indicative of self-regulation (SR; Kochanska et al., 2001; Kim & Kochanska, 2012). This construct is defined as the capacity to suppress a dominant response in order to perform a subdominant one (Rothbart, 2011), and has continuously been shown to be a strong predictor of mental health and resilience (Murray & Kochanska, 2002; Kim, Nordling, Yoon, Boldt and Kochanska, 2013). Committed compliance thus represents (behavioural) SR in a naturalistic parent-child context (Kochanska et al., 2001; Kim & Kochanska, 2012).

While SR is typically portrayed as a protective factor, it seems that different expressions of behavioural SR may be related to differential outcomes. Kim et al. (2013) have found that three- and four-year-old children's behavioural control in an emotionally frustrating task (i.e., delay of gratification) singularly predicted total behaviour problems on the Child Symptom Inventory (Gadow & Sprafkin, 2002), but not later academic performance. Meanwhile, behavioural self-control in an emotionally neutral context (i.e., motor inhibition and suppressing-initiating responses to signal [Go/No-go test]) were unrelated to both outcomes. The authors attributed these differences to the context in which it was taking place (i.e., "hot", emotionally charged vs. "cold", neutral setting).

If a toddler's ability to regulate his behaviour in an emotionally charged context is more strongly related with their future mental health, then studying toddlers' compliance and noncompliance in "hot" disciplinary contexts seems highly pertinent. Indeed, being asked to perform an uninteresting task or asked to avoid engaging in a pleasant one is usually frustrating for toddlers.

Potential Benefits of Toddlers' Non-Compliance

Committed compliance has been associated with many positive child outcomes and has even been defined as a measure of behavioural SR, a known resiliency factor. If wholehearted committed compliance characterizes behavioural SR, then noncompliance arguably portrays a lack of behavioural self-regulation. In noncompliant behaviours, the child may be unable to suppress a dominant response in order to perform a subdominant action. Thus, noncompliance and committed

compliance may represent two opposing poles of one behavioural SR dimension. This will be explored methodologically in the current study.

Alternatively, in noncompliance, toddlers may be unwilling to suppress a dominant response and some studies suggest that noncompliance is a beneficial form of self-assertion. Dix et al. (2007) have found that toddler's (20-month-olds) active resistance to parental requests to clean-up (i.e., "do" discipline context) reflects a positive expression of self-assertion during childhood. This was indicated by its links with mother's adaptive parenting and her good mental health, and children's initiation of positive mother-child interactions – all good indicators of a healthy parent-child relationship. The authors concluded that active resistance could reflect toddlers' developmentally appropriate motivation to control events (Maccoby, 1984). Similarly, Crockenberg and Litman (1990) found that, in addition to compliance, self-assertion was also associated with less power-assertive parental control. Also, in Kuczynsky's and Kochanska's (1990) study, toddler's (1.5 - 3.5yo) compliance and self-assertion were both negatively related with internalizing and externalizing problems at 3.5yo's. Together, these studies seem to suggest that some form of resistance can be adaptive for toddlers.

It is thus relevant to wonder whether a toddler's absolute obedience to socialization rules imposed in a frustrating disciplinary context can be detrimental, particularly during a developmental period where autonomy development is central. In fact, extremely high levels of SR have been shown to be problematic. In Murray and Kochanska's study (2002), preschooler's (3.5yo) highly elevated score of behavioural self-control (in a delay of gratification and a response inhibition task) was

predictive of preschooler's internalizing problems. Thus, although child compliance in the absence of a parental interference is usually thought to indicate wholehearted endorsement of parental agenda, it may also reflect an anxious, "overcontrolled" form of SR.

Concurrently, self-determination theory (SDT; Deci & Ryan, 1980, 1985, 2000) distinguishes various SR styles in the process of internalization. Within the SDT literature however, the presence of obedience is not enough to determine whether internalization of rules is optimal. The focus is not on the quantity of SR; rather it is the quality of SR behaviours that hold crucial pertinence for well-being. Deci and Ryan (1980, 1985, 2000) explain that the level of self-determination when following a rule and self-regulating hold the key for individuals' well-being and mental health. Although acting out of wholehearted volition and acting out of pressure may yield the same behavioural outcome, they have differential mental health repercussions (see Deci & Ryan, 2000, 2008a; Ryan & Deci, 2000 for a review). The degree to which a SR is self-determined, as opposed to alien to the self, is related to positive child mental health and better performance (Deci & Ryan, 2008b). Conversely, more pressured SR is maladaptive, such as when individuals overcontrol their feelings and desires (Ryan, Deci, Grolnick, & La Guardia, 2006). Such overcontrol of emotions and the alienation from the inconsistencies between emotions and behaviours are likely to lead to internalizing problems (Ryan et al., 2006). With an SDT lens on behavioural SR, the first goal of the study is to clarify whether toddlers' very high levels of compliance are related to later child internalizing difficulties.

Child Internalizing Problems

One way to shed further light onto the apparent inconsistencies in the compliance and non-compliance literature is to examine how they relate to later child mental health. The main child mental health concern pertains to internalizing problems.

Internalizing problems are characterized by anxiety, withdrawal and depression (Achenbach, 1991, 1992; Achenback & Ederlbrock, 1983). Both anxiety and depression are believed to be specifically related to an overly rigid regulatory style. Although they tend to peak later in childhood and adolescence, early manifestations are observable in the preschool years at rates comparable to some externalizing disorders (Achenbach & Rescorla, 2004; Egger & Angold, 2006a). Early childhood internalizing behaviours not only impair children's daily functioning and social adjustment (Egger & Angold, 2006b; McConaughy & Achenbach, 1994; Sawyer et al., 2001; Shaw, Keenan, Vondra, Delliquardi & Giovannelli, 1997), but they remain stable across early to mid-childhood (Bayer, Sanson, & Hemphill, 2006, 2009; Bayer, Hiscock, Ukoumunne, Price, & Wake, 2008; Gazelle & Ladd, 2003). The present study will clarify whether some level of toddlers' compliance is associated with higher anxious and depressed symptoms of the internalizing disorder spectrum. It will also explore which disciplinary parenting practices promote them. Links between the quality of parental disciplinary practices and toddler's compliance will also be explored.

Parenting Practices in Discipline Contexts

The optimal, authoritative parenting style (Baumrind, 1966, 1971; Maccoby & Martin, 1983) is composed of three key dimensions: affiliation, psychological autonomy and behavioural control (Aunola & Nurmi, 2005; Barber & Olsen, 1997; Gray & Steinberg, 1999; Grolnick & Ryan, 1989; Schaefer, 1965; Steinberg, 1990). While the parent-child affiliation is thought of as a necessary, albeit distal facilitator of development and child mental health (Deci & Ryan, 2000), the levels of psychological autonomy and behavioural control are seen as more proximal determinants of rule internalization and mental health (Barber & Harmon, 2002; Deci & Ryan, 2000). As this study taps into parental socialization in a disciplinary context, we will focus on the proximal parenting dimensions of psychological autonomy and its opposite, psychological control. The impact of behavioural control (or structure) will not be investigated, as it is not related with internalizing problems (e.g., Barber, 1996; Laurin, Joussemet, Tremblay & Boivin, 2013; Grey & Steinberg, 1999; Rinaldi & Howe, 2012). The second goal of the present study was thus to explore the predictive value of controlling and autonomy-supportive disciplinary practices on child SR and internalizing problems.

In addition to child's temperament and family adversity (Côté et al., 2009; Garstein, Putnam & Rothbart, 2012; Karevold, Røysamb, Ystrom & Mathiesen, 2009: Letcher, Smart, Sanson & Toumbourou, 2009; van Oort, Greaves-Lord, Ormel, Verhulst, & Huizink, 2011), parental psychological control is a well-known risk factor for childhood anxiety and depression problems (Affrunti & Ginsburg, 2012; Letcher et al., 2009; Rapee, 1997; Silk, Morris, Kanaya & Steinberg, 2003; van Oort et al., 2011). Although numerous operationalizations can be found in the parental

psychological control literature, it is typically thought to be "intrusive and manipulative of children's thoughts, feelings and attachments to parents" (Barber & Harmon 2002, p. 15) and controlling through guilt (Schaefer, 1965). This power-assertive disciplinary style (Baumrind, Larzelere & Owen, 2010) is a parental pressure that is apathetic to children's emotional and psychological needs, and which stifles independent expression and autonomy (Barber, 1996).

Research conducted within the SDT framework explains that such controlling tactics undermine individual's mental health by thwarting the need for autonomy, a fundamental human need (Deci & Ryan, 2008a). Receiving pressures to think, behave and feel in particular ways (Ryan, 1982) either fosters too rigid a regulation or none at all (Cole, Zahn-Waxler, Fox, Usher, & Welsh, 1996; Eisenberg et al., 2000, 2001; Hinshaw, 1997; Ialongo, Edelsohn, Werthamer-Larsson, Crockett & Kellam, 1996). Soenens and Vansteekiste (2010) have defined a particular conceptual distinction between overt and covert forms of psychological control. They argue that when children come to put internal pressure to become or act in a specific way, more covert types of psychological control are used (e.g., providing conditional love, promising rewards). Conversely, abiding to external pressures out of fear of the parent is related to more overt types of psychological control (e.g., threats, using physical force). Both types of controlling discipline will be investigated in the present study.

The SDT literature also aid in defining how to provide autonomy support, the opposite of psychological control. Autonomy-supportive parenting is characterized by conditions supporting individuals' self-initiation and psychological freedom. It is usually defined as the provision of choices, a meaningful rational explaining the

necessary situational constraints, and an empathetic acknowledgement of children's perspectives (Koestner, Ryan, Bernieri & Holt, 1984; Deci, Eghrari, Patrick & Leone, 1994). A wealth of experimental and correlational studies using this operationalization have shown that autonomy support fosters children's motivation, the internalization of rules and values, as well as psychological adjustment (see Joussemet, Landry, & Koestner, 2008 for a review).

To date, very few studies have examined whether autonomy-supportive parenting is also beneficial for toddlers. The vast majority of studies on autonomy support have been conducted with school-aged children and adolescents. In the few studies that have explored autonomy support with toddlers, observed autonomy-supportive parenting was coded during challenging game like activities (Bernier, Carlson, Deschênes, & Matte-Gagné, 2012; Bordeleau, Bernier, Carrier, 2012; Matté-Gagné & Bernier, 2011; Matté-Gagné, Bernier, & Gagné, 2013; Whipple, Bernier, Mageau, 2011; Zuk, 2013) or during parent-child memory conversations (Cleveland, Reese & Grolnick, 2007). To our knowledge, autonomy-supportive parenting has never been coded within a disciplinary context. As such, for this study, we developed a coding system to explore this avenue. Traditional elements of autonomy support were used (choice, rationale, noncontrolling language), as well as other practices that were thought to be fitting for this population and context.

Present Study

Using observational data, the present study will assess toddler's compliance and noncompliance at 2- and 3-years-old, across two discipline contexts ("do" and "don't"). The relationship between toddler SR and later anxiety/depression problems,

assessed by their mothers at 4.5-years of age, will be examined. There are no a priori hypotheses given the inconsistencies in the literature, but a curvilinear relationship will be tested to see if very high levels of SR may be linked with higher internalizing problems. Diverse parenting practices thought to reflect the parenting dimension of psychological control (overt and covert) and autonomy support were coded during the "do" discipline context at 2-years of age (i.e., parents request their 2-years-old toddlers to clean-up toys after playing). These parental practices were examined in relation to child SR and anxiety/depression problems. We predict that both overt and covert psychologically controlling parenting will be related to less SR. Also, as only covert forms are related to children putting internal pressure on themselves, it is believed that it will singularly predict more anxiety/depression problems, while overt forms will not. Autonomy-supportive parenting is expected to be related with more SR and less internalizing problems.

Method

Participants

Data collection occurred over a three-year period. One hundred and nine 2-year-old toddlers (M = 26.43, SD = 1.74 months, 61 boys) and their primary caregiver (mothers in 92.7% of cases) participated in this study in the first data collection year. The dyads were recruited by using various methods including birth lists, letters to daycares, as well as poster and newspaper ads in the Montreal (Qc) area. The ethnic background of participants was predominantly of Caucasian European descent (68.6%), however it also included coming from African (3.9%), Hispanic (2%), Asian (2.9%) and mixed or other (21.6%) cultural heritage. All primary caregivers spoke either

English (64.2%) or French in their homes, and most had a university education (61.4%). The participating families lived in various economic conditions, as family income varied from less than $25,000 (11.9%) to more than $100,000 (14.7%). The largest proportion of participating families lived with an annual income between $50,000 to $75,000 (25.7%), followed by an annual income ranging between $75 000 to $100 000 (22%), and $25 000 to $50 000 (19.3%). All participants were compensated for their time, whereby parents received $20 and the child received a small toy after each visit.

During this first data collection year, all but three dyads attended two videotaped lab visits, approximately one or two weeks apart (M = 10.68 days, SD = 6.61). In addition, recording problems obstructed all coding of four participants' lab visit videos. Thus, a total of 102 parent-child dyads had complete data available at Time 1 (T1).

Eighty-five dyads (95.3% mothers) participated during the second year of data collection (M days between visits = 9.43, SD = 5.0). One dyad did not come back for a second laboratory visit, rendering the final sample to 84 dyads for which complete data was available at Time 2 (T2; 83 % of the original sample). During the second data collection year, the children were 3-years of age (M = 41 months, SD = 1.88 months) and the sample consisted of primarily girls (60.9%).

Finally, 62 questionnaire packages were filled-out by a primary caregiver (92.1% mothers) and sent back to our laboratory during the last data collection year (74% of the last sample). During this Time 3 (T3) data collection round, the children were 4.5-years-old (M = 54 months, SD = 2.4 months), and the questionnaires concerned a majority of boys (61.2%).

Procedure

When the children were 2- and 3-year-old (T1 and T2), the parent-child dyads were videotaped during two visits (65- to 85-minute periods each), each taking place 1-2 weeks apart. The dyads participated in a series of activities often meant to elicit everyday activities, such as play time, snack time, storytelling, imitation and other learning activities. The testing rooms, a playroom and a naturalistic living room, were each rigged with two cameras. The former was equipped with a table and two chairs, while the latter had a couch, an armchair, a coffee table with a few toys and an off-limit shelf filled with attractive toys. The present study focuses on the clean-up tasks and any activity taking place in the living room, during which children were prohibited to touch the attractive toys (see Figure 1). Finally, when children were 4.5-years-old (T3), self-report questionnaires were sent to and returned from participating parents, by mail.

At each visit, parents were invited to reinforce rules in contexts where they asked their child (a) to do an unpleasant activity (i.e., clean-up toys) and (b) to refrain from engaging in an appealing attractive activity (i.e., not touching attractive toys). These experimental tasks represent prototypes of Kochanska and colleague's "do" and "don't" socialization contexts (e.g., Kochanska & Aksan, 1995; Gosselin & Forman, 2012).

"Do" contexts. The "do" contexts consisted of a clean-up task in the playroom, with 7 minutes to complete on each visit. After five minutes of free play, the instructor requested the parent to ask their toddler to clean up the toys and try to make the task more the child's responsibility than theirs. To acknowledge toddler's usual reticence to such a task, while still underlining the experimental demand, all parents were told the following sentence: "*We know that typically, most two-year-olds don't really like to*

clean-up, but try to make it your child's job as much as possible, and do as you would normally do it at home when you want your child to do something." The total time spent in this "do" context was 14 minutes at T1 and at T2 (7 minutes during the first and second visit for each data collection year).

"Don't" contexts. There were numerous "don't" situations, all taking place in the living room, equipped with a shelf with a large number of attractive toys. Children were expected never to touch them. The few other toys available in the living room were either uninteresting for toddlers or required adult assistance to play with (i.e., a viewmaster with slides, two books, and a puzzle). Parents were given the following instruction when they first entered the living room, and were told to reinforce the attractive toys prohibition rule whenever the dyad was in this room: "*The room we are about to enter has a shelf with toys on it. Please point them out as off-limits to your child as soon as we enter the room, even if this is not something you would typically do when you do not want your child to touch something.*" On every occasion the dyad was placed in the living room setting, the "attractive toys prohibition" task was coded (see list of activities in Figure 1). The total time spent in this "don't" context was 62 minutes at T1 (27 and 35 minutes during the first and second visit, respectively) and at T2 (35 and 27 minutes, respectively).

Behavioural Coding Measures

Teams of graduate and undergraduate students independently observed and coded the video recordings of each visit. All parenting dimensions in the present study were coded by different coding teams.

Parental disciplinary practices. A coding system was developed to assess the parenting dimensions of psychological control (derived from Hastings, 1996; Rubin & McKinnon, 1994; Joussemet, Mageau & Koestner, 2013; Soenens & Vansteekiste, 2010) and autonomy support (derived from Frodi, Bridges, & Grolnick, 1985; Grolnick & Ryan, 1989; Joussemet et al., 2013), when the toddlers were 2-years-old. This coding served to assess parental disciplinary practices during the T1 "do" clean-up tasks (14 minutes in total; 7 minutes per visit), whereby each behavioural code was marked as being present or absent in each 30-second segment.

Overt psychological control. This coding system consisted of the sum of two parental practices, derived from two coding schemes (Hastings, 1996; Rubin, & McKinnon, 1994). The first coded practice was using *Physical Force*, (Intra-Class Correlation [ICC] = .90), which was coded each time the parent held the child's hand/arm or held the child down as a way to make him/her clean-up. *Threaten/Punish* (ICC = .98) was also coded whenever the parent suggested a negative outcome if the child didn't help (e.g. "Do you need a time-out", "If you don't do this now you can't play later", "ok, no treat for you").

Covert psychological control. This coding system consisted of the sum of two parental practices, derived from theoretical operationalization of this construct (Barber, Xia, Olsen, McNeely, & Bose, 2012; Deci & Ryan, 2008b; Joussemet et al., 2013; Vostanis, Nicholls, & Harrington, 1994). The *Criticism* code (ICC = .94) reflected parents using insults, criticism, sarcasm regarding the child or his/her cleaning behaviours. In addition, based on SDT, which identifies expected rewards as

controlling, a *Bribing* code (ICC = .96) was given whenever a parent tried to convince his/her child to pick up the toys by promising a positive outcome after the clean-up.

Autonomy support. This exploratory coding system consisted of the sum of five parental practices thought to potentially represent support for a toddler's autonomy in a "do" discipline context. The first three were based on the classical definition of autonomy support (Koestner et al., 1984). Offering a rationale, choice, empathy and using non-controlling language are the typical elements used to operationalize autonomy support. In the present study, *Rational* (ICC = .85) was coded when the parent gave meaningful reasons for cleaning up (e.g., "*it's important to clean up to make it all nice in here, to have more space*"). In *Choice Provision* codes (ICC = .78), the parent encouraged the child to make choices or bring his/her input in the manner in which the task is achieved. *Suggestion* (ICC = .85) was coded as a form of non-controlling language, such when parent asks gently (e.g., "*Can you put this away? Lets clean-up"*), rather than giving orders (e.g., "*Put this block in the bin*"). Though empathy is commonly used when defining AS, this element was not coded in the present study, as it relates with child's distress and does not pertain to soliciting cooperation.

The following two practices were coded to explore other ways parents may attempt to support a toddler's autonomy. The *Describe* code (ICC = .83) was scored whenever the parent pointed to a perceived problem, gave information as to this issue without suggesting any actions, in an impersonal manner (e.g., "There are blocks left in the corner"). Describing the situation is seen as a noncontrolling way to provide information (Ryan, 1982; Faber & Mazlish, 1980; 2010; Joussemet et al., 2013). Similarly, singing a clean-up song was thought to be an empathic and age-appropriate

way to focus the toddler's attention on the task, a putative manifestation of autonomy support toward a toddler who doesn't want to clean-up. *Sing* codes (ICC = 1.00) were given each time the parent sang a "clean-up song".

Child compliance & noncompliance. The present coding system was adopted from Kochanska & Aksan, (1995), in which five child behaviours were coded. The same compliance and noncompliance codes were used in both discipline contexts and years. In 2- and 3-year-old's "do" contexts (clean-up request), one of the five compliance codes was given in each 30-second segment (Cohen's Kappa =.86 and .78 at T1 and T2, respectively). In 2- and 3-year-old's "don't" contexts (attractive toys prohibition), one of the five compliance codes was given only during the 30-second segments following any instance where the child's behaviour or attention was directed at the attractive toys (Cohen's Kappa =.76 and .78, at T1 and T2, respectively).

Committed Compliance codes depict the child's full endorsement of maternal agenda, embracing the task wholeheartedly. The maternal agenda functions as the child's own; the child spontaneously conforms to parental demand without parental intervention. *Situational Compliance* codes indicated acceptance of maternal agenda. Although in both the "do" and "don't" context the child is generally cooperative, s/he needs maternal prompting to stay on task, otherwise the compliance behaviours halt. *Passive Noncompliance* indicated reluctance to accept maternal agenda, and when prompted, the child tends to ignore directives. In *Self-Assertion* codes, the child exhibited overt resistance to the maternal agenda and/or negotiation with the mother in a non-aversive manner. *Defiance* codes depicted overt rejection of maternal agenda with poorly controlled anger, whining, kicking and or temper tantrum.

As the present study pertains to toddlers' regulation of behaviours, only the behavioural codes portraying this ability were included in our analysis. Following Kochanska's work (Kochanska et al., 2001; Kim & Kochanska, 2012), committed compliance was used as a behavioural self-regulation measure (SR). Situational compliance was also coded, but not used in the present study, as it is unrelated to the construct of SR (Kochanska et al., 2001). Finally, all forms of toddlers' noncompliance (i.e., the sum of passive noncompliance, self-assertion and defiance) were coded, and aggregated into a total noncompliance score and conceptualized as a lack of behavioural SR.

Parent Reports

The primary caregiver also filled out questionnaire measures, during the lab visits (when the children were 2- and 3-years-old) and at home, when children were 4.5-years-old.

Socio-demographic information. Some socio-demographic information was collected when children were 2-years-old. The child's age and sex, the parent's gender, ethnic background, marital status (never married, cohabitating, married, separated divorced, widowed), and their education level, as well as the family's income information was used in the present study. Additional information was collected when children were 3-years-old and allowed to assess changes in marital status and whether there were siblings at home.

Child temperament. The Early Child Behaviour Questionnaire (ECBQ; Putnam, Garstein & Rothbart, 2006) was used as a measure of children's temperament, when they were 2-years-old. This is a 201 item scale, where parents rate

the frequency of specific child behaviours over the previous two weeks, from 0 (*never*) to 7 (*always*). The ECBQ yields three factors in reactivity and self-regulation: Negative affectivity, effortful control and surgency/extraversion (Putnam et al., 2006). Negative affectivity represents reactivity and proneness to distress (e.g., anger, sadness, fear). Effortful control delineates self-regulation tendencies, which serve to act upon one's reactive tendencies (Rothbart, 2011). Operating through attention, effortful control can decrease or increase temperamental reactivity (onset, intensity or duration). Finally, surgency is similar to adults' personality factor of extraversion (Rothbart, 2011). It includes approach behaviours, impulsivity, high-intensity pleasure (sensation seeking) and high activity level. The ECBQ has shown good internal coherence, test-retest reliability and validity (Goldsmith, 1996; Kochanska & Knaack, 2003; Lemery, Goldsmith, Klinnert, & Mrazek, 1999; Putnam et al., 2006). Descriptive statistics can be found in Table 1.

Child anxiety/depression symptoms. Parents filled-out the Child-Behaviour-Checklist for preschooler (CBCL\1.5-5, Achenbach & Rescorla, 2000) when their children were 4.5-years-old. The CBCL\1.5-5 is a 99-item scale designed to obtain parental rating of child behavioural and emotional problems. Parents are asked to rate the occurrence of each the listed difficulty over the past two months from 0 (*not true*) to 2 (*often true*). As both anxiety and depression are believed to be specifically linked to overly rigid regulation, only the anxiety/depression scale was used in the present study. This 8-items scale comprises symptoms of clinging, feeling hurt, being upset by separation, looking unhappy, nervous, self-conscious, fearful and sad. Higher scores

indicate more problems. The CBCL anxious/depressed scale has shown both good reliability and validity (Achenbach & Rescorla, 2000).

In order to identify children experiencing a level of anxious/depressed problems of clinical relevance, a dichotomous variable was computed based on developmental norms (children whose score fell in the subclinical or clinical ranges; < 93rd percentile and < 98th percentile, respectively). Children's score either fell in a "clinically relevant" range ([1] clinical or subclinical range; 8.1% of the sample) or the normal range ([0]; 91.9% of the sample). This measure of clinically relevant anxiety/depression was used for all analyses (See Descriptive in Table 1).

Results

Data preparation

For each observational code (parental disciplinary practices and child self-regulation), a total proportion score was calculated. That is, for each visit, the codes were summed and then divided by the total number of interval segments in the visit. Since all codes were consistent across the two laboratory visits within each discipline context at each year (i.e., their *SDs* fell in a similar range at both visits), the proportion scores were averaged across the two visits, yielding four proportion scores for each compliance code (i.e., "do" and "don't" at T1; "do" and "don't" at T2) and one proportion score for each parental discipline code during the clean-up requests at 2-years-old ("do" at T1).

Normal distribution analyses were conducted. Out of the 17 proportion scores (9 disciplinary practice scores; 8 toddler compliance scores), 9 were transformed using either log or squared root analyses to ascertain a normal distribution (± 3.00 skewness

and kurtosis; Kline, 1998). Extreme score analyses (univariate and multivariate) were also conducted. When univariate extreme scores were found, all scores above the upper limit score were replaced with the upper limit scores (Tabachnick & Fidell, 2007). There were no participants who had multivariate extreme scores beyond the accepted limit (χ^2_{critical} (16) = 39.25, $p < .001$; Tabachnick & Fidell, 2007).

Next, the parenting variables of autonomy support, overt control and covert control were created by summing their respective behaviour codes, which were henceforth standardized. Similarly, toddlers' noncompliance variable was created by summing all three noncompliance behaviour codes of passive noncompliance, self-assertion and defiance. The resulting noncompliance and committed compliance variables were subsequently standardized. Descriptive statistics can be found in Table 1.

Preliminary Analyses

Next, we conducted correlational analyses between committed compliance and noncompliance within each of the four discipline contexts ("do" and "don't" at 2yo and 3yo), as well as with parenting variables and child internalizing problems.

Committed compliance scores were consistently significantly negatively correlated with noncompliance scores within each of the four contexts (ranging from -.69 to -.98; all *p*s < .001). Moreover, their links with the parenting dimensions and the anxiety/depression scale were consistently opposite (see Table 2). We thus created a parsimonious self-regulated obedience index (SRO), computed within each of the four contexts. These indices were computed by adding the committed compliance score to

the reverse of the noncompliance score, which were subsequently standardized (see Table 1). Higher scores thus indicate more SRO.

Temperament and socio-demographic covariates. Next, we evaluated the association of each of the study's main dependant variables (i.e., the four child SRO scores and the anxiety/depression problem) with temperament (negative affectivity, effortful control, surgency/extraversion) and socio-demographic variables (child and parental sex, age of child, parental education, total family income, ethnic background, marital status at 2-years-old, marital status change between 2- and 3-years-old, other children living at home at 3-years-old).

Self-regulation to attractive toys prohibition ("don't" contexts) was positively related to effortful control both at 2- and 3 years of age ($r = .25$ and $r = .26$, $p < .05$) and negatively correlated with surgency/extraversion at 3-years of age ($r = -.24$, $p < .05$). These two temperamental variables were thus retained as covariates in subsequent analyses predicting SRO to prohibitions.

Two-year-olds' self-regulation to clean-up requests ("do" context) was associated with the family income ($r = .20$, $p < .05$), which was retained as covariate in subsequent analyses predicting SRO to requests.

Finally, the effortful control variable was retained as a covariate when predicting clinically relevant anxious/depressed symptoms, as clinically relevant anxious/depressed problems at 4.5-years old were negatively correlated with this temperamental variable ($r = -.29$, $p < .05$). No other significant correlations between the study's main dependant variables and potential covariates were found.

Within construct correlations. Table 3 illustrates zero-order correlations between all of the study's main variables.

Main Analyses

Self-regulation and internalizing problems. This study first appraised the relationship between SRO and later clinically relevant anxiety/depression problems. A partial correlation (see Table 4) revealed that only SRO to prohibitions at 3-years of age was significantly negatively related to the dichotomous anxious/depressed symptoms variable ([1] clinically relevant vs. [0] normal range; $r = -.43$, $R^2 = .18$, $p < .01$), after controlling for effortful control.

Next, a logistic regression (depicted in Table 5) was conducted to assess a potential curvilinear effect, and thus explore whether extreme SRO scores would be linked with clinically relevant anxiety/depression problems. Effortful control was entered simultaneously with the SRO to prohibitions at 3-years of age in a first step, while the quadratic function was entered in a second step. The first step was found to be significant ($X^2[1] = 9.99$, $p < .01$). In this model, the SRO to prohibitions at 3-years of age was a significant factor for clinically relevant internalizing symptoms ($\beta = -1.01$, Wald $X^2[1] = 4.70$, $p < .05$, odds ratio = .34), thus reducing the odds that preschooler's anxious/depressed score fell in the borderline or clinical range. Effortful control was not a significant predictor in this model ($p = .40$). The quadratic term for 3-year-old's SRO to prohibitions was entered in a second step to test for a possible nonlinear SRO effect, which was found to be non significant ($p = .85$). Thus, 3-year-old's SRO to prohibitions did not hold a curvilinear association with clinically relevant anxiety/depression problems.

Parenting and self-regulation. Next, we examined how disciplinary parenting dimensions during the clean-up task (at 2-years-old) relate to children's SRO skills, over two disciplinary contexts and time points. Partial correlations (see table 4) were conducted, controlling for the respective SRO covariates (Family income for "do"; effortful control and surgency/extraversion for "don't").

As hypothesized, both forms of psychological control were negatively related to child SRO. The concurrent SRO to clean-up requests ("do" context at T1) was significantly negatively related to overt (r = -.37, R^2 = .14, p < .01) and covert (r = -.30, R^2 = .09, p < .01) psychological control. Toddler's SRO to clean-up requests at age three (T2) was unrelated to both forms of psychological control (overt: p = .19; covert, p = .18).

SRO to attractive toys prohibitions ("don't" context) at 2-years-old was marginally negatively related to overt psychological control (r = -.19, p < .10), while unrelated to covert forms (p = .11). Regarding toddler's later SRO in the same disciplinary context, using both overt (r = -.30, R^2 = .09, p < .01) and covert (r = -.30, R^2 = .09, p < .01) parental control were significantly negatively related to SRO to prohibitions at age three.

In sum, it seems that both overt and covert psychological control had long-term inverse associations with child SRO to prohibitions. In contrast, these parental disciplinary practices only hold an immediate negative link on SRO to requests.

Conversely, autonomy support was positively related to SRO to requests (r = .22, R^2 = .05, p < .05) at age three, but not during the earlier concurrent clean-up requests (p = .14). Alternatively, SRO to attractive toys prohibition at 2-years of age

was marginally positively related to autonomy support ($r = .18$, $p < .10$), while it was unrelated with SRO to prohibitions ($p = .12$) one year later.

Together, these results show that parental disciplinary practices during a clean-up context at age two has a differential association on toddlers' behavioral SRO over time and across context. Both overt and covert forms of psychological control were immediately negatively related to children's SRO skills to requests, while holding only long-term links on children's SRO to prohibitions. Autonomy-supportive parenting had a long-term positive relationship to toddlers' SRO to request.

Parenting and anxiety/depression problems. In a final step, this study appraised the relationship between parenting dimensions and clinically relevant anxiety/depression problems. After controlling for effortful control, a partial correlation (see Table 4) revealed that only the covert form of psychological control was significantly positively related to clinically relevant anxiety/depression problems at 4.5-years of age ($r = .34$, $R^2 = .12$, $p < .01$). Autonomy support and the overt form of psychological control were unrelated to this affective problem ($p = .52$, $p = .38$, respectively). This finding indicates that covert psychological control singularly represents a risk for the development of internalizing problems.

Parenting, self-regulation and anxiety/depression problems. A logistic regression was conducted to examine how toddlers' SRO and covert parental control each weight in the prediction of internalizing problems (subclinical and clinical ranges of anxiety/depression). Effortful control, covert psychological control (T1) and toddlers' SRO to prohibitions (T2) were entered simultaneously in the model, which was found to be significant ($X^2[1] = 8.77$, $p < .01$). As can be seen in Table 6, covert

parental control remained a significant predictor for clinically relevant anxiety/depression problems (β = .86, Wald X^2[1] = 3.96, p < .05, odds ratio = 2.35), thus increasing the odds that preschooler's anxious/depression score fell in the borderline or clinical ranges. In contrast, SRO to prohibition at age three was not a significant predictor in this model. It marginally decreased the odds that these toddlers exhibit anxious/depression problems as preschoolers (β = - .92, Wald X^2[1] = 3.12, p < .10, odds ratio = .40). Effortful control was not a significant predictor in this model (p = .36).

Discussion

Consequences of child SRO

The first goal of this study was to clarify whether toddler's SRO was related to later child anxiety/depression problems. Inconsistencies in the literature as to the effects of toddler's (non)compliance on their future adjustment impelled this questioning. While toddler's internalization of rules has traditionally been studied through compliance, a posited behavioural SR measure, some disobedience is sometimes seen as adaptive (e.g., Crockenberg & Litman, 1990; Dix et al., 2007; Kuczynsky & Kochanska 1990), and very high levels of behavioural self-control can be related to internalizing problems (Murray & Kochanska, 2002).

A related goal of this study was to explore methodologically whether noncompliance and committed compliance represented two opposing poles of one behavioural SR dimension. Interestingly, it seemed to be the case, as their respective results were consistently reversed. As such, global SRO indices were used for parsimony purposes.

In the present study, toddlers' SRO was coded in two disciplinary contexts over two time points. Given the inconsistencies in the literature, there were no a priori hypotheses regarding the linear relationship between SRO and internalizing problems. Results revealed that toddlers' SRO to attractive toys prohibitions was negatively related to later anxiety/depression problems at 4.5-years of age, above and beyond the effects of toddlers' temperamental effortful control. This inverse relationship of SRO to prohibitions was evident when assessed at 3-years of age, while exhibiting weaker yet similar impact when measured at 2-years of age. In contrast, no measure of toddlers' SRO to request was related to this affective ailment.

Moreover, there were no curvilinear effects of toddlers' SRO to prohibitions. This means that in the present study, no level of SRO was positively predictive of internalization problems. Toddlers' compliance to parental prohibitions thus seems to be a true protective predictor; a self-regulatory skill that is devoid of any unhealthy, internal overcontrol sometimes found in introjected self-regulation (Deci & Ryan, 2008b).

Our results were not entirely consistent with Murray & Kochanska's (2002) results as above and beyond a protective linear effect, they also found that extreme levels of behavioural self-control was a risk for internalizing problems. Thus, we replicated the protective relationship of SRO onto internalizing problems, but not the curvilinear relationship. This inconsistency may be due to differences in tasks in which the SR was measured. Their SR measure combined self-control from a delay of gratification, a motor inhibition (both gross and fine motor) and an inhibition/suppression (Go/No-Go) task. In contrast, our measures of SRO were

coded during two disciplinary contexts, where toddlers were asked to perform an uninteresting task or to avoid engaging in a pleasant one. Perhaps individual's compliance-based SR relates differently to affective problems than a measure relying on multiple self-control assessments. Alternatively, perhaps the inconsistencies between our studies can be related to differences in assessment time points. The curvilinear effect found by Murray and Kochanksa (2002) was cross-sectional, at 3.5-years-old. In our study, SRO at 3-years of age predicted less internalizing problems at 4.5-years of age. It was impossible for us to test for cross-sectional effect, having no internalization problems measure at 2- or 3-years-old. Our study did not reveal any curvilinear relationship between 3-years-old's SRO to prohibition and 4.5-years-old's anxiety/depression problems beyond its protective, longitudinal one. If there is a negative impact of extreme SR (Murray & Kochanska, 2002), it may not be long-lasting.

Regardless, the impact of SRO seems to depend on the disciplinary context within which SRO was measured. While the two SRO indices in the "do" contexts were not related to anxiety/depression problems, SRO in the "don't" settings played a protective role. Indeed, qualitative and quantitative differences of child compliance between contexts have been observed (Kochanksa & Aksan, 1995; Kochanska , Aksan & Koenig, 1995; Kochanska, 2002). For instance, children typically exhibit more committed compliance in "don't" contexts, and more half-hearted, situational compliance in "do" contexts. Kochanska & Aksan (1995) claim that the "do" SR may be more difficult for toddlers than "don't" SR as parents might enforce prohibitions earlier than parental requests, thus leading children to internalize prohibitions earlier

than requests. Also, as typical parental prohibitions concerns child safety issues (e.g., not touching the stove), parents seem to enforce them more firmly and consistently than requests for manners (e.g., saying please) or family routines (e.g., putting toys away; Gralinski & Kopp, 1993). With more practice and sustained parental monitoring, toddlers may become better apt at refraining to act when faced with prohibitions. The inhibition and selective attention skills involved in such self-control may also promote emotional regulation and prove handy in managing one's painful emotions, such as anxiety and fear (Fox & Calkins, 2003; White, Helfinstein, Reeb-Sutherland, Degnan, & Fox, 2009). In a "don't" context, toddlers regulate by letting go of their desires, by refocusing their attention away from the prohibition. By learning to let go and to distract oneself away from intense emotions, this form of regulation may be specifically related to limiting emotions spiral out of control and the recurrence of ruminations; two prevalent symptoms of problematic anxiety and depression.

Child SRO was also differentially influenced by parents' discipline practices, depending on the context in which toddlers had to self-regulate ("do" vs. "don't" context). Autonomy supportive parenting singularly predicted more long-term self-regulation to requests ("do" context). In a "do" context, toddlers regulate by refraining from acting a desired behaviour and replace it by focusing on and implementing a less desirable act. It is possible that this type of regulation may be specifically related to future academic abilities, as one would need this ability to maintain concentration on class lectures and home-work completion. Several studies show autonomy-supportive parenting predict better academic adjustment (e.g., Gillet,

Vallerand, & Lafrenière, 2012; Mouratidis, Vansteenkiste, Sideridis, & Lens, 2011; Niemiec & Ryan, 2009; Patrick, Skinner, & Connell, 1993; Ryan & Deci, 2009; Vansteenkiste, Simons, Lens, Sheldon & Deci, 2004).

Apart from distinguishing "hot" from "cold" contexts (Kim et al., 2013) when assessing the link between behavioural control and affective welfare, it seems that discriminating "hot", frustrating requests from prohibitions is informative in understanding how child SRO relates to later adjustment, as are prior child rearing practices.

Antecedents of SRO

The second goal of the present study was to explore the predictive value of overt and covert types of psychological control, as well as autonomy support on child SRO and internalizing problems. By exploring whether SRO skills were associated with better quality parenting (autonomy support) as compared to poorer quality parenting (overt and covert psychological control) in addition to ascertaining the link between child SRO and a child mental health outcome, clarification of the discrepancies in the compliance literature were addressed.

After controlling for confounding variables, autonomy-supportive disciplinary practices at 2-years-old were significantly related to better long-term SRO to requests. Participating toddlers whose parents used more autonomy-supportive practices at age two seem to have internalized the clean-up request, when tested at 3-years of age.

Conversely, both forms of psychological control were detrimental for child SRO. Both overt and covert control were negatively related to concurrent SRO to clean-up requests, yet this effect did not persist with time for this disciplinary context.

It is on SRO to prohibitions that controlling practices had a long-term, negative relationship. While overt psychological control tended to be negatively related to refraining from touching attractive toys at age two, both forms of psychological control exhibited a significant negative relationship to SRO at age three. Thus, using bribes and criticisms/insults (covert control) or using threats and physical force (overt control) to motivate adherence to rules and eventual rule internalization have similar, negative associations on SRO across discipline contexts and time.

While overt and covert controlling practices exhibited similar effects on SRO, there was a differential link between both forms of psychological control on child later internalizing problems. As expected, only covert psychological control was found to be negatively related to clinically relevant anxiety/depression problems at 4.5-years of age, after controlling for children's temperamental effortful control. This finding is consistent with Soenens' and Vansteekiste's (2010) conceptual distinction between overt and covert psychological control. They argue that covert forms of controlling parenting entice children to put internal pressures on themselves to become or act in a specific way. Similarly, covert psychological control has been found to be related with toddlers exhibiting more sadness in "do" and "don't" disciplinary contexts (Laurin, Joussemet, & Forman, 2013). This emotion is closely related to the internalizing problems spectrum. These findings add to the conceptual distinction between types of psychological control.

Moreover, when the relative influence of parental covert control at age two was examined along with child SRO to prohibitions at age three, only covert psychological control retained a significant association with anxiety/depression

problems. This indicates that the risk involved in covertly controlling a toddler had a stronger predictive weight than the protective association of toddlers' SRO. This result suggests that in very early socialization environments, covert control may be especially powerful in increasing the risk, for children, to develop internalizing difficulties. Though 3-year-olds' abilities to self-regulate in a prohibition context is a resiliency predictor, it does not seem to counteract parents' precocious use of covert psychological control.

Strength & Limitations

Some characteristics of this study should be taken into account when interpreting its findings. First, one needs to remember that the parenting practices were assessed solely in the "do" context at 2-years of age. Thus, the significant negative relationship that both types of psychological control hold on SRO skills in that same context must be taken with caution. With both child SRO to requests and parental disciplinary practices coded during the same activity and time-point, the direction of effect that can be drawn from the results is certainly unclear. It is not possible, in a correlational design, to assert that certain parenting practices influence child SRO, as results may represent the impact of child SRO onto parental practices used. That said, all other relationships tested (i.e., same assessment year but in another context, any other context during a different assessment year) are more robust methodologically, though no causal relationship can be inferred.

Second, child internalizing problems were assessed by a single administration of the CBCL at 4.5-years of age. Ideally, yearly administrations during the study would have allowed us to control for previous years' symptom levels and predict

changes in children's internalizing difficulties. Future studies could include mental health assessments repeatedly and begin at younger ages. Also, if we had continued to administer this scale during the school-aged years, it would have permitted to test for the generalization of our conclusions over a longer developmental period.

Moreover, other than controlling for children's temperament, this article did not examine other child effects on parenting. For instance, when children exhibit poor SR abilities (i.e., less vagal suppression), fathers have been found to be more controlling with highly inhibited children, as well as less supportive to children with more internalizing problems (Hastings et al., 2008). Similarly, when children have lower baseline vagal tones, mothers have been found to be more overprotective of children who exhibit high levels of socially wary behaviours with peers (Hastings et al., 2008). Also, it is most important to remember that this data is correlational. For example, a parent may be more likely to resort to bribes when a child is chronically noncompliant. However, the fact that the covert parenting measure predicts anxiety/depression independent of, or on top of the SRO measure is evidence that the effects are not purely child-driven.

Beyond the scope of these limitations, the research design of this study is robust, as it is set in a longitudinal framework using primarily observational measures. Measuring SRO skills in two "hot", emotionally charged context was also an asset in this study as it is said to be more closely linked to child adaptation (Kim et al., 2013). Similarly, though temperament does not represent psychopathology, the fact that the present study controlled for individual differences such as effortful control and extraversion is a related strength. This study also demonstrates that observational

research conducted with a normative sample may contribute to the developmental psychopathology literature. The sample pooled for this study revealed the expected proportion of children falling in (sub)clinical ranges (8.1%) and there was enough statistical power to detect risk factors. Taking a closer look at the development and continuity of child behaviours is possible and seems promising for the continued investigation of child mental health.

Future studies

Our study points to several future research directions. For instance, in our study the parenting practices were only coded during a "do" context. It would be interesting to develop ways to code autonomy support and psychological control in "don't" settings, such as delay of gratification tasks. Distinguishing overt (e.g., screaming) from covert (e.g., love withdrawal) psychological control in such discipline contexts would probably be informative.

Observing toddlers' SRO when interacting with other socialization agents, such as daycare educators, is also an interesting research avenue. It would then be possible to verify if effects are agent-specific/generalizable and if daycare learned SRO also predict child anxiety, above and beyond the impact of parenting. Also, by following participants until they become school-aged children, it would be possible to assess the reasons why they follow certain rules or not. Motivation studies assessing reasons behind participants' behaviours help identify more identified versus more introjected regulation tendencies and their respective links with psychopathology (e.g., Deci & Ryan, 2008a; Ryan et al., 2006). Finally, future studies may wish to control

for more distal parameters of children's well-being, including parental warmth and attachment security.

As fulfilling the parent-child relationship may be, this bond comes with numerous challenges, especially when encountering disciplinary contexts. Better understanding (mal)adaptive disciplinary practices and their relationship with the protective, child SRO is crucial. More insidious, covert forms of psychologically controlling parenting seem to be a key antecedent of preschoolers' anxiety and depression problems. In contrast to controlling forms of discipline, autonomy-supportive parenting is a beneficial alternative disciplinary approach. As parenting is a malleable determinant of child adjustment, empirical efforts should be pursued and interventions should be provided to parents to help them support rather than thwart their toddler's need for autonomy. Prevention programs offered to parents of the general population, early in toddlers' lives, hold potential to take the lead toward promoting better self-control, while preventing anxiety and depression to emerge.

References

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4–18 and 1991 Profile*. Burlington , VT : University of Vermont.

Achenbach, T. M. (1992). *Manual for the Child Behavior Checklist/2–3 and 1992 Profile*. Burlington , VT : University of Vermont.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Profile*. Burlington , VT : University of Vermont.

Achenbach, T. M., & Rescorla, L. (2000). *Manual for the ASEBA Preschool Forms & Profiles: An Integrated System of Multi-informant Assessment*, Burlington VT: University of Vermont.

Achenbach, T.M., & Rescorla, L.A. (2004). Empirically based assessment and taxonomy: Applications to infants and toddlers. In R. DelCarmen-Wiggins&A. Carter (Eds.), *Handbook of infant, toddler, and preschool mental health assessment* (pp. 161–182). New York: Oxford University Press.

Affrunti, N. W., & Ginsburg, G. S. (2012). Exploring parental predictors of child anxiety: The mediating role of child interpretation bias. *Child & Youth Care Forum, 41*(6), 517-527. doi: .1007/s10566-012-9186-6

Aunola, K., & Nurmi, J. E. (2005). The role of parenting styles in children's problem behavior. *Child Development*, *76*(6), 1144-1159. doi: 10.1111/j.1467-8624.2005.00840.x-i1

Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67*(6), 3296–3319. doi: 10.1111/j.1467-8624.1996.tb01915.x

Barber, B. K., & Harmon, E. L. (2002). Violating the self: Parental psychological control of children and adolescents. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 15–52). Washington, DC: APA.

Barber, B. K., & Olsen, J. A. (1997). Socialization in context connection, regulation, and autonomy in the family, school, and neighborhood, and with peers. *Journal of Adolescent Research*, *12*(2), 287-315. doi: 10.1177/0743554897122008

Barber, B., K., Xia, M., Olsen, J., McNeely, C. A., & Bose, K. (2012). Feeling disrespected by parents: Refining the measurement and understanding of psychological control. *Journal of Adolescence, 35*(2), 273-287. doi:10.1016/j.adolescence.2011.10.010

Baumrind, D. (1966). Effects of authoritative parental control on child behavior.*Child Development, 37*(4), 887-907. doi**:**10.1111/j.1467-8624.1966.tb05416.x

Baumrind, D. (1971). Current patterns of parental authority. *Developmental Psychology Monographs, 4*(1)*,* 1–103. doi: 10.1037/h0030372

Baumrind, D., Larzelere, R. E., & Owens, E. B. (2010). Effects of preschool parents' power assertive patterns and practices on adolescent development. *Parenting: Science and Practice*, *10*(3), 157-201. doi: 10.1080/15295190903290790

Bayer, J. K., Hiscock, H., Ukoumunne, O. C., Price, A., & Wake, M. (2008). Early childhood aetiology of mental health problems: a longitudinal population-based study. *Journal of child psychology and psychiatry*, *49*(11), 1166-1174. doi:10.1111/j.1469-7610.2008.01943.x

Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2006). Children's Moods, Fears, and Worries Development of an Early Childhood Parent Questionnaire. *Journal of emotional and behavioral disorders*, *14*(1), 41-49. doi**:** 10.1177/10634266060140010401

Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2009). Early childhood aetiology of internalising difficulties: a longitudinal community study. *International Journal of Mental Health Promotion*, *11*(1), 4-14. doi: 10.1080/14623730.2009.9721777

Bernier, A., Carlson, S. M., Deschênes, M., & Matte-Gagné, C. (2012). Social factors in the development of early executive functioning: A closer look at the caregiving environment. *Developmental Science*, *15*(1), 12-24. doi: 10.1111/j.1467-7687.2011.01093.x

Blandon, A. Y., & Volling, B. L. (2008). Parental gentle guidance and children's compliance within the family: A replication study. *Journal of Family Psychology*, *22*(3), 355-368. doi: 10.1037/0893-3200.22.3.355

Bordeleau, S., Bernier, A., & Carrier, J. (2012). Longitudinal associations between the quality of parent-child interactions and children's sleep at preschool age. *Journal of Family Psychology*, *26*(2), 254-262. doi: 10.1037/a0027366

Cole, P. M., Zahn-Waxler, C., Fox, N. A., Usher, B. A., & Welsh, J. D. (1996). Individual differences in emotion regulation and behavior problems in preschool children. *Journal of Abnormal Psychology*, *105*(4), 518. doi: 10.1037/0021-843X.105.4.518

Côté, S. M., Boivin, M., Liu, X., Nagin, D. S., Zoccolillo, M., & Tremblay, R. E. (2009). Depression and anxiety symptoms: Onset, developmental course and risk factors during early childhood. *Journal of Child Psychology and Psychiatry*, *50*(10), 1201-1208.doi: 10.1111/j.1469-7610.2009.02099.x

Cleveland, E. S., Reese, E., & Grolnick, W. S. (2007). Children's engagement and competence in personal recollection: Effects of parents' reminiscing goals. *Journal of Experimental Child Psychology*, *96*(2), 131-149. doi: 10.1016/j.jecp.2006.09.003

Crockenberg, S., & Litman, C. (1990). Autonomy as competence in 2-year-olds: Maternal correlates of child defiance, compliance, and self-assertion. *Developmental Psychology*, *26*(6), 961. doi: 10.1037/0012-1649.26.6.961

Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 13, pp. 39-80). New York: Academic.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*,*11*(4), 227-268. doi:10.1207/S15327965PLI1104_01

Deci, E. L., & Ryan, R. M. (2008a). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/Psychologie canadienne*, *49*(1), 14-23. doi:10.1037/0708-5591.49.1.14

Deci, E. L., & Ryan, R. M. (2008b). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, *49*(3), 182-185. doi: 10.1037/a0012801

Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of Personality*,*62*(1), 119-142. doi: 10.1111/j.1467-6494.1994.tb00797.x

Dix, T., Stewart, A. D., Gershoff, E. T., & Day, W. H. (2007). Autonomy and children's reactions to being controlled: Evidence that both compliance and defiance may be positive markers in early development. *Child Development, 78*(4),1204–1221. doi: 10.1111/j.1467-8624.2007.01061.x

Egger, H. L., & Angold, A. (2006a). Anxiety Disorders. In J. L. Luby (Ed.), *Handbook of preschool mental health: Development, Disorders and Treatment* (pp. 137-164). New York, NY: Guilford Press.

Egger, H. L., & Angold, A. (2006b). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of*

Child Psychology and Psychiatry, *47*(3-4), 313-337. doi:10.1111/j.1469-7610.2006.01618.x

Eisenberg, N., Cumberland, A., Spinrad, T. L., Fabes, R. A., Shepard, S. A., Reiser, M., ... & Guthrie, I. K. (2001). The relations of regulation and emotionality to children's externalizing and internalizing problem behavior. *Child Development*, *72*(4), 1112-1134. doi: 10.1111/1467-8624.00337

Eisenberg, N., Guthrie, I. K., Fabes, R. A., Shepard, S., Losoya, S., Murphy, B., ... & Reiser, M. (2000). Prediction of elementary school children's externalizing problem behaviors from attentional and behavioral regulation and negative emotionality. *Child Development*, *71*(5), 1367-1382.doi: 10.1111/1467-8624.00233

Faber, A., & Mazlish, E. (1980). *How to talk so kids will listen and listen so kids will talk*. New York: Perrenial Currents.

Faber A, & Mazlish E. (2010). *How to Talk So Kids Will Listen; Group Workshop Kit*. New York: Faber/Mazlish Workshops, LLC.

Feldman, R., & Klein, P. S. (2003). Toddlers' self-regulated compliance to mothers, caregivers, and fathers: Implications for theories of socialization. *Developmental Psychology*, *39*(4), 680-692. doi: 10.1037/0012-1649.39.4.680

Forman, D. R. (2007). Autonomy, compliance, and internalization. In C. A. Brownell & C. B. Kopp (Eds.), *Transitions in early socioemotional development: The toddler Years* (pp.285-319). New York, NY: Guilford Press.

Fox, N. A., & Calkins, S. D. (2003). The development of self-control of emotion: Intrinsic and extrinsic influences. *Motivation and emotion*, *27*(1), 7-26. doi: 10.1023/A:1023622324898

Frodi, A., Bridges, L. & Grolnick, W. S. (1985). Correlates of mastery-related behavior: A short-term longitudinal study of infants in their second year. *Child Development, 56*(5), 1291-1298. doi: 10.2307/1130244

Gadow, K. D., & Sprafkin, J. (2002). *Child Symptom Inventory-4: Screening and norms manual*. Stony Brook: Checkmate Plus.

Garstein, M. A., Putnam, S. P., & Rothbart, M. K. (2012). Etiology of preschool behavior problems: Contributions of temperament attributes in early childhood. *Infant Mental Health Journal, 33*(2), 197-211. doi: 10.1002/imhj.21312

Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development, 74,* 257–278. doi: 10.1111/1467-8624.00534

Gillet, N., Vallerand, R. J., & Lafrenière, M. A. K. (2012). Intrinsic and extrinsic school motivation as a function of age: The mediating role of autonomy support. *Social Psychology of Education: An International Journal*, *15(1)*, 77–95. doi:10.1007/s11218-011-9170-2

Goldsmith, H. H. (1996). Studying temperament via construction of toddler behaviour assessment questionnaire. Child Development, 67(1), 218-235. doi: 10.1111/j.1467-8624.1996.tb01730.x

Gosselin, M. P. M., & Forman, D. R. (2012). Attention-seeking during caregiver unavailability and collaboration at Age 2. *Child Development*, *83*(2), 712-727. doi: 10.1111/j.1467-8624.2011.01716.x

Gralinski, J. H., & Kopp, C. B. (1993). Everyday rules for behavior: Mothers' requests to young children. *Developmental psychology*, *29*(3), 573-584. doi: 10.1037/0012-1649.29.3.573

Gray, M. R., & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and the Family*, 61(3), 574-587. doi: 10.2307/353561

Grolnick, W. S. & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. *Journal of Educational Psychology, 81*(2), 143-154. doi:10.1037/0022-0663.81.2.143

Hastings, P. D. (1996). *Mother-child teaching and control scales*. Unpublished coding manual, University of Waterloo, Department of Psychology.

Hastings, P. D., Sullivan, C., McShane, K. E., Coplan, R. J., Utendale, W. T., & Vyncke, J. D. (2008). Parental socialization, vagal regulation, and preschoolers' anxious difficulties: Direct mothers and moderated fathers. *Child Development*, *79*(1), 45-64. doi: 10.1111/j.1467-8624.2007.01110.x

Hinshaw, S. P. (1997). Contextual effects, configural analysis, and nonlinearity pertain to externalizing behavior as well as to parental discipline. *Psychological Inquiry*, *8*(3), 195-200. doi: 10.1207/s15327965pli0803_6

Ialongo, N., Edelsohn, G., Werthamer-Larsson, L., Crockett, L., & Kellam, S. (1996). Social and cognitive impairment in first-grade children with anxious and depressive symptoms. *Journal of Clinical Child Psychology*, *25*(1), 15-24. doi: 10.1207/s15374424jccp2501_2

Joussemet, M., Landry, R., & Koestner, R. (2008). A self-determination theory perspective on parenting. *Canadian Psychology/Psychologie canadienne*, *49*(3), 194-200. doi:10.1037/a0012754

Joussemet, M., Mageau, G. A., & Koestner, R. (2013, online April). Promoting optimal parenting and children's mental health: A preliminary evaluation of the how-to parenting program. *Journal of Child and Family Studies,* 1-16. doi:10.1007/s10826-013-9751-0

Karevold, E., Røysamb, E., Ystrom, E., & Mathiesen, K. S. (2009). Predictors and pathways from infancy to symptoms of anxiety and depression in early adolescence. *Developmental Psychology, 45*(4), 1051-1060. doi: 10.1037/a0016123

Kim, S., & Kochanska, G. (2012). Child temperament moderates effects of parent–child mutuality on self-regulation: A relationship-based path for emotionally negative infants. *Child Development, 83*(4), 1275–1289. doi: 10.1111/j.1467-8624.2012.01778.x

Kim, S., Nordling, J. K., Yoon, J. E., Boldt, L. J., & Kochanska, G. (2013). Effortful control in "hot" and "cool" tasks differentially predicts children's behavior

problems and academic performance. *Journal of Abnormal Child Psychology*, *41*(1), 43-56. doi: 10.1007/s10802-012-9661-4

Kline, R. B. (1998). *Principales and practices of structural equation modeling*. New York : Guildfors Press.

Kochanska, G. (2002). Committed compliance, moral self, and internalization: A meditational model. *Developmental Psychology, 38*(3), 339-351. doi: 10.1037/0012-1649.38.3.339:

Kochanska, G., & Aksan, N. (1995). Mother-child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. *Child Development, 66*, 236-254. doi:10.2307/1131203

Kochanska, G., Aksan, N., & Koenig, A. L. (1995). A longitudinal study of the roots of preschooler's conscience: Committed compliance and emerging internalization. *Child Development, 66*, 1752-1769. doi: 10.2307/1131908

Kochanska, G., Barry, R. A., Aksan, N., & Boldt, L. J. (2008). A developmental model of maternal and child contributions to disruptive conduct: The first six years. *Journal of Child Psychology and Psychiatry, 49*(11), 1220–1227. doi: 10.1111/j.1469-7610.2008.01932.x

Kochanska, G., Coy, K. C., & Murray, K. T. (2001). The development of self-regulation in the first four years of life. *Child Development*, *72*(4), 1091-1111. doi: 10.1111/1467-8624.00336

Kochanska, G. & Knaack, A. (2003). Effortful control as a personality characteristic of young children: Antecedents, correlates, and consequences. *Journal of Personality, 71*(6), 1087-1112. doi: 10.1111/1467-6494.7106008

Kochanska, G., Tjebkes, J. L., & Forman, D. R. (1998). Children's emerging regulation of conduct: Restraint, compliance, and internalization from infancy to the second year. *Child development*, *69*(5), 1378-1389. doi: 10.1111/j.1467-8624.1998.tb06218.x

Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. *Journal of Personality*, *52*(3), 233-248. doi: 10.1111/j.1467-6494.1984.tb00879.x

Kuczynski , L. Kochanska , G. (1990). Development of children's noncompliance strategies from toddlerhood to age 5. *Developmental Psychology, 26*(3), 398-408. doi: 10.1037/0012-1649.26.3.398

Laurin, J. C., Joussemet, M., & Forman, D. R. (2013). Maternal psychological control and toddler's affect: An observational study. *Poster presented at the Fifth International Self-Determination Theory Conference*, Rochester, NY.

Laurin, J. C., Joussemet, M., Tremblay, R. E., & Boivin, M. (submitted, July 2013). Early forms of controlling parenting and the development of childhood anxiety. *Developmental Psychology.*

Lemery, K. S., Goldsmith, H. H., Klinnert, M. D., & Mrazek, D. A. (1999). Developmental models of infant and childhood temperament. *Developmental Psychology*, *35*(1), 189 -204. doi: 10.1037/0012-1649.35.1.189

Lepper , M. R. (1983). Extrinsic reward and intrinsic motivation: Implications for the classroom. In J. M. Levine M. C. Wang (Eds.), *Teacher and student perceptions: Implications for learning* (pp. 281-311). Hiusdale, NJ: Erlbaum.

Letcher, P., Smart, D., Sanson, A., & Toumbourou, J. W. (2009). Psychosocial precursors and correlates of differing internalizing trajectories from 3 to 15 Years. *Social Development*, *18*(3), 618-646. doi: 10.1111/j.1467-9507.2008.00500.x

Maccoby, E. E. (1984). Socialization in the developmental change. *Child Development,* 55(2), 317-328. Retrieved from http://www.jstor.org/stable/1129945

Maccoby , E. E. Martin , J. A. (1983). Socialization in the context of the family: parent-child interaction. In P. H. Mussen & E. M. Hetherington (Eds.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social developmen*t (4th ed., pp. 1-101) New York: Wiley.

Matte-Gagné, C., & Bernier, A. (2011). Prospective relations between maternal autonomy support and child executive functioning: Investigating the mediating role of child language ability. *Journal of Experimental Child Psychology*, *110*(4), 611-625. doi:10.1016/j.jecp.2011.06.006

Matte-Gagné, C., Bernier, A., & Gagné, C. (2013). Stability of maternal autonomy support between infancy and preschool age. *Social Development, 22*(3), 427-443. doi: 10.1111/j.1467-9507.2012.00667.x

McConaughy, S. H., & Achenbach, T. M. (1994). Comorbidity of empirically based syndromes in matched general population and clinical samples. *Journal of Child Psychology and Psychiatry*, *35(6)*, 1141–1157. doi: 10.1111/j.1469-7610.1994.tb01814.x

Mouratidis, A. A., Vansteenkiste, M., Sideridis, G. & Lens, W. (2011). Vitality and interest–enjoyment as a function of class-to-class variation in need-supportive teaching and pupils' autonomous motivation. *Journal of Educational Psychology*,*103*(2), 353-366. doi: 10.1037/a0022773

Murray, K. T., & Kochanska, G. (2002). Effortful control: Factor structure and relation to externalizing and internalizing behaviors. *Journal of Abnormal Child Psychology*, *30*(5), 503-514. doi: 10.1023/A:1019821031523

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom: Applying self-determination theory to educational practice. *Theory and Research in Education*, *7*(2), 133-144. doi: 10.1177/1477878509104318

Patrick, B. C., Skinner, E. A., & Connell, J. P. (1993). What motivates children's behavior and emotion? Joint effects of perceived control and autonomy in the academic domain. *Journal of Personality and Social Psychology*, *65*(4), 781-791. doi: 10.1037/0022-3514.65.4.781

Putnam, S. P., Garstein, M. A. & Rothbart, M. K. (2006). Measurement of fine-grained aspects of toddler temperament: The Early Childhood Behavior Questionnaire. *Infant Behavior & Development, 29,* 386–401. doi:10.1016/j.infbeh.2006.01.004

Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review, 17*(1), 47-67doi: 10.1016/S0272-7358(96)00040-2

Rinaldi, C. M., & Howe, N. (2012). Mothers' and fathers' parenting styles and associations with toddlers' externalizing, internalizing, and adaptive behaviors. *Early Childhood Research Quarterly*, *27*(2), 266-273. doi:10.1016/j.ecresq.2011.08.001

Rothbart, M. K. (2011). *Becoming who we are: Temperament and personality in development.* New York: Guildford Press.

Rubin, K. H., & McKinnon, J. (1994). *The parental warmth and control scale*. Unpublished coding manual, University of Waterloo, Department of Psychology.

Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43*(3), 450-461. doi: 10.1037/0022-3514.43.3.450

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, *55*(1), 68-78. doi: 10.1037/0003-066X.55.1.68

Ryan, R. M., & Deci, E. L. (2009). Promoting self-determined school engagement: Motivation, learning, and well-being. In K. R. Wentzel & A. Wigfield (Eds.), *Handbook on motivation at school* (pp. 171-196). New York: Routledge.

Ryan, R. M., Deci, E. L., Grolnick, W. S., & La Guardia, J. G. (2006). The significance of autonomy and autonomy support in psychological development and psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Theory and method 2nd ed.,* (Vol. 1, pp. 795-849). New Jersey: John Wiley & Sons, Inc.

Sawyer, M. G., Arney, F. M., Baghurst, P. A., Clark, J. J., Graetz, B. W., Kosky, R. J., ... & Zubrick, S. R. (2001). The mental health of young people in Australia: Key findings from the child and adolescent component of the national survey of mental health and well-being. *Australian and New Zealand Journal of Psychiatry, 35*(6), 806-814. doi: 10.1046/j.1440-1614.2001.00964.x

Schaefer, E. S. (1965). A configurational analysis of children's reports of parent behavior. *Journal of Consulting Psychology, 29*(6), 552–557. doi:10.1037/h0022702

Shaw, D. S., Keenan, K., Vondra, J. I., Delliquardi, E., & Giovannelli, J. (1997). Antecedents of preschool children's internalizing problems: A longitudinal study of low-income families. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*(12), 1760-1767. doi: 10.1097/00004583-199712000-00025

Silk, J. S., Morris, A. S., Kanaya, T., & Steinberg, L. (2003). Psychological control and autonomy granting: Opposite ends of a continuum or distinct constructs?. *Journal of Research on Adolescence*, *13*(1), 113-128. doi: 10.1111/1532-7795.1301004

Steinberg, L. (1990). Autonomy, conflict, and harmony in the family relationship. In S. Feldman and G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 255-277). Cambridge, MA, US Harvard University Press.

Soenens, B., & Vansteekiste, M. (2010). A Theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of self-determination theory. *Developmental Review, 30,* 74-99. doi:10.1016/j.dr.2009.11.001

van Oort, F. V. A., Greaves-Lord, K., Ormel, J., Verhulst, F. C., & Huizink, A. C. (2011). Risk indicators of anxiety throughout adolescence: The TRAILS study. *Depression and Anxiety*, *28*(6), 485-494. doi: 10.1002/da.20818

Tabachnick, B. G. & Fidell, L. S. (2007). *Using multivariate statistics*. Boston, MA: Pearson.

Vansteenkiste, M., Simons, J., Lens, W., Sheldon, K. M., & Deci, E. L. (2004). Motivating learning, performance, and persistence: The synergistic role of intrinsic goal contents and autonomy-support contexts. *Journal of Personality and Social Psychology*, *87*(2), 246-260. doi: 10.1037/0022-3514.87.2.246

Vostanis, P., Nicholls, J., & Harrington, R. (1994). Maternal expressed emotion in conduct and emotional disorders of childhood. *Journal of Child Psychology and Psychiatry, 35*(2), 365–376. doi: 10.1111/j.1469-7610.1994.tb01168.x

Whipple, N., Bernier, A., & Mageau, G. A. (2011). A dimensional approach to maternal attachment state of mind: Relations to maternal sensitivity and maternal autonomy support. *Developmental Psychology*, *47*(2), 396- 403. doi: 10.1037/a0021310.

White, L. K., Helfinstein, S. M., Reeb-Sutherland, B. C., Degnan, K. A., & Fox, N. A. (2009). Role of attention in the regulation of fear and anxiety. *Developmental Neuroscience*, *31*(4), 309-317. doi: 10.1159/000216542

Zuk, S. (2013). *Les pratiques parentales maternelles et la symptomatologie des enfants victimes d'agression sexuelle d'âge préscolaire* (Unpublished doctoral dissertation). Université de Montréal, Montréal, Qc.

Table 1.

Descriptive Statistics - Continuous Variables

Variables	Child Age	*N*	*M*	*SD*	Min	*Max*
Parenting ('do' context)	2 yo					
Autonomy Support		102	.50	.25	.00	1.01
Overt Psychological Control		102	.04	.04	.00	.19
Covert Psychological Control		102	.11	.13	.00	.72
Temperament	2 yo					
Negative Affectivity		97	3.04	.53	1.86	4.69
Effortful Control		97	4.69	.55	3.17	5.88
Surgency/Extraversion		97	4.97	.54	3.66	6.09
Compliance	2 yo					
Committed Compliance - don't		102	.79	.20	.17	1.00
Noncompliance - don't		102	.04	.06	.00	.23
Committed Compliance - do		102	.24	.21	.00	.94
Noncompliance - do		102	.45	.28	.00	1.14
Self-Regulation	2 yo					
Obedience Index - don't		102	.75	.25	- .05	1.00
Obedience Index - do		102	- .21	.46	-1.00	.94
Compliance	3 yo					
Committed Compliance - don't		84	.86	.21	.14	1.00
Noncompliance - don't		84	.19	.25	.00	.88
Committed Compliance - do		84	.28	.25	.00	.95
Noncompliance - do		84	.27	.21	.00	.94
Self-Regulation	3 yo					
Obedience Index - don't		84	.66	.45	-.74	1.00
Obedience Index - do		84	.01	.43	- .94	.95
CBCL						
Total Anxiety/Depression	4.5yo	62	2.60	2.32	0.00	9.00

Table 2.

Correlations Between Committed Compliance / Noncompliance and Other Main Variables

-	Autonomy support	Overt psychological control	Covert psychological control	Total Anxiety/ Depression	Clinically relevant Anxiety/ Depression
don't context					
2yo - Committed Compliance	.15	-.20*	-.19*	-.11	-.28*
2yo - Noncompliance	-.18 †	.25**	.20*	.12	.27*
3yo - Committed Compliance	.17	-.31**	-.31**	-.28 *	-.48**
3yo - Noncompliance	-.14	.32**	.33**	.31*	.46**
do context					
2yo - Committed Compliance	-.11	-.39**	-.25**	-.05	-.13
2yo - Noncompliance	.13	.34**	.28**	.07	.17
3yo - Committed Compliance	.25*	-.18 †	-.12	-.04	-.14
3yo - Noncompliance	-.15	.10	.15	-.02	.14

Notes.

† $p < .10$; * $p < .05$; ** $p < 0.01$.

Table 3.

Zero-order correlations between the study's main variables

	1	2	3	4	5	6	7	8
Parenting Dimensions ("do" context, 2yo)								
1. Autonomy support								
2. Overt psychological control	.07							
3. Covert psychological control	.04	.32**						
Child variables								
4. Don't SRO 2yo	.16 †	-.21*	-.20*					
5. Don't SRO 3yo	.15	-.32**	-.32**	.59**				
6. Do SRO 2yo	-.13	-.39**	-.28**	.15	.21 †			
7. Do SRO 3yo	.22*	-.16	-.15	.15	.39**	.17		
8. Anxiety/Depression Problems 4.5 yo	-.02	-.06	.13	-.12	-.30*	-.06	-.01	
9. Clinically Relevant Anxiety/Depression 4.5 yo	-.07	-.09	.35**	-.29*	-.47**	-.16	-.15	.67**

Notes.

† $p < .10$; * $p < .05$; ** $p < 0.01$.

All the parenting and self-regulation scores used in analyses were z-scores. SRO indicates self-regulated obedience.

Table 4.

Partial Correlations

	Self-Regulation Obedience Indices								Clinically Relevant Anxiety/Depression 4.5 yo	
	Don't				Do					
	2 yo		3 yo		2 yo		3 yo			
	r	R^2	*r*	R^2	*r*	R^2	*r*	R^2	*r*	R^2
Parenting Dimensions ("do" context, 2yo)										
Autonomy support	.19 †	.03	.18	.03	-.15	.02	.22 *	.05	-.08	.01
Overt psychological control	-.19 †	.04	- .29 **	.09	- .37 **	.14	-.15	.02	-.12	.01
Covert psychological control	-.17	.03	- .29 **	.09	- .30 **	.09	-.15	.02	.34 **	.12
Child variables										
Don't SRO 2yo	--		--		--		--		- .23 †	.05
Don't SRO 3yo	--		--		--		--		- .43 **	.18
Do SRO 2yo	--		--		--		--		-.11	.01
Do SRO 3yo	--		--		--		--		-.16	.03

Notes. † $p < .10$; * $p < .05$; ** $p < 0.01$.

All the parenting and self-regulation scores used in analyses were z-scores. SRO indicates self-regulated obedience.

Controlled variables included: Don't : Effortful control & Surgency ; Do : Family income; Clinically relevant anxiety/depression: Effortful Control

Table 5.

Logistic Regression Assessing Quadratic function on Clinically Relevant Anxiety/Depression

	Step 1		Step 2	
Variables	*B* (s.e)	Odds Ratio	*B* (s.e)	Odds Ratio
Step 1				
Effortful Control	-.89	.42	-.87	.42
	(1.05)		(1.04)	
Don't SRO 3yo	-1.01 *	.34	-1.25	.29
	(.50)		(.98)	
Step 2				
Quadratic Term - Don't SRO 3yo			-.08	.92
			(.42)	
Goodness of fit χ^2	9.99 *		.04	
-2 Log Likelihood	24.07		24.04	
Cox and Snell R^2	.16		.16	
Nagelkerke R^3	.36		.36	

Notes.

†. $p < .10$; *. $p < .05$; **. $p < 0.01$.

The 3yo self-regulation score used to create quadratic term and in analyses was a z-score. SRO indicates self-regulated obedience.

Variable coding (0 = Normal range; 1 = Clinically relevant anxiety/depression)

Table 6.

Logistic Regression Predicting Clinically Relevant Anxiety/Depression

Variables	*B* (s.e)	Odds Ratio
Effortful Control - 2yo	-1.03	.36
	(1.12)	
Covert psychological control - 2yo	.86 *	2.35
	(.43)	
Dont SRO - 3yo	- .92 †	.40
	(.52)	
Goodness of fit χ^2	8.77 **	
-2 Log Likelihood	20.48	
Cox and Snell R^2	.21	
Nagelkerke R^3	.47	

Notes.

† $p < .10$; * $p < .05$; ** $p < 0.01$.

All the parenting and self-regulation scores used in analyses were z-scores. SRO indicates self-regulated obedience.

Variable coding (0 = Normal range; 1 = Clinically relevant anxiety/depression)

Figure 1.

Task Order for All Laboratory Visits

2yo-visits		3yo-visits	
Visit 1	Visit 2	Visit 1	Visit 2
Introduction to prohibition rule (*5 min.; Don't*)	**Introduction to prohibition rule (*5 min.; Don't*)**	**Introduction to prohibition rule (*5 min.; Don't*)**	**Introduction to prohibition rule (*5 min.; Don't*)**
Other Activity (*15-25 min*.)	**Attractive Toy Prohibition (Questionnaire – *11 min.; Don't*)**	**Attractive Toy Prohibition (Story – *8 min.; Don't*)**	Other Activity (*2 min.)*
Free Play - *5 min.*	Other Activity (*5 min.)*	Other Activity (*2 min.)*	Free Play - *5 min.*
Request Task (Clean up – *7 min.*; *Do*)	Free Play - *5 min.*	Other Activity (*5 min.)*	**Request Task (Clean up – *7 min.*; *Do*)**
Attractive Toy Prohibition (Snack - *8 min.*; *Don't*)	**Request Task (Clean up – *7 min.*; *Do*)**	Free Play - *5 min.*	Other Activity (*30 min*.)
Other Activity (*5 min.)*	**Attractive Toy Prohibition (Story – *11 min.; Don't*)**	**Request Task (Clean up – *7 min.*; *Do*)**	Other Activity (*5 min.)*
Attractive Toy Prohibition (Questionnaire – *11 min.; Don't*)	**Attractive Toy Prohibition (Snack - *8 min*.; *Don't*)**	**Attractive Toy Prohibition (Questionnaire – *12 min.; Don't*)**	**Attractive Toy Prohibition (Snack - *10 min.*; *Don't*)**
Attractive Toy Prohibition (Gift – *3 min.; Don't*)	Other Activity (*15-25 min*.)	**Attractive Toy Prohibition (Snack - *7 min*.; *Don't*)**	**Attractive Toy Prohibition (Questionnaire – *12 min.; Don't*)**
	Other Activity (3 *min.)*	Other Activity (*2 min.)*	Other Activity (*6 min.)*
		Other Activity (*15 min*.)	Other Activity (*2 min.)*
		Attractive Toy Prohibition (Gift – *3 min.; Don't*)	Other Activity (3 *min.)*

Note. Tasks in bold denote activities relevant to this study. Visits included other tasks such as imitation activities and block building tasks, as well as "accidents" (e.g., research assistant lost her stop watch, spills blocks, hurts her foot and finger).

Conclusion

The present thesis explored the very early development of childhood internalizing problems. In Study 1, the specific problem of anxiety was assessed from 2.5-years-olds to early school-age (8-years-old) and developmental trajectories were modeled. In Study 2, clinically relevant symptom level of internalizing problems was assessed during the preschool years (4.5-years-old). As internalizing problems often begin in childhood, it is essential to take a closer look at when and how it originates.

Studying parenting during the toddler years was of special interest because of the early emergence of these psychological problems and because it is a developmental period where children begin to express agency and desires. Resulting from this first push for autonomy and emerging abilities is the necessity for parental discipline and incessant child monitoring. Parental intervention choices have a significant impact on toddlers' emerging self-regulation (e.g., Blandon, Calkins, & Keane, 2010; Grolnick, Bridges, & Connell, 1996), and long-term welfare (e.g., Bean, Barber, & Crane, 2006; McShane & Hastings, 2009; Silk et al, 2003; Spinrad et al., 2012). Parental psychological control has been delineated as an important predictor of childhood internalizing problems (Ballash et al, 2006; DiBartolo & Helt, 2007; McLeod et al., 2007; Murray et al., 2009; Rapee, 1997; van der Bruggen et al, 2008; Wood et al, 2003). Although this link has also been corroborated with a toddler population (e.g., Baumrind et al., 2010; Calkins, Smith, Gill, & Johnson, 1998; Dix, Gershoff, Meunier, & Miller, 2004; Frodi, Bridges, & Grolnick, 1985; Hastings &

Rubin, 1999; Karreman, de Haas, van Tuijl, van Aken & Dekovic, 2010; Rubin, Burgess, & Hastings, 2002), the conclusions often drawn from these studies are limited, due to broader operationalizations of the construct (e.g., Baumrind et al., 2010; Calkins et al., 1998; Hastings & Rubin, 1999; Karreman et al., 2010). Thus, to better understand the detrimental effects of psychological control, it was essential as a next step to investigate separately different forms of psychological control which are typically clustered together.

Psychological control has been operationalized in many different ways (e.g., Schaefer 1959, 1965a, 1965b; Baumrind, 1966, 1971, 1991; Baumrind et al, 2010; Barber et al., 2012; Barber & Harmon, 2002; Barber & Xia, 2013). The operational definition of interest for this thesis focused on the types of pressure imposed on the child (Soenens & Vansteenkiste, 2010). With overt forms of parental control, the child is thought to abide to the parental agenda out of fear of his parents; the child is externally regulated. On the other hand, covert forms are more insidious as children come to put internal pressure on themselves to become or act in a specific way (Soenens & Vansteenkiste, 2010).

In both this thesis' studies, parental overt and covert psychological control was assessed during toddlerhood (Study 1: 2.5-years-old; Study 2: 2-years-old). Study 1 was a population study examining a larger, distal outlook of child development over a relatively long-period of time (from 2.5- to 8-years-old). It was intended as a macro-examination of both overt and covert forms of psychological control onto child

trajectories of anxiety. Conversely, Study 2 was designed to provide a proximal, micro-assessment of these forms of control. This observational study provided a closer look on parent and child behaviours, albeit during a smaller window of time (from 2- to 4.5-years-old).

One of this thesis' strength is the use of multi-method, complementary assessments of the thesis constructs across both studies, as the method used in each study addresses the main shortcomings of the other. The population study provides a large outlook of the development of child anxiety over a long-period of time. Yet, it is a survey-based study using adapted measures with sometimes non-optimal psychometric properties. Since there is a large number of constructs included in the QLSCD, it was impossible to include the original scales for each construct, as they frequently contain a large number of items (e.g., 102 items for the CBCL). The adapted variables are thus left with limited internal consistency and construct validity. In addition, the population study also examined the relative impact of a single type of overt and covert psychological control. In contrast, the observational study provides a rich account of 102 mother-child dyads across different activities during two laboratory visits for each assessment year. This offers measures of overt and covert control practices that are more objective (vs. maternal reports) and broader in scope, notwithstanding being limited to assessment over a smaller window of time, a less representative population sample and a single child anxiety assessment, at 4-5-years of age.

The population study assessed multiple variables (child's sex, inhibition; family SES, status and dysfunction; maternal depression, permissiveness, behavioural control and involvement) and took their predictive impact onto child anxiety trajectories into account. Among the initial risk factors identified, child inhibition, maternal depression and family dysfunction remained significant predictors of child anxiety trajectories, along with maternal coercion and overprotection. An interaction effect was found between depression and overprotection, subsuming their main effects. It was found that overprotection only increased the odds of a child following the highest anxiety trajectory when maternal depression was high. Yet, this covert form of psychological control was the only parenting predictor of child anxiety when assessed by the child's second grade teacher. All together, this study concluded that over and above child inhibition and family turmoil, having a parent who uses more overt psychological control (e.g., coercion, harsh, threatening) increased the odds, for children, to follow higher anxiety trajectories. The covert form of psychological control (i.e., overprotection) rendered mix results, depending on the rater of child anxiety (mothers: significant overprotection-depression interaction; teachers: significant main effect).

In the observational study, in addition to exploring more closely overt and covert psychological control, the potentially protective factors of child self-regulation (SR) and autonomy-supportive parenting were also investigated. The child's ability to self-regulate was coded across disciplinary contexts (requests and prohibitions) at both

2- and 3-years of age. One of this study's research question pertained to the impact of toddlers' behavioural control during two "hot" (emotionally charged) discipline contexts. Results revealed that the capacity to self-regulate in a prohibition context decreased the odds, for preschoolers, to exhibit clinically relevant levels of anxiety/depression. There was no additional, undermining effect of very high levels of SRO. In other words, older toddlers' ability to control their emotions and conduct, when faced with a prohibition rule, was solely adaptive, protecting them against the internalizing problems at 4.5-years-old. This absence of detrimental impact of a "too much" SR was thought to be counter-intuitive, given that toddlers' active resistance and self-assertion has been shown to be adaptive during this developmental period (e.g., Crockenberg & Litman, 1990; Dix, Stewart, Gerhoff & Day, 2007; Kuczynsky & Kochanska, 1990; Maccoby, 1984). Indeed, having very young children who are too prudent, too sensible or too "good" can sometimes raise concern.

SDT (Deci & Ryan, 1985, 2000, 2008b; Deci et al., 2013) may aid in enlightening this result. Researchers in this field believe that it is not the quantity of self-regulation but its quality that mandates its adaptiveness. Therefore, self-regulating very frequently is not concerning. Problematic self-regulation lies with the rigidity of its implementation. Unfortunately, this qualitative aspect of SR was not coded in the observational study. Perhaps in future studies it would be wise to investigate the level of rigidity in toddlers' SR before advocating for its irrevocable adaptability during this developmental period. Measuring toddlers' SR quality

(flexibility, positive affect vs. rigidity, negative affect) in addition to quantity may help in reconciling research about the positive (e.g., Kochanska, 2002; Kochanska & Aksan, 1995; Kochanska, Barry, Aksan, & Boldt, 2008; Kochanska et al, 1998; Kuczynsky & Kochanska, 1990) and negative (e.g., Ryan et al., 2006) effects of compliance as well as with research on the benefits of noncompliance and self-assertion (e.g., Crockenberg & Litman, 1990; Dix et al., 2007; Kuczynsky & Kochanska, 1990; Maccoby, 1984).

After assessing the consequences of toddlers' SR, its parenting antecedents were examined more closely. This was done to further corroborate that behavioural SR was indeed a strength, and does not represent a risk factor. Results revealed that only autonomy-supportive parenting (i.e., providing a rational and choices, using non-controlling language, describing the problem, singing a clean-up song) was positively related to a SR measure (SRO to requests at age three). Conversely, both overt (i.e., using physical force and threats/punishment as motivators for cleaning-up) and covert (i.e., using criticism, sarcasm and insults, as well as using bribes as motivators for cleaning-up toys) psychological control were negatively related to SR measures (SRO to requests at age two; SRO to prohibitions at age three). As toddlers' SRO was only related positively to adaptive parenting and negatively to maladaptive parenting, while also protecting against clinically relevant internalizing problems, it was concluded that this skill was solely adaptive for children of this age range.

While toddlers' SRO to prohibitions was found to protect against clinically relevant anxiety/depression, a detrimental risk factor was identified when examining parenting styles. Indeed, covert psychological control was positively related to clinically relevant anxiety/depression at 4.5-years of age. Thus, distinguishing between overt and covert forms of control (Soenens & Vansteenkiste, 2010) was enriching, as only more intrusive, insidious psychological control prevailed in predicting internalizing problems. This result is consistent with Grolnick, Kurowski, McMenamy, Rivkin and Bridges (1998)'s study in which they found that intrusive, active assistance in toddler SR going beyond the child's emotional needs undermined children's self-regulatory capacities by not allowing them opportunities to self-regulate. Thus, covert parental behaviours, in both assisting and disciplining the child, hinder children's adaptive self-regulatory abilities.

Moreover, when its impact was assessed along with 3-years-old SRO to prohibitions, only covert psychological control remained a significant predictor, while 3-year-old's ability to self-regulate to prohibitions only marginally protected against this child outcome. It thus seems that the child's environment had a stronger weight in predicting child internalizing problems in this sample.

In both thesis studies, in addition to exploring the effect of two forms of psychological control, we examined the effects of potentially protective parenting factors (maternal warmth/involvement and behavioural control in Study 1; autonomy-supportive parenting in Study 2). Unexpectedly, neither maternal

warmth/involvement, behavioural control, nor autonomy support was significantly related to lower child internalizing problems in either study. Although a lack of warmth/involvement and of behavioural structure have sometimes been positively associated with child internalizing problems (e.g., Baumrind et al, 2010; DiBartolo & Helt, 2007; Dix et al, 2004; McLeod et al., 2007; McShane & Hastings, 2009; Muris, Meesters, Schouten, & Hoge, 2004), others have found that higher levels of structure protect against child internalizing problems (e.g., Bean et al., 2006), or yet exacerbate this affective problem (Duchesne, Larose, Vitaro, & Tremblay, 2010). Based on Study 1 and the inconclusive literature, it was concluded that compared to autonomy thwarting tactics, parental warmth/involvement and behavioural structure were not as central to internalizing problems.

Akin to this is the idea that autonomy need thwarting and autonomy support are distinct constructs with different predictive weights onto internalizing problems. Our observational study found no association between autonomy-supportive parenting and internalizing problems, while covert psychological control held predictive weight. Silk et al. (2003) found similar distinct relationships between thwarting and supporting the essential need for autonomy with relations to adolescents' internalizing problems. Their psychological control measure was also singularly predictive of internalizing problems in their model. In addition, autonomy thwarting and support were related (in opposite directions) with self-esteem, social competence and adaptation. This inverse result pattern was replicated the Study 2 with regards to toddlers' self-regulation.

Perhaps that when it comes to affective adaptation and welfare, supporting this crucial need is solely predictive of "positive outcomes", while thwarting it is more serious and holds wider, destructive implications. Future studies are necessary to address this question.

Although autonomy is an essential psychological need (Deci & Ryan, 1980, 1985, 2000, 2008b) said to be universal, very few guidelines exist as to how one can support this need when interacting with toddlers. Emerging child agency and toddlers' still poorly developed skills (e.g., frustration tolerance) can pull for more controlling parenting, as do many "difficult" populations (e.g., Grolnick, Weiss, McKenzie, & Wrightman, 1996). Nevertheless, this need remains vital for current and long-term optimal child welfare. The typical autonomy-supportive ingredients as defined by SDT (i.e., empathy, choices, rational, non-controlling language; Koestner et al, 1984) are important aids in qualifying optimal parenting interactions, yet they are founded on research conducted with school-aged and adolescent populations. Compared to school-aged children and adolescents, toddlers are more limited in their emotional regulation, executive functioning and memory abilities, as well as in their communication skills (e,g,, Flavell, 1985; Guajardo & Best, 2000; Parrila, Das, & Dash, 1996). Tailoring the autonomy-supportive parenting construct to the toddler years seems necessary. With this in mind, one goal of the observational study was to explore other potentially autonomy-supportive strategies (e.g. describing the problem, singing a clean-up song) that would characterize optimal parenting with toddlers,

complementing the typical ingredients. More studies are needed to continue to explore optimal parenting with this young population. For instance, qualitative research on the practices used by parents and daycare workers who value autonomy-supportive disciplinary practices would be beneficial in clarifying autonomy-supportive practices with toddlers. Also, cluster analyses of a wide array of practices may also help in defining "toddler-appropriate" autonomy-support.

Another direction for future studies includes assessing potential moderating variables on the effects of parenting styles. The population study explored maternal depression and child temperament as potential moderators, and only maternal depressive symptoms was found to moderate the impact of overprotective parenting on child anxiety. As maternal stress is related to providing less structure and more control (Grolnick, Weiss et al., 1996), perhaps exploring moderation effects of maternal stress and/or anxiety on the relationship between controlling parenting and child emotional health may be pertinent in further understanding child anxiety aetiology. The impact of PC on child internalizing problems may be stronger when the parent exerting control is also feeling anxious. More studies are necessary to support this idea. In addition, maternal perfectionism, personality traits/disorders, and mother's trust in her child's organismic development could also potentially moderate the impact of their parenting attitudes and practices on child internalizing problems (Cook & Kearney, 2009; Kaeller & Roe, 1990; Landry et al, 2008).

Exploring mediational pathways explaining the link between parenting and child internalizing problems is another important avenue for future studies. For example, a recent study using path analysis has shown that maternal negative affect leads to more family dysfunction, which in turn is associated with more child internalizing symptoms (Crawford, Schrock, & Woodruff-Borden, 2011). Regarding child variables as mediators, the child's external locus of causality has been shown to mediate the link between controlling maternal behaviours and child anxiety (Becker, Ginsburg, Domingues, & Tein, 2010; Ryan & Connell, 1989). Moreover, thwarting another child essential need (i.e., competence and relatedness) may mediate the link between parenting and child anxiety. The feeling of competence is akin to the concept of locus of causality, effectiveness versus learned helplessness. Hence, a lower feeling of perceived competence has been found to partially mediate the link between covert psychological control (overprotection) and child anxiety (Affrunti & Ginsburg, 2012), yet no studies have explored this type of mediation with overt forms of psychological control.

Although both of the present thesis' studies were complementary in that they addressed each-other's main shortcomings, it is not without limits. For instance, the genetic contribution to child internalizing/anxiety problems was never controlled for in either study's analyses. Although maternal behaviours have been shown to be stronger predictors of child internalizing problems than maternal diagnosis (e.g., Hammen et al., 1990), being able to control for this part of the variance might have

helped in clarifying the results. Future twin studies are necessary to undertake this deficiency by controlling for the contribution of the child's genotype to his or her anxiety phenotype.

Many other interesting variables that were not assessed could have helped clarify the construct of self-regulation quality and its antecedents/consequences. For instance, it is unfortunately unfeasible to ask toddlers the reasons behind their actions, as their language and cognitive skills are not developed enough to permit such a subtle understanding and explanation. If we had had access to this information, it would have been much more enlightening than assessing the levels of self-regulation as was done in the observational study. By doing so, we were hoping to tap into toddlers' rigid self-control implementation. Unfortunately, this method failed to distinguish toddlers' maladaptive from adaptive SR. It would be wise to continue investigating the implementation rigidity of toddlers' SR, as this rigidity is believed to be affiliated with future internalizing problems (e.g., Ryan et al., 2006). Perhaps assessing biological variables, such as skin conductance or the heart's vagal tone, would be beneficial in bypassing our observational study's shortcoming, and thus clarifying this potential maladaptive SR. Also, coding emotion expressions alongside to SR tactics used by toddlers as other have done (e.g., Bridges, Grolnick, & Connell, 1997; Grolnick, Bridges et al., 1996) could also be fruitful in clarifying toddlers' flexible or rigid implementation of self-control. Our observational study suits with other studies (e.g., Kim & Kochanska, 2012; Kochanska et al., 2001) that have examined toddler

behavioural SR abilities through toddlers' ability to self-control and implement the frustrating disciplinary rules. Perhaps coding emotional instead of behavioural SR may have been a better indicator to tap rigid self-control.

Better understanding the risk and resiliency factors involved in the aetiology of childhood internalizing problems is crucial, as they can be used as guidelines for clinical practice. Clinical interventions could thus incorporate knowledge based on this thesis' findings. In this thesis, both overt and covert psychological control during the toddler years were related to later child internalizing difficulties. Result replication across studies and informants indicate that covert forms may be more potent long-term risk factors for this child outcome. Yet, the variety of covert control practices may need to be assessed separately in clinical settings, as overprotective parenting was only predictive of the highest mother-rated anxiety trajectory when mothers exhibited some depressive symptoms. Furthermore, as Dix et al. (2004) has shown that depressed mothers tend to exhibit fewer child-centered support and emotional attunement and more self-oriented concerns, perhaps family therapy targeting parents' child-emotional attunement as well as the subtle differences in covert psychological control practices that are used within the family would be beneficial in alleviating childhood anxiety/depression. It also may be advisable to include family members' assessment at the beginning of treatment in order to gage the variety of parenting practices used, as well as parental symptom levels. Clinical interventions targeting parental coaching would also be particularly pertinent in the

treatment of child anxiety/depression, as parenting was the strongest predictor of child internalizing problems.

In addition to maternal parenting style, the general family environment was also found to be a key determinant, as more family cohesion and support was predictive of children following the lowest anxiety trajectory. Family therapy targeting ways to engage in proactive discords and emotional attunement to each family member may help in increasing family cohesiveness and support.

Child inhibited temperament and self-regulatory skills were also relevant risk and resiliency factors, respectively. It is known that most individuals, including toddlers, experience emotions with different intensities (e.g., Gable, Reis, & Elliott, 2000). As salient individual differences in biological/temperamental tendency to experience emotions exist (i.e., sensitivity, reactivity), social environments can aid in promoting healthy and unhealthy regulatory styles which are more malleable. This is particularly true during early childhood, when toddlers are learning this ability, and are still somewhat externally regulated by their caregiver's responsiveness and availability/presence (e.g., Bridges et al., 1997; Grolnick, Bridges et al., 1996). Thus, nature brings forth individual differences in sensitivity, yet its phenotypic expression will depend on both nature and nurture (Cacioppo, Berntson, Sheridan, & McClintock, 2000). In our study, autonomy-supportive parenting was shown to predict later child SR abilities, while psychological control inversely predicted it in both the short- and long-term. Although both forms of psychological control led to the same, detrimental

link to toddlers' SR, autonomy-supportive parenting practices presented an adaptive disciplinary alternative. Continuing to examine diverse parenting skills, especially autonomy-supportive parenting in toddlerhood, is thus most relevant for long-term child welfare and resilience against future internalizing problems.

Cited References in Thesis Introduction and Conclusion

Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4–18 and 1991 Profile*. Burlington , VT : University of Vermont.

Achenbach, T. M. (1992). *Manual for the Child Behavior Checklist/2–3 and 1992 Profile*. Burlington , VT : University of Vermont.

Achenbach, T. M., & Edelbrock, C. (1983). *Manual for the Child Behavior Checklist and Profile*. Burlington , VT : University of Vermont.

Achenbach, T.M., & Rescorla, L.A. (2004). Empirically based assessment and taxonomy: Applications to infants and toddlers. In R. DelCarmen-Wiggins and A. Carter (Eds.), *Handbook of infant, toddler, and preschool mental health assessment* (pp. 161–182). New York: Oxford University Press.

Affrunti, N. W., & Ginsburg, G. S. (2012). Maternal overcontrol and child anxiety: The mediating role of perceived competence. *Child Psychiatry & Human Development, 43*, 102–112. doi:10.1007/s10578-011-0248-z

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation.* Oxford, England: Lawrence Erlbaum.

Aunola, K., & Nurmi, J-E. (2005). The role of parenting styles in children's problem behavior. *Child Development, 76*(6), 1144-1159. doi: 10.1111/j.1467-8624.2005.00840.x-i1

Ballash, N. G., Leyfer, O., Buckley, A. F., & Woodruff-Borden, J. (2006). Parental control in the etiology of anxiety. *Clinical Child and Family Psychology Review, 9*(2), 113-133. doi: 10.1007/s10567-006-0007-z

Barber, B. K. (1996). Parental psychological control: Revisiting a neglected construct. *Child Development, 67*(6), 3296–3319. doi: 10.1111/j.1467-8624.1996.tb01915.x

Barber, B. K., & Harmon, E. L. (2002). Violating the self: Parental psychological control of children and adolescents. In B. K. Barber (Ed.), *Intrusive parenting: How psychological control affects children and adolescents* (pp. 15–52). Washington, DC: APA.

Barber, B. K., & Olsen, J. A. (1997). Socialization in context connection, regulation, and autonomy in the family, school, and neighborhood, and with peers. *Journal of Adolescent Research*, *12*(2), 287-315. doi: 10.1177/0743554897122008

Barber, B. K., Stolz, H. E., & Olsen, J. A. (2005). Parental support, psychological control, and behavioral control: Assessing relevance across time, culture, and method. *Monographs of the Society for Research in Child Development*, 70(4, Serial No. 282). Retrieved from http://www.jstor.org/stable/3701442

Barber, B. K., & Xia, M. (2013). The centrality of control to parenting and its effects. In A. S. Morris, R. E. Larzelere, and A. W. Harrist (Eds.), *New directions for*

authoritative parenting. Washington, DC: American Psychological Association Press.

Barber, B. K., Xia, M., Olsen, J. A., McNeely, C. A., & Bose, K., (2012). Feeling disrespected by parents: Refining the measurement and understanding of psychological control. *Journal of Adolescence, 35*(2), 273–287. doi:10.1016/j.adolescence.2011.10.010

Baumrind, D. (1966). Effects of authoritative parental control on child behavior. *Child Development,* 37, 857-907. Retrieved from http://www.jstor.org/stable/1126611

Baumrind, D. (1971). Current pattems of parental authority. *Developmental Psychology Monographs, 4,* 1-102. doi: 10.1037/h0030372

Baumrind, D. (1991). The influence of parenting style on adolescent competence and substance use. *Journal of Early Adolescence* 11, 56-95. doi: 10.1177/0272431691111004

Baumrind, D., Larzelere, R.E., & Owens, E. B. (2010). Effects of preschool parents' power assertive patterns and practices on adolescent development. *Science and Practice, 10*(3), 157–201. doi: 10.1080/1529519090329079

Bayer, J. K., Hiscock, H., Ukoumunne, O. C., Price, A., & Wake, M. (2008). Early childhood aetiology of mental health problems: A longitudinal

population-based study. *Journal of Child Psychology and Psychiatry*, *49*(11), 1166-1174. doi:10.1111/j.1469-7610.2008.01943.x

Bayer, J. K., Rapee, R. M., Hiscock, H., Ukoumunne, O. C., Mihalopoulos, C., & Wake, M. (2011). Translational research to prevent internalizing problems early in childhood. *Depression and Anxiety*, *28*(1), 50-57. doi: 10.1002/da.20743

Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2006). Children's moods, fears, and worries development of an early childhood parent questionnaire. *Journal of Emotional and Behavioral Disorders*, *14*(1), 41-49. doi**:** 10.1177/10634266060140010401

Bayer, J. K., Sanson, A. V., & Hemphill, S. A. (2009). Early childhood aetiology of internalising difficulties: a longitudinal community study. *International Journal of Mental Health Promotion*, *11*(1), 4-14. doi: 10.1080/14623730.2009.9721777

Bean, R. A., Barber, B. K., & Crane, D. R. (2006). Parental support, behavioral control, and psychological control among african american youth: The relationships to academic grades, delinquency, and depression. *Journal of Family Issues*, *27*(10), 1335-1355. doi: 10.1177/0192513X06289649

Bean, R. A., Bush, K. R., McKerny, P. C., & Wilson, S. M. (2003). The impact of parental support, behavioral control, and psychological control on the

academic achievement and self-esteem of African-American and European American adolescents. *Journal of Adolescence*, *18*(5), 523-541. doi: 10.1177/0743558403255070

Becker, W. C. (1964). Consequences of different kinds of parental discipline. In M. L. Hoffnian & W. W. Hoffman (Eds.), *Review of Child Development Research* (Vol. 1, pp. 169-208). New York: Russell Sage Foundation.

Becker, K. D., Ginsburg, G. S., Domingues, J., & Tein, J. Y. (2010). Maternal control behavior and locus of control: examining mechanisms in the relation between maternal anxiety disorders and anxiety symptomatology in children. *Journal of Abnormal Child Psychology*, *38*(4), 533-543. doi: 10.1007/s10802-010-9388-z

Bernier, A., Carlson, S. M., Deschênes, M., & Matte-Gagné, C. (2012). Social factors in the development of early executive functioning: A closer look at the caregiving environment. *Developmental Science*, *15*(1), 12-24. doi: 10.1111/j.1467-7687.2011.01093.x

Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: early parenting precursors of young children's executive functioning. *Child Development*, *81*(1), 326-339. doi: 10.1111/j.1467-8624.2009.01397.x

Bernstein, G. A., & Borchardt, C. M. (1991). Anxiety disorders of childhood and adolescence: A critical review. *Journal of the American Academy of Child &*

Adolescent Psychiatry, 30(4), 519-532. doi: 10.1097/00004583-199107000-00001

Blandon, A. Y., Calkins, S. D., & Keane, S. P. (2010). Predicting emotional and social competence during early childhood from toddler risk and maternal behavior. *Development and Psychopathology*, *22*(1), 119-132. doi: 10.1017/S0954579409990307

Bögels, S. M., & Brechman-Toussaint, M. L. (2006). Family issues in child anxiety: Attachment, family functioning, parental rearing and beliefs. *Clinical Psychology Review, 26*(7), 834-856. doi: 10.1016/j.cpr.2005.08.001

Bordeleau, S., Bernier, A., & Carrier, J. (2012). Longitudinal associations between the quality of parent-child interactions and children's sleep at preschool age. *Journal of Family Psychology*, *26*(2), 254-262. doi: 10.1037/a0027366

Breton, J.-J., Bergeron, L., Valla, J.-P., Berthiaume, C., Gaudet, N., Lambert, J., … Lépine, S. (1999). Quebec Child Mental Health Survey: Prevalence of DSM-III--R mental health disorders. *Journal of Child Psychology and Psychiatry, 40*(3), 375-384. doi: 10.1111/1469-7610.00455

Bridges, L. J., Grolnick, W. S., & Connell, J. P. (1997). Infant emotion regulation with mothers and fathers. *Infant Behavior and Development*, *20*(1), 47-57. doi: 10.1016/S0163-6383(97)90060-6

Burt, A. S. (2009). Rethinking environmental contributions to child and adolescent pychopathology: A meta-analysis of shared environmental influences. *Psychological Bulletin*, *135*(4), 608-637. doi: 10.1037/a0015702

Cacioppo, J. T., Berntson, G. G., Sheridan, J. F., & McClintock, M. K. (2000). Multilevel integrative analyses of human behavior: Social neuroscience and the complementing nature of social and biological approaches. *Psychological Bulletin*, *126*(6), 829-843. doi: 10.1037/0033-2909.126.6.829

Calkins, S. D., Blandon, A. Y., Williford, A. P., & Keane, S. P. (2007). Biological, behavioral, and relational levels of resilience in the context of risk for early childhood behavior problems. *Development and Psychopathology*, *19*(3), 675-700. doi: 10.1017/S095457940700034X

Calkins, S. D., Smith, C. L., Gill, K. L., & Johnson, M. C. (1998). Maternal interactive style across contexts: Relations to emotional, behavioral and physiological regulation during toddlerhood. *Social Development*, *7*(3), 350-369. doi: 10.1111/1467-9507.00072

Capaldi, D. M., Pears, K. C., Kerr, D. C. R., Owen, L. D. & Kim, H. K. (2012). Growth in externalizing and internalizing problems in childhood: A Prospective study of psychopathology across three generations. *Child Development*, *83*(6), 1945-1959. doi: 10.1111/j.1467-8624.2012.01821.x

Cleveland, E. S., Reese, E., & Grolnick, W. S. (2007). Children's engagement and competence in personal recollection: Effects of parents' reminiscing goals.

Journal of Experimental Child Psychology, *96*(2), 131-149. doi: 10.1016/j.jecp.2006.09.003

Cook, L. C., & Kearney, C. A. (2009). Parent and youth perfectionism and internalizing psychopathology. *Personality and individual differences*, *46*(3), 325-330. doi:10.1016/j.paid.2008.10.029

Côté, S. M., Boivin, M., Liu, X., Nagin, D. S., Zoccolillo, M., & Tremblay, R. E. (2009). Depression and anxiety symptoms: Onset, developmental course and risk factors during early childhood. *Journal of Child Psychology and Psychiatry, 50*(10), 1201–1208. doi: 10.1111/j.1469-7610.2009.02099.x

Crawford, N. A., Schrock, M., & Woodruff-Borden, J. (2011). Child internalizing symptoms: Contributions of child temperament, maternal negative affect, and family functioning. *Child Psychiatry & Human Development*, *42*(1), 53-64. doi 10.1007/s10578-010-0202-5

Crockenberg, S., & Litman, C. (1990). Autonomy as competence in 2-year-olds: Maternal correlates of child defiance, compliance, and self-assertion. *Developmental Psychology*, *26*(6), 961. doi: 10.1037/0012-1649.26.6.961

Deci, E. L. (1975). *Intrinsic motivation*. New York: Plenum Press.

Deci, E. L., Driver, R. E., Hotchkiss, L., Robbins, R. J., & McDougal Wilson, I. (1993). The relation of mother's controlling vocalizations to children's intrinsic motivation. *Journal of Experimental Child Psychology*, *55*(2), 151-162. doi: 10.1006/jecp.1993.1008

Deci, E. L., Eghrari, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating internalization: The self-determination theory perspective. *Journal of Personality*,*62*(1), 119-142. doi: 10.1111/j.1467-6494.1994.tb00797.x

Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology* (Vol. 13, pp. 39-80). New York: Academic.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, *11*(4), 227-268. doi:10.1207/S15327965PLI1104_01

Deci, E. L., & Ryan, R. M. (2008a). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology/Psychologie canadienne*, *49*(1), 14-23. doi:10.1037/0708-5591.49.1.14

Deci, E. L., & Ryan, R. M. (2008b). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, *49*(3), 182-185. doi: 10.1037/a0012801

Deci, E. L., Ryan, R. M., & Guay, F. (2013). Self-determination theory and actualization of human potential. In D. McInerney, H. Marsh, R. Craven, & F. Guay (Eds.), *Theory driving research: New wave perspectives on self*

processes and human development (pp. 109-133). Charlotte, NC: Information Age Press

DiBartolo, P. M., & Helt, M. (2007). Theoretical models of affectionate versus affectionless control in anxious families: A critical examination based on observations of parent–child interactions. *Clinical Child and Family Psychology Review*, *10*(3), 253-274. doi: 10.1007/s10567-007-0017-5

Dix, T., Gershoff, E. T., Meunier, L. N., & Miller, P. C. (2004). The affective structure of supportive parenting: Depressive symptoms, immediate emotions, and child-oriented motivation. *Developmental Psychology*, *40*(6), 1212-1227. doi: 10.1037/0012-1649.40.6.1212

Dix, T., Stewart, A. D., Gershoff, E. T., & Day, W. H. (2007). Autonomy and children's reactions to being controlled: Evidence that both compliance and defiance may be positive markers in early development. *Child Development, 78*(4), 1204–1221. doi: 10.1111/j.1467-8624.2007.01061.x

Duchesne, S., Larose, S., Vitaro, F., & Tremblay, R. E. (2010). Trajectories of anxiety in a population sample of children: Clarifying the role of children's behavioral characteristics and maternal parenting. *Development and psychopathology*, *22*(2), 361.doi : 10.1017/S0954579410000118

Egger, H. L., & Angold, A. (2006). Anxiety Disorders. In J. L. Luby (Ed.), *Handbook of preschool mental health: Development, Disorders and Treatment* (pp. 137-164). New York, NY: Guilford Press.

Feigon, S. A., Waldman, I. D., Levy, F., & Hay, A. D. (2001). Genetic and environmental influences on separation anxiety disorder symptoms and their moderation by age and sex. *Behavior Genetics, 31*(5), 403–411. doi: 10.1023/A:1012738304233

Flavell, J. (1985). *Cognitive development* (2nd ed.). Englewoods Cliffs; New Jersey: Prentice Hall.

Fox, N. A., & Calkins, S. D. (2003). The development of self-control of emotion: Intrinsic and extrinsic influences. *Motivation and emotion*, *27*(1), 7-26. doi: 10.1023/A:1023622324898

Frodi, A., Bridges, L. & Grolnick, W. S. (1985). Correlates of mastery-related behavior: A short-term longitudinal study of infants in their second year. *Child Development, 56*(5), 1291-1298. doi: 10.2307/1130244

Gable, S. L., Reis, H. T., & Elliot, A. J. (2000). Behavioral activation and inhibition in everyday life. *Journal of Personality and Social Psychology*, *78*(6), 1135-1149. doi:10.1037/0022-3514.78.6.1135

Garstein, M. A., Putnam, S. P., & Rothbart, M. K. (2012). Etiology of preschool behavior problems: Contributions of temperament attributes in early childhood. *Infant Mental Health Journal, 33*(2), 197-211. doi: 10.1002/imhj.21312

Gazelle, H., & Ladd, G. W. (2003). Anxious solitude and peer exclusion: A diathesis-stress model of internalizing trajectories in childhood. *Child Development, 74,* 257–278. doi: 10.1111/1467-8624.00534

Gilliom, M., & Shaw, D. S. (2004). Codevelopment of externalizing and internalizing problems in early childhood. *Development and Psychopathology*, *16*(2), 313-333. doi: 10.1017/S0954579404044530

Ginsburg,G. S., Grover, R. L., Cord, J. J., & Ialongo, N. (2006). Observational measures of parenting in anxious and nonanxious mothers: Does type of task matter? *Journal of Clinical Child and Adolescent Psychology*, *35*(2), 323-328. doi: 10.1207/s15374424jccp3502_16

Gray, M. R., & Steinberg, L. (1999). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and the Family*, 61(3), 574-587. doi: 10.2307/353561

Grolnick, W. S. (2003). *The psychology of parental control: How well-meant parenting backfires*. Mahwah, New Jersey: Lawrence Erlbaum Associates.

Grolnick, W. S., Bridges, L. J., & Connell, J. P. (1996). Emotion regulation in two-year-olds: Strategies and emotional expression in four contexts. *Child Development*, *67*(3), 928-941. doi: 10.1111/j.1467-8624.1996.tb01774.x

Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997). Internalization within the family: The Self-Determination Theory perspective. In J.E. Grusec, & L. Kuczynski (Eds.), *Parenting and Children's internalization of values: A handbook of contemporary theories* (p. 135-166). New York: Wiley.

Grolnick, W. S., Kurowski, C. O., & McMenamy, J. M, Rivkin, I, & Bridges, L. J. (1998). Mother's strategies for regulating their toddlers' distress. *Infant Behavior and Development*, *21*(3), 437-450. doi: 10.1016/S0163-6383(98)90018-2

Grolnick, W. S., McMenamy, J, & Kurowski, C. O. (2006). Emotional self-regulation in infancy and toddlerhood. In L. Balter, & C. S. Tarnis-LeMonda (Eds.), *Child psychology: A handbook of contemporary issues* (2nd ed). New York: Psychology press.

Grolnick, W. S., & Pomerantz, E. M. (2009). Issues and challenges in studying parental control: Toward a new conceptualization. *Child Development Perspectives*, *3*(3), 165-170. doi: 10.1111/j.1750-8606.2009.00099.x

Grolnick, W. S., & Ryan, R. M. (1989). Parent styles associated with children's self-regulation and competence in school. *Journal of Educational Psychology, 81*(2), 143-154. doi:10.1037/0022-0663.81.2.143

Grolnick, W. S., Weiss, L., McKenzie, L., & Wrightman, J. (1996). Contextual, cognitive, and adolescent factors associated with parenting in adolescence. *Journal of Youth and Adolescence*, *25*(1), 33-54. doi: 10.1007/BF01537379

Guajardo, N. R., & Best, D. L. (2000). Do preschoolers remember what to do? Incentives and external cues in proscpective memory. *Cognitive Development*, *15*(1), 75-97. doi: 10.1016/S0885-2014(00)00016-2

Haberstick, B. C., Schmitz, S., Young, S. E., & Hewitt, J. K. (2005). Contributions of genes and environments to stability and change in externalizing and internalizing problems during elementary and middle school. *Behaviour Genetics*, *35*(4), 381-396. doi: 10.1007/s10519-004-1747-5

Hammen, C., Burge, D., & Stansbury, K. (1990). Relationship of mother and child variables to child outcomes in a high-risk sample: A causal modeling analysis. *Developmental Psychology, 26*(1), 24-30. doi: 10.1037/0012-1649.26.1.24

Hastings, P. D., & Rubin, K. H. (1999). Predicting mothers' beliefs about preschool-aged children's social behavior: Evidence for maternal attitudes moderating child effects. *Child Development*, *70*(3), 722-741, doi: 10.1111/1467-8624.00052

Hettema, J. M., Neale, M. C., & Kendler, K. S. (2001). A review and meta-analysis of the genetic epidemiology of anxiety disorders. *American Journal of Psychiatry, 158*(10), 1568-1578. doi: 10.1176/appi.ajp.158.10.1568

Hollenstein, T., Granic, I., Stoolmiller, M., & Snyder, J. (2004). Rigidity in parent-child interactions and the development of externalizing and internalizing behavior in early childhood. *Journal of Abnormal Child Psychology, 32*(6), 595-607. doi: 10.1023/B:JACP.0000047209.37650.41

Joussemet, M.,& Koestner, R. (1999). Effects of expected rewards on children's creativity. *Creativity Research Journal*, *12*(4), 231-239. doi: 10.1207/s15326934crj1204_1

Joussemet, M., Koestner, R., Lekes, N., & Houlfort N. (2004). Introducing uninteresting tasks to children: A comparison of the effets of reward and autonomy support. *Journal of Personality*, *72*(1), 139-166. doi: 10.1111/j.0022-3506.2004.00259.x

Joussemet, M., Koestner, R., Lekes, N., & Landry, R. (2005). A longitudinal study of the relationship of maternal autonomy support to children's adjustment and achievement in school. *Journal of Personality*, *73*(5), 1215-1236. doi: 10.1111/j.1467-6494.2005.00347.x

Joussemet, M., Landry, R., & Koestner, R. (2008). A Self-Determination Theory perspective on parenting. *Canadian Psychology, 49*(3), 194–200. doi: 10.1037/a0012754

Kaeller, M. G., & Roe, K. V. (1990). Personality variables as assessed by the MMPI and their relationship to mother-infant interactional behaviors at age three months. *Psychological Reports*, *66*(3), 899-904. doi: 10.2466/pr0.1990.66.3.899

Karevold, E., Røysamb, E., Ystrom, E., & Mathiesen, K. S. (2009). Predictors and pathways from infancy to symptoms of anxiety and depression in early adolescence. *Developmental Psychology, 45*(4), 1051-1060. doi: 10.1037/a0016123

Karreman, A., de Haas, S., van Tujil, C., van Aken, M. A. G., & Dekovic, M. (2010). Relations among temperament, parenting and problem behavior in young

children. *Infant Behavior and Development*, *33*(1), 39-49. doi: 10.1016/j.infbeh.2009.10.008

Kawabata, Y., Alink, L. R. A., Tseng, W.-L., van Ijzendoorn, M. H., & Crick, N. R. (2011). Maternal and paternal parenting styles associated with relational aggression in children and adolescents: A conceptual analysis and meta-analytic review. *Developmental Review*, *31*(4), 240-278. doi: 10.1016/j.dr.2011.08.001

Keller, M. B., Lavori, P. W., Wunder, J., Beardslee, W. R., Schwartz, C. E., & Roth, J. (1992). Chronic course of anxiety disorders in children and adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 31*(4), 595-599. doi: 10.1097/00004583-199207000-00003

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Koretz, D., Merikangas, K. R., … Wang, P. S. (2003). The Epidemiology of major depressive disorder: Results from the national comorbid survey replication (NCS-R). *Journal of the American Journal Association, 289*(23), 3095-3105. doi:10.1001/jama.289.23.3095.

Kessler, R. C., McGonagle, K. A., Zhao, S., & Nelson, C. B. (1994). Lifetime and 12-month prevalence of DSM-III--R psychiatric disorders in the United States: Results from the National Comorbidity Study. *Archives of General Psychiatry, 51*(1), 8-19. doi: 10.1001/archpsyc.1994.03950010008002

Kim, S., & Kochanska, G. (2012). Child temperament moderates effects of parent–child mutuality on self-regulation: A relationship-based path for emotionally negative infants. *Child Development, 83*(4), 1275–1289. doi: 10.1111/j.1467-8624.2012.01778.x

Kim, S., Nordling, J. K., Yoon, J. E., Boldt, L. J., & Kochanska, G. (2013). Effortful control in "hot" and "cool" tasks differentially predicts children's behavior problems and academic performance. *Journal of Abnormal Child Psychology*, *41*(1), 43-56. doi: 10.1007/s10802-012-9661-4

Knapp, M., McCrone, P., Fombonne, E., Beecham, J., & Wostear, G. (2002). The Maudsley long-term follow-up of child and adolescent depression: 3. Impact of comorbid conduct disorder on service use and costs in adulthood. *The British Journal of Psychiatry*, *180*(1), 19-23. doi:10.1192/bjp.180.1.19

Kochanska, G. (2002). Committed compliance, moral self, and internalization: A meditational model. *Developmental Psychology, 38*(3), 339-351. doi: 10.1037/0012-1649.38.3.339:

Kochanska, G., & Aksan, N. (1995). Mother-child mutually positive affect, the quality of child compliance to requests and prohibitions, and maternal control as correlates of early internalization. *Child Development*, *66*, 236-254. doi:10.2307/1131203

Kochanska, G., Barry, R. A., Aksan, N., & Boldt, L. J. (2008). A developmental model of maternal and child contributions to disruptive conduct: The first six years. *Journal of Child Psychology and Psychiatry, 49*(11), 1220–1227. doi: 10.1111/j.1469-7610.2008.01932.x

Kochanska, G., Coy, K. C., & Murray, K. T. (2001). The development of self-regulation in the first four years of life. *Child Development*, *72*(4), 1091-1111. doi: 10.1111/1467-8624.00336

Kochanska, G., Tjebkes, J. L., & Forman, D. R. (1998). Children's emerging regulation of conduct: Restraint, compliance, and internalization from infancy to the second year. *Child Development*, *69*(5), 1378-1389. doi: 10.1111/j.1467-8624.1998.tb06218.x

Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. *Journal of Personality*, *52*(3), 233-248. doi: 10.1111/j.1467-6494.1984.tb00879.x

Kovacs, M., & Devlin, B. (1998). Internalizing disorders in childhood. *Journal of Child Psychology and Psychiatry*, *39*(1), 47-63. Retrieved from http://journals.cambridge.org/

abstract_S0021963097001765

Kuczynski , L. Kochanska , G. (1990). Development of children's noncompliance strategies from toddlerhood to age 5. *Developmental Psychology, 26*(3), 398-408. doi: 10.1037/0012-1649.26.3.398

Landry, R., Whipple, N., Mageau, G., Joussemet, M., Koestner, R., DiDio, L., ... & Haga, S. M. (2008). Trust in organismic development, autonomy support, and adaptation among mothers and their children. *Motivation and Emotion*,*32*(3), 173-188. doi: 10.1007/s11031-008-9092-2

Laskey, B. J., & Cartwright-Hatton, S. (2009). Parental discipline behaviours and beliefs about their child: Associations with child internalizing and mediation relationships. *Child: Care, Health and Development, 35*(5), 717-727. doi:10.1111/j.1365-2214.2009.00977.x

Last, C. G., Hersen, M., Kazdin, A., Orvaschel, H., & Perrin, S. (1991). Anxiety disorders in children and their families. *Archives of General Psychiatry, 48*(10), 928-934. doi: 10.1001/archpsyc.1991.01810340060008.

Letcher, P., Smart, D., Sanson, A., & Toumbourou, J. W. (2009). Psychosocial precursors and correlates of differing internalizing trajectories from 3 to 15 Years. *Social Development*, *18*(3), 618-646. doi: 10.1111/j.1467-9507.2008.00500.x

Leve, L. D., Kim, H. K., & Pears, K. C. (2005). Childhood temperament and family environment as predictors of internalizing and externalizing trajectories from

ages 5 to 17. *Journal of Abnormal Child Psychology*, *33*(5), 505-520. doi: 10.1007/s10802-005-6734-7

Maccoby, E. E. (1984). Socialization in the developmental change. *Child Development,* 55(2), 317-328. Retrieved from http://www.jstor.org/stable/1129945

Maccoby , E. E. Martin , J. A. (1983). Socialization in the context of the family: parent-child interaction. In P. H. Mussen & E. M. Hetherington (Eds.), *Handbook of child psychology: Vol. 4. Socialization, personality, and social developmen*t (4th ed., pp. 1-101) New York: Wiley.

Mathers, C. D., & Loncar, D. (2006). Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med 3*(11), e442. doi:10.1371/journal.pmed.0030442

Matte-Gagné, C., Bernier, A., & Gagné, C. (2012). Stability of maternal autonomy-support between infancy and preschool age. *Social Development*, *22*(3), 427-443. doi: 10.1111/j.1467-9507.2012.00667.x

McConaughy, S. H., & Achenbach, T. M. (1994). Comorbidity of empirically based syndromes in matched general population and clinical samples. *Journal of Child Psychology and Psychiatry*, *35*, 1141–1157. doi: 10.1111/j.1469-7610.1994.tb01814.x

McLeod, B. D., Wood, J. J., & Weisz, J. R. (2007). Examining the association between parenting and childhood anxiety: A meta-analysis. *Clinical Psychology Review, 27*(2), 155-172. doi: 10.1016/j.cpr.2006.09.002

McShane, K. E., & Hastings, P. D. (2009). The New Friends Vignettes: Measuring parental psychological control that confers risk for anxious adjustment in preschoolers. *International Journal of Behavioral Development*, *33*(6), 481-495. doi: 10.1177/0165025409103874

Mills, R. S. L., & Rubin, K. H. (1998). Are behavioural and psychological control *both* differentially associated with childhood aggression and social withdrawal? *Canadian Journal of Behavioural Science*, *30*(2), 132-136. doi: 10.1037/h0085803

Moore, P. S., Whaley, S. E., & Sigman, M. (2004). Interactions between mothers and children: Impacts of maternal and child anxiety. *Journal of Abnormal Psychology*, *113*(3), 471-476. doi: 10.1037/0021-843X.113.3.471

Mrazek, P. J., & Haggerty, R. J. (1994). *Reducing risks for disorders: Frontliners for preventive intervention*. Washington: National Academy Press.

Muris, P., Meesters, C., Schouten, E., & Hoge, E. (2004). Effects of perceived control on the relationship between perceived parental rearing behaviors and symptoms of anxiety and depression in nonclinical preadolescents. *Journal of Youth and Adolescence*, *33*(1), 51-58. doi: 10.1023/A:1027334314021

Murray, L., Creswell, C., & Cooper, P. J. (2009).The development of anxiety disorders in childhood: An integrative review. *Psychological Medicine, 39*, 1413–1423. doi:10.1017/S0033291709005157

Murray, K. T., & Kochanska, G. (2002). Effortful control: Factor structure and relation to externalizing and internalizing behaviors. *Journal of Abnormal Child Psychology*, *30*(5), 503-514. doi: 10.1023/A:1019821031523

Nucci, L., Hasebe, Y., & Lins-Dyer, M. T. (2005). Adolescent psychological well-being and parental control of the personal. In W. Damon, & J. Smetana (Eds.), *New directions for child and adolescent development* (vol. 108, pp. 17–30). New York: Wiley.

Parrila, R. K., Das, J. P., Dash, U. N. (1996). Development of planning and its relation to other cognitive processes. *Journal of Applied Developmental Psychology, 17*(4), *597-624.* doi: 10.1016/S0193-3973(96)90018-0

Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review, 17*(1), 47-67. doi: 10.1016/S0272-7358(96)00040-2

Rogers, K. N., Buchanan., C. M., & Winchell, M. E. (2003). Psychological control during early adolescence: links to adjustment in differing parent/adolescent dyads. *Journal of Early Adolescence*, *23*(4), 349-383. doi: 10.1177/0272431603258344

Rollins, B. C., & Thomas, D. L. (1979). Parental support, power, and control techniques in the socialization of children. In W. R. Burr, R. Hill, F. I. Nye, and I. L. Reiss (Eds.), *Contemporary Theories about the Family*, (Vol 1,pp. 317-364). New York: Free Press

Roth, G., Assor, A., Niemiec, C. P., Ryan, R. M., & Deci, E. L. (2009). The emotional and academic consequences of parental conditional regard: Comparing conditional positive regard, conditional negative regard, and autonomy support as parenting practices. *Developmental Psychology*, *45*(4), 1119-1142. doi: 10.1037/a0015272

Rothbart, M. K. (2011). *Becoming who we are: Temperament and personality in development.* New York: Guildford Press.

Rubin, K. H., Burgess, K. B., & Hastings, P. D. (2002). Stability and social–behavioral consequences of toddlers' inhibited temperament and parenting behaviors. *Child Development. 73*(2), 483-495. doi: 10.1111/1467-8624.00419

Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43*(3), 450-461. doi: 10.1037/0022-3514.43.3.450

Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, *57*(5), 749-761. doi:10.1037/0022-3514.57.5.749

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. doi: 10.1037/0003-066X.55.1.68

Ryan, R. M., Deci, E. L., Grolnick, W. S., & La Guardia, J. G. (2006). The significance of autonomy and autonomy support in psychological development and psychopathology. In D. Cicchetti & D. J. Cohen (Eds.), *Developmental psychopathology: Theory and method 2nd ed.,* (Vol. 1, pp. 795-849). New Jersey: John Wiley & Sons, Inc.

Sawyer, M. G., Arney, F. M., Baghurst, P. A., Clark, J. J., Graetz, B. W., Kosky, R. J., ... & Zubrick, S. R. (2000). The mental health of young people in Australia: Child and adolescent component of the national survey of mental health and well–being. *Canberra: Commonwealth Department of Health and Aged Care.* Retrieved from http://www.quitnow.gov.au/internet/main/publishing.nsf/Content/70DA14F816CC7A8FCA25728800104564/$File/young.pdf

Schaefer, E. S. (1959). A circumplex model for maternal behavior. *Journal of Abnormal and Social Psychology,* 59, 226-235. doi: 10.1037/h0041114

Schaefer, E. S. (1965a). Children's reports of parental behavior: An inventory. *Child Development,* 36, 413-424. doi: Retrieved from http://www.jstor.org/stable/1126465

Schaefer, E. S. (1965b). A configurational analysis of children's reports of parent behavior. Jour*nal of Consulting Psychology,* 29, 552-557. doi: 10.1037/h0022702

Schafer, R. (1968). *Aspects of internalization*. New York: International Universities Press

Shaw, D. S., Keenan, K., Vondra, J. I., Delliquardi, E., & Giovannelli, J. (1997). Antecedents of preschool children's internalizing problems: A longitudinal study of low-income families. *Journal of the American Academy of Child & Adolescent Psychiatry*, *36*(12), 1760-1767. doi: 10.1097/00004583-199712000-00025

Silk, J. S., Morris, A. S., Kanaya, T., & Steinberg, L. (2003). Psychological control and autonomy granting: opposite ends of a continuum or distinct constructs?. *Journal of Research on Adolescence, 13*(1). 113-128. doi: 10.1111/1532-7795.1301004

Smetana, J. G., & Daddis, C. (2002). Domain-specific antecedents of parental psychological control and monitoring: The role of parenting beliefs and practices. *Child Development, 73*(2), 563–580. doi: 10.1111/1467-8624.00424

Soenens, B., & Vansteenkiste, M. (2010). A Theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of self-

determination theory. *Developmental Review, 30,* 74-99. doi:10.1016/j.dr.2009.11.001

Soenens, B., Vansteenkiste, M., Luyckx, K., & Goosens, L. (2006). Parenting and adolescent problem behavior: An integrated model with adolescent self-disclosure and perceived parental knowledge as intervening variables. *Developmental Psychology*, *42*(2), 305-318. doi: 10.1037/0012-1649.42.2.305

Spence, S. H. (2001). *Prevention strategies*. New York, NY, US: Oxford University Press.

Spinrad, T. L., Eisenberg, N., Silva, K. M., Eggum, N. D., Reiser, M., Edwards, A., … Gaertner, B. M. (2012). Longitudinal relations among maternal behaviors, effortful control and young children's committed compliance. *Developmental Psychology, 48*(2), 552-566. doi: 10.1037/a0025898

Steinberg, L. (1990). Autonomy, conflict, and harmony in the family relationship. In S. Feldman and G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 255-277). Cambridge, MA, US Harvard University Press.

Sterba, S. K., Prinstein, M. J., & Cox, M. J. (2007). Trajectories of internalizing problems across childhood : Heterogeneity, external validity, and gender differences. *Development and Psychopathology*, *19*(2), 345-366. doi: 10.1017/S0954579407070174

van der Bruggen, C. O., Stams, G. J. J. M., & Bögels, S. M. (2008). Research review: The relation between child and parent anxiety and parental control: A meta-analytic review. *Journal of Child Psychology and Psychiatry, 49*(12), 1257–1269. doi:10.1111/j.1469-7610.2008.01898.x

van Oort, F. V. A., Greaves-Lord, K., Ormel, J., Verhulst, F. C., & Huizink, A. C. (2011). Risk indicators of anxiety throughout adolescence: The TRAILS study. *Depression and Anxiety*, *28*(6), 485-494. doi: 10.1002/da.20818

Whaley, S. E., Pinto, A., & Sigman, M. (1999). Characterizing interactions between anxious mothers and their children. *Journal of Consulting and Clinical Psychology*, *67*(6), 826-836. doi: 10.1037/0022-006X.67.6.826

Whipple, N., Bernier, A., Mageau, G. A., (2011). Broadening the study of infant security of attachment : Maternal autonomy support in the context of infant exploration. *Social Development*, *20*(1), 17-32. doi: 10.1111/j.1467-9507.2010.00574.x

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*(5), 297-333. doi: 10.1037/h0040934

Wichstrøm, L., Berg-Nielsen, T. S., Angold, A., Egger, H. L., Solheim, E., & Sveen, T. H., (2012). Prevalence of psychiatric disorders in preschoolers. *Journal of Child Psychology and Psychiatry*, *53*(6), 695-705. doi: 10.1111/j.1469-7610.2011.02514.x

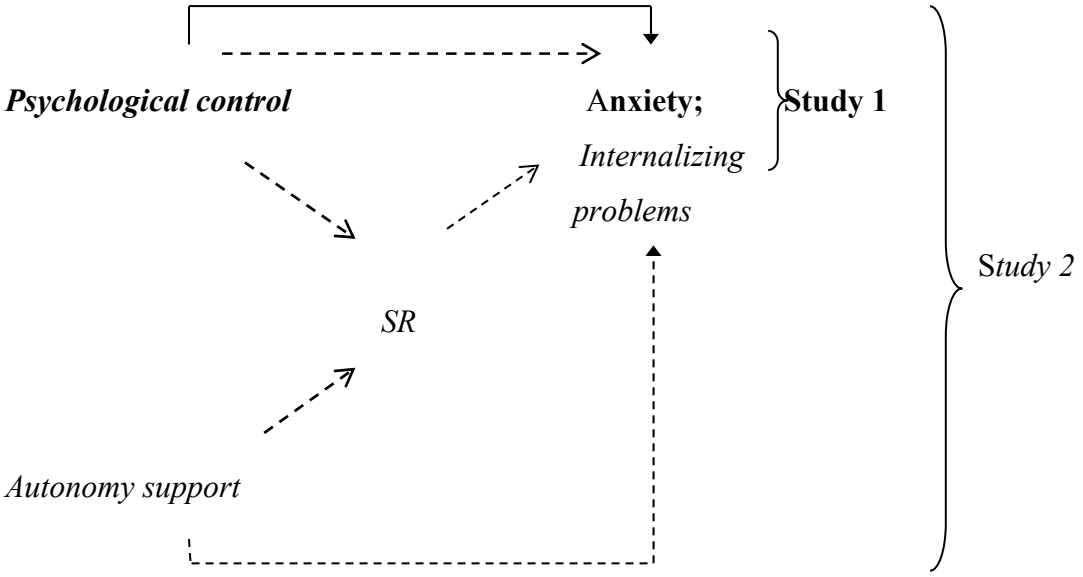
Winnicott, D. W. (1965). *The maturational processes and the facilitating environment: Studies in the theory of emotional development*. Oxford, England: International Universities Press.

Wood, J. J., McLeod, B. D., Sigman, M., Hwang, W.-C., & Chu, B. C. (2003). Parenting and childhood anxiety: Theory, empirical findings, and future directions. *Journal of Child Psychology and Psychiatry, 44*(1), 134-151. doi: 10.1111/1469-7610.00106

Zuk, S. (2013). *Les pratiques parentales maternelles et la symptomatologie des enfants victimes d'agression sexuelle d'âge préscolaire* (Unpublished doctoral dissertation). Université de Montréal, Montréal, Qc.

Appendix A

Variables under study in the present thesis.



Note.

Terms in **bold** and solid lines are studied in Study 1; Terms in *italics* and dotted lines are studied in Study 2.

SR = self-regulation

Appendix B

Parenting - Coding System (Clean-up)

Three aspects of parental behaviour and reactivity during the cleaning-up component of the parent-child interactions will be examined. Behaviours will be observed and recorded using an event-sampling technique. The clean-up period will be divided into **30-second** segments. Each behaviour will be coded as present or absent in each of the **30-second** segments. If a clean-up session ends with **15** or more seconds left, code that final period as a segment. If a clean-up session ends with five or fewer seconds remaining, do not code that final period.

OVERT PSYCHOLOGICAL CONTROL

Physical Force[1]

Each time the parent holds the child's hand/arm or holds the child down as a way to make him/her clean-up.

Threaten/Punish[1]

Parent suggests negative outcome if child doesn't help: "If you don't do this now, you can't play later." "Do you need a time-out?" OR Parent gives child a punishment: "OK, no treat for you."

COVERT PSYCHOLOGICAL CONTROL

Bribe [2]

Parent says or implies that compliance will be followed by a positive reward. A negative (-) followed by a (+) reward- *If you do this- you will get this.*

Ex. "*I will give you…" "gift"*; future reward.

Note: If you don't do this, parent removes reward = **threat/punishment - not bribe**! (Not- If you don't, you don't get this…). Does not include bargains = aka giving in to the child. Also, not a bribe if refer to next activity (you need to clean up if you want to go get the next activity). The bribe needs to be something the child would want to obtain, that was not in the plans already (ex. Go to McDonalds, go to the park, get a desert, get to play with a specific toy)

Criticism[2]

Insult, blame, use of sarcasm. (What is actually said- not *how* it is said…)
Sarcasm is coded even if it is not intended as a "mean" probe.

AUTONOMY SUPPORT

Rational[3]

Parent gives rationale for doing the task.

Ex: important to clean up to make it all nice in here, to have more space, to make sure X's toys are at their place.

Note: Mom/she says so = not a reason.

** If rational for doing something is to go somewhere else = Bribe & Reason

Choice[3]

Parent encourages the child to make choices or brings his/her input to the task. (HOW & WHAT TO CLEAN)

Ex. "*Which toy do you want to put away first? How would you want to do this?"; "Qui va ramasser/Who's going to clean, maman ou child?"; "Do you want me to hold that for you as you get…"*

Note: Stick to what is said, not intentions / implying.

Suggestion[3]

Parent asks *indirectly*, orienting the child toward the task-rather than telling the child to clean. Anything the child can say yes or no to- child makes their own decision to the comment. Getting the child to actually do the task**.**

"*Can you clean up? ; Can you put this away?; Come help mom; Do you want to clean up"; "Let's", "Why don't we";"On met dedans"; "On le met dedans"*

Note: this type of wording appears to give the child a choice as to *whether* to clean ; "Lets - Lets help mommy – included, but not Come help mommy; "On le met dedans" – included, but not " Met-le ou Range-le".

Describe[4]

Describing the problem. Never the behaviour of the child as the problem, but the elements that are problematic.

Ex. I see many blocks still on the floor that need to be picked up. The kitchen plates are in the corner. – Il faut que ce soit explicit – pas juste dire « les morceaux de casse-tête ».

Sing[4]

Singing any song that includes cleaning up in it. THE PARENT MUST INITIATE THE SONG.

This coding scheme is derived from different coding schemes that have been used in previous examinations of maternal behaviour with preschool-aged children during clean-up and other procedures and/or from theoretical operationalization of constructs.

[1]Hastings, P. D. (1996). Mother-child teaching and control scales. Unpublished coding manual, University of Waterloo, Department of Psychology.

[1]Rubin, K. H., & McKinnon, J. (1994). The parental warmth and control scale. Unpublished coding manual, University of Waterloo, Department of Psychology.

[2] Barber, B., K., Xia, M., Olsen, J., McNeely, C. A., & Bose, K. (2012). Feeling disrespected by parents: Refining the measurement and understanding of psychological control. *Journal of Adolescence, 35*(2), 273-287.

[2]Deci, E. L., & Ryan, R. M. (2008b). Self-determination theory: A macrotheory of human motivation, development, and health. *Canadian Psychology/Psychologie Canadienne*, *49*(3), 182-185. doi: 10.1037/a0012801

[2] Joussemet, M., Mageau, G. A., & Koestner, R. (2013, online April). Promoting optimal parenting and children's mental health: A preliminary evaluation of the how-to parenting program. *Journal of Child and Family Studies,* 1-16.

[2]Vostanis, P., Nicholls, J., & Harrington, R. (1994). Maternal expressed emotion in conduct and emotional disorders of childhood. *Journal of Child Psychology and Psychiatry, 35*(2), 365–376.

[3]Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. *Journal of Personality*, *52*(3), 233-248.

[4] Ryan, R. M. (1982). Control and information in the intrapersonal sphere: An extension of cognitive evaluation theory. *Journal of Personality and Social Psychology, 43*(3), 450-461

[4]Faber, A., & Mazlish, E. (1980). *How to talk so kids will listen and listen so kids will talk*. New York: Perrenial Currents.

[4]Faber A, & Mazlish E. (2010). *How to Talk So Kids Will Listen; Group Workshop Kit*. New York: Faber/Mazlish Workshops, LLC.

[4] Joussemet, M., Mageau, G. A., & Koestner, R. (2013, online April). Promoting optimal parenting and children's mental health: A preliminary evaluation of the how-to parenting program. *Journal of Child and Family Studies,* 1-16.

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The following behaviours were also coded, but did not remain in the study (i.e., poor reliability, Cronbach alpha, etc.).

Expectations – Performs the task for the child – Make it fun - Reflect/Empathy – Warn ahead of time – Personal praise – Positive feedback – Bargaining

Appendix C

Child Compliance

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PART 1: "DO" (CLEANUP)

Coding starts when E leaves after having explained the task (typically, E says "start"). At T1S2, the cleanup lasted 7 minutes. For each of the 14 30-sec segments, assign one predominant code for child compliance, one predominant code for mother global influence style, and record all maternal physical interventions that occurred. Occasionally, the cleanup will be completed earlier, if the mother pronounces it finished. Then, mark the end with a black marker, and fill in the remaining segments using the following codes: Child compliance –Code 1, mother discipline global code – Code 1 (on occasion, Code 0), mother physical intervention – Code 0.

Child Compliance Codes

For Codes 2-6, whenever the child's verbal and actual behavior are contradictory, go with the latter.

Examples

Child responds sweetly "Yes, I will clean up", but continues to play with toys and does not begin to clean, code passive noncompliance.

Child argues and protests, but continues to clean up nevertheless, code either committed or situational compliance, depending on the usual cues, such as the quality of the cleaning behavior.

Time Out (Code 1) - Not used in this study.

Committed Compliance (Code 2)

Internalized and wholehearted behavioral compliance to the clean-up task. The maternal agenda functions as child's own and the child embraces/endorses the directive. When there is behavioral compliance, but a lack of wholehearted endorsement of the maternal agenda, this will most likely be coded as Committed, Negotiated Compliance (see criteria for Code 2N).

Note: It is important to not the overall tendency of the mother in giving directives/ prompts regardless of the child's behavior. Some mothers continue prompting even if the child is actively putting toys away; some mothers reduce prompting when child is complying. This general tendency of the mother must be considered before a code is assigned.

Child stays on task with very few or no maternal directives. In other words, the child complies to the general directive through most of the segment. Child does not appear to need immediate maternal interventions/prompts to maintain task orientation. Clearly, the child has accepted the task as his/her own, and is actively involved in picking up toys.

With 13-15 month olds, however, it is often unrealistic to expect that they will keep up with the work with mother uninvolved. Committed compliance may be coded even if mother continues to be engaged with the child, for example, continues to clap or sing to keep the child's spirits up. Sometimes, mother is handing consecutive toys to the child to be put into the basket. Signs of committed compliance at this age include:

- child eagerly snatches toys from mom and throws/puts energetically/resolutely into the basket without signs of attention wavering.
- child beams and/or otherwise expresses positive emotion upon putting a toy(s) into the basket (claps, smiles).
- child picks up the toys that have not been picked up by the mother and throws them into the basket.
- overall, child appears oriented to the mother and to the chore, appears to feel that the cleanup is an interesting task, is intent on the activity, his/her attention does not slip away throughout most of the segment. Typically, the child appears positive and accepting of the task.

Other examples (some from older age)

When finished with picking up one set of toys s/he spontaneously seeks out another set of toys without immediate prompting by the mother.

Sometimes, child is cleaning up and appears clearly task-oriented. Yet, the mother continues to prompt. The coder feels, however, that even if mother ceased prompting, the child would nevertheless continue to clean up; then also use Code 2.

The child may maintain on-task behavior at a slow pace and may start counting the toys, or comment on different colors. These are not necessarily distractions on the part of the child as long as the flow of the cleanup is maintained.

Sometimes child is working but for a short while gets distracted. It is important to distinguish whether the distraction came from the mother (question, request, comment) or from the child (child got interested in a toy and ceased to clean up). If the distraction came from the mother, for example she began to question the child about the name of a toy, child should still get credit for Code 2. If the child's attention wavered spontaneously, Code 3 is more likely.

Committed, Negotiated Compliance (Code 2N) - Not used in this study.

Situational Compliance (Code 3)
Receptive to maternal agenda, but not fully internalized; Cooperative in principle, but responsive only to the immediate maternal control; Work sustained by the mother's control; Attention slippages common; Half-hearted

Child appears generally task-oriented and willing to comply, but needs prompting occasionally and/or frequently. Child may tend to get distracted without frequent prompts. The distractions do not come from the mother, but result from the child's shifting attention to play or another activity. There may be some reluctance, but no overt resistance, to accept the cleanup agenda. It may appear that the child's patience is running out, but s/he is trying to be compliant. Child may look as if s/he would rather do something else, and compliance is half-hearted and lacking the positive motivational flavor typical for committed compliance.

Mother may attempt to turn the cleanup into play in order to elicit cooperation by saying, for example: "Let's make baskets", or "Let's see who can put more toys away", etc. Child may then start picking up as part of play. Child is cooperative and

good-natured, receptive to mother's interventions, but the cleanup is not his/her genuine agenda. Thus, Code 2 may not be given.

Typical for situational compliance are attention slippages; for example, while carrying a toy to the basket child begins to play.

Also, if the mother continually hands the toys over to child to be thrown to the basket, and child throws them in, but somehow his/her heart is not in it, and as soon as mother slows down or stops, s/he also stops, code as situational compliance.

Passive Noncompliance (Code 4)
Passively reluctant to accept maternal agenda; Not cooperative; Non-receptive to maternal agenda; Ignoring directive

Child does not comply unless prompted. When prompted, the most likely response is to ignore the directive. Most typically, child may either continue to play in silence, talking to him/herself (goes "deaf") or may attempt to initiate some other conversation; may talk about the toys, lie on the floor, etc. The behavior is irrelevant to the task and the content of maternal directive. If there is any minimal compliance, it is reluctant and resistant to prompts. In 13-15-month-olds, getting toys <u>out</u> of the basket is coded as passive noncompliance (unless with saying "No" non-aversively, then overt resistance, or with anger, then defiance). Trying to leave the room is also considered passive noncompliance (if without anger). Code 4 corresponds to passive noncompliance in other systems.

In some segments, the baby will put some toys in the basket and take some out. To decide between some form of compliance vs. noncompliance, consider whether more toys went in or out (unless it is clear that the child spent much more time doing one of these things).

Overt Resistance (Code 5)
Overtly rejecting maternal agenda; Non-aversive protest present

Child does not comply unless prompted. If prompted, the most likely response is overt refusal to clean up, and/or negotiation (in a non-aversive manner). Code 5 encompasses refusals and negotiations, as defined in other systems. Code 5 is not used

if there is any trace of anger or affectively aversive expression in body language, tone, etc. Then, Code 6 (defiance) is appropriate. Shaking head ("no") is also resistance.

Note: Overt resistance rarely lasts through most of the segment (thus, using the criterion of predominant response would yield extremely low rates of occurrence). Therefore, the requirement that a behavior must last through most of the segment is relaxed. If an overt oppositional response is clearly present and articulated, or happens more than once in a segment, and there is no substantial compliance (thus clearly child is rejecting the agenda), then the segment should be coded as overt resistance. If there is a brief and poorly articulated behavior (e.g., shakes head) in the overall context of another behavior, e.g., passive noncompliance, us the other code as predominant.

Other examples (some for older age)
"No, I told you I don't want to clean up"; "Let's play bowling first"; "It's not my job to clean"; "You do it"; "You clean up"; "No, thank you".

Defiance (Code 6)
Defying/rejecting maternal agenda; Protest/resistance accompanied by anger

Child does not comply unless prompted. If prompted, the most likely response is to resist by defiance, with poorly controlled anger, overt expression of frustration in body language, voice, etc. The child may start crying, whining, kicking toys around, having a temper tantrum, doing exactly the opposite of what s/he has been told. Basically, any resistance behavior, if accompanied by anger or other negative affect, is coded as defiance. Trying to leave the room or taking toys out of the basket, if accompanied by fussing or whining is defiance. Code 6 is often defined as defiance or whining in other systems.

Note: Like overt resistance, defiance rarely lasts through most of the segment (thus, using the criterion of predominant response would yield extremely low rates of defiance). Therefore, the requirement that a behavior must last through most of the segment is relaxed. If an angry, oppositional response is clearly present and articulated, and there is no substantial compliance (thus clearly child is rejecting the agenda), even if brief, the segment should be coded as defiance. If it is not particularly strong (e.g., mild whining, fussing), it needs to last for a predominant part of the segment to be coded. If there is a brief and poorly articulated behavior (e.g., low

intensity whine, fuss) in the overall context of another behavior, e.g., passive noncompliance, use the other code as predominant.

PART 2: "DONT" CONTEXTS

Episode Onset

If the child looks only, without touching or clearly approaching TT, an episode is coded only if s/he also ceases the ongoing behavior and reorients to TT. If the child looks in a fleeting manner, and continues with the ongoing behavior without "missing a beat", e.g., on the way to the "legal" shelf gazes briefly at TT without pausing, then it is not considered an episode. Record the start time on the coding sheet, and set the timer.

If the child and/or mother are talking about the temptation table, but not looking at it, code this as being oriented to the table. How to decide whether or not to mark an episode's onset is borderline cases (mostly when the child looks in a direction that is not clearly that of TT, but we suspect that s/he may be looking there):

(1) Use the available cues from the mother. If she says, for example, "No, no", or similar, or if she rolls her eyes as if anticipating a confrontation, code as the episode's onset. If mother gives no signal of this kind, the probability of coding an episode is lower. Also, if mother defines for us the child's attention focus as other than TT (e.g., "yes, nice Ernie"), do not code an episode.
(2) Observe the child's body. If, for example, s/he continues to drink and swing his/her feet, or similar, without any sign of slowing down or ceasing the ongoing movement, the coding of an episode is less likely. If any of such signs occur, the coding of an episode is more likely.
(3) If a child takes some of the toys from the table and places them in another position, code any look or glance at these "misplaced" toys as being oriented to the TT.

Note: All the above conventions should also be used in deciding whether or not an episode continues in each consecutive 30-sec segment.

Episode Offset

Once the child reorients away from the TT at any point during a given segment, and does not return his/her attention/activity to TT by the end of that segment, observe the next 30-sec segment to confirm whether the child's reorientation indeed continues, or whether s/he returns to TT. If the child does return back to the TT, the coding of the episode continues. If the child does not return, and remains reoriented to a new activity, then that additional 30-sec segment is not coded, and the episode is considered completed at the end of the previous segment.

Each segment is coded on the basis of the predominant quality of child's and the mother's behavior. However, there are a few conventions that must be noted. The judgment of segments when the behaviors escalate is based on the behaviors during the last half of the segment. For example, if the child shifts from Code 2 (committed compliance) in the first 5 seconds to gentle touch until the 10th second, and finally shows Code 5 (overt resistance) for the last 20 seconds then s/he receives a code of overt resistance. If the child shifts continually between two categories then assign the higher category. For example, if the child shifts between situational compliance and passive noncompliance throughout the segment then the child receives a code of passive noncompliance.

Child Compliance Codes

For Codes 2-6, the coder must consider both the quality of the child's behavior involving the TT toys (no touching, self-correction, gentle touch, deviation), as described in the RTT coding system, and whether or not mother intervened. Looking/ no touching and self-correction reflect more internalized compliance, and receive typically Code 2 (committed compliance). Gentle touch reflects typically shaky compliance (Code 3, situational compliance). Deviation reflects Code 4 (noncompliance).

The final codes, however, depend also on the presence or absence of maternal intervention. For example, if the child is playing gently with TT toys throughout the segment and mother does not intervene, the child gets Code 3, situational compliance, because there is some evidence of (shaky and partial) acceptance of the prohibition. If, however, the child is playing gently, mother intervenes, but the child continues to play gently, the child gets Code 4, passive noncompliance.

For Code 2, committed compliance, or Code 2N, negotiated committed compliance, there may be no gentle touch or deviation. Only looking/ no touching and self-

correction are allowed, and they have to come "from inside": if mother is holding child forcefully, and child is struggling to touch but fails, then of course Code 2 may not be given, even though thee was no touching in the segment. Generally, not touching that is clearly due only to the fact that child is restrained, but he is very close to the table and if his arms could grow a few inches he would certainly be touching, is equivalent to touching. For committed compliance, there has to be evidence of self-control coming from inside, and the absence or else quick termination of touching even though child is no restrained physically and could continue to touch (e.g., is not in mother's arms).

Other (Code 1) - Not used in this study.

Committed Compliance (Code 2)

For Code 2 to be assigned to a segment, there must be looking/ no touching of the toys by the child, except for self-correction. Self-correction means touching lasting no more than 2 seconds cumulatively for the 30-s segment, and voluntarily terminated, which is allowed (if the termination or prevention of touching is due to maternal direct Physical restraint, Code 2 may not be given). If the child touches the toys for less than 2 seconds, and ceases immediately in response to maternal verbal control, and does not resume touching in that segment, Code 2 may be considered. If child touches the TT toys in a manner that would be described as gentle touch or deviation in the RTT system (any touch that is more than self-correction because it lasts more than 2 seconds cumulatively), Code 2 may not be given. Committed compliance assumes some degree of internal "will" on the part of the child. Committed negotiated compliance assumes behavioral compliance to the prohibition, but the child attempts to influence others to change the rule, thus lacking the quality of embracing, whole-heartedly, the maternal agenda.

Child makes no attempt to touch/play with the toys, may comment or ask questions about the TT, look, approach, attempt to self-explain the reasons for the prohibition. For example, s/he may point to the toys and say: "No, no"; "Look, tchiou tchiou train!"; "This is a fun toy"; "I like gumballs", but without touching/playing. The behavior parallels the categories of "looking only/not touching" in the RTT coding. Self-correction (including touching up to 2 seconds) is also allowed. If mother intervenes and child is diverted away from the table willingly and without any resistance, not ever having touched anything within the 30-s segment (or having touched for less than 2 seconds), code as committed compliance.

The child may also attempt to negotiate but only verbally and without any attempt to touch/reach the table. For older children (over 3 years old), determine if this negotiation should be coded with the compliance code, Negotiated committed compliance. For younger children (under 3 years old), this kind of negotiation is coded as committed compliance typically when the mother is far away from the child so that her immediate physical intervention is not possible. This same negotiation, however, may be coded as noncompliance when the mother is physically holding the child.

Conventions

(a) If the child does not touch any of the toys, but it is due only to forceful maternal restraint against his/her will, use the appropriate noncompliance code or, on occasion, a situational compliance code (please remember that this is equivalent to touching, therefore may be subject to a successful distraction). For example, if the child attempts to free the arm by pushing the mother away, then Code 6 (defiance) should be used.

(b) If the child needs frequent reminders (at least 3 in segment), and the feeling is that without the parent he/she would touch the toys, then code 3 is appropriate.

(c) When there is evidence of oppositional exchange between mother and child regarding the TT within an episode, there may be segments when the ensuing interaction continues to be oppositional but not explicitly about the TT. The child may cease deviation towards the table. In such cases a noncompliance code should be considered. The presence of good will underlying the absence of deviation is used as the distinguishing factor for Code 2 versus one of the noncompliance codes (child accepts the prohibition).

(d) Similarly, in the absence of maternal intervention, Code 2 should not be given to a child who ceases playing with the prohibited toys simply due to waning interest in those toys. This is clearly not an issue of the child's internalized restraint. Thus, if the child loses interest in the prohibited toys after playing with them for more than 2 seconds, but less than 15 seconds, child compliance should be coded as a 3. If the child plays longer than 15 seconds, code the episode with the appropriate noncompliance code.

(e) In the absence of maternal intervention, if the child gently touches the objects for less than 2 seconds and then corrects him/herself later in the same segment, Code 2 is appropriate. However, if the gentle touch continues throughout the segment then Code 3 is appropriate

(f) If the child protests maternal prohibition but nevertheless does not attempt to touch the objects, code Committed compliance (Code 2). For exception to this with children over 3 years old, see code 2N.

(g) If the child ignores the verbal parental interdiction at least twice in a row and continues or attempts to continue playing with the toys, then code 4 is appropriate. However, if he/she reorients away from the TT for at least 10s between single "ignoring" episodes, then consider code 3.
(h) If the child is not visible on cameral, the coder should not infer his actions. No code should be given,
(i) If the child expresses clear negative affect for 4s or more during a segment, then code 6 is appropriate. Otherwise, the dominant code for the rest of the segment should be considered.

Negotiated Committed Compliance (Code 2N) - Not used in this study.

Situational Compliance

If mother did intervene: Child ceases to deviate immediately after the intervention, but s/he may need frequent reminders. In other words, the child is in general willing to comply and is receptive to maternal agenda, but the agenda does not yet function autonomously. The behavior prior to mother intervention has to be either gentle touch or full-blown play (but not self-correction, less than 2 seconds – that would have been coded as Code 2, committed compliance; see also convention a). If the child touches the toys but is then successfully distracted in the segment and turned away on his/her own, then use Code 3. If the child loses interest in the prohibited toys after playing with them for more than 2 seconds (without maternal intervention), but less than 15 seconds, child compliance should be coded as a 3.

If mother did not intervene: Child touches gently the TT objects, and continues to do so throughout the segment (more than 2 seconds). S/he neither plays in a full-blown way (that would be passive noncompliance, Code 4) nor self-corrects (that would be committed compliance, Code 2). There is then some evidence of partial compliance to the prohibition, but self-regulation is very shaky and prone to slippages.

Passive Noncompliance (Code 4)

If mother did intervene: Child continues to deviate after the maternal intervention, but s/he does not attempt overtly to refuse, offer explanations, ask reasons, and/or protest. Instead, the child ignores the mother, goes "deaf" (passive noncompliance, passive reluctance). If there is physical maternal restraint and the child frees his/her arm matter-of-factly without pushing the mother away or being angry, and continues to attempt to get to the toys, use Code 4. Child behavior before maternal intervention may be either gentle touch or full-blown deviation (and see convention a) – child does

not get any credit for playing gently after maternal intervention, because the mother did tell him/her to stop.

If mother did not intervene: Child simply plays with objects in a full-blown fashion (but if the child uses only gentle touch, s/he gets some credit, and is given Code 3, situational compliance).

Overt Resistance (Code 5)

If mother did intervene: Child overtly resists the maternal agenda by refusing or attempting to negotiate/justify the deviation, for example: "But these are so pretty; just once, mom" (and touches); "No, Julie never said I could not touch them; we can play with the fishing thing". The resistance is not aversive, however (refusals and negotiations). Simple refusals like "no", shaking the head sideways, etc., should be repeated at least twice within a segment to receive Code 5. However, a single, clearly articulated statement of refusal is enough to warrant the Code 5. Again, this code is not given if there is any trace of anger or affectively aversive expression in body language, tone, etc. Then, Code 6 (defiance) is more appropriate.

If mother did not intervene: Child plays/touches objects saying out loud: "I want to", "I will play", "I won't break them" etc. This code is very rare; a more likely code is Code 4.

There are no requirements regarding this form of touching, although deviation/touching must occur, that involves the TT, as long as child overtly protests. If there is no touching of the prohibited toys, then the child's behavior is coded, regardless of the presence of the child's verbal protests.

Defiance (Code 6)

If mother did intervene: Child responds in an overt and affectively negative fashion, e.g., cries, throws/pushes/shoves objects, hits/pushes away mother, has a tantrum, etc. Child may deliberately intensify deviation. In other words, the child defiantly rejects maternal agenda. When the mother physically removes the child from the TT, or blocks the way to the objects, the response of the child is a determining criterion for Code 6 or some other code. If the child simply frees his/her arm without pushing mother or expressing anger, Code 6 should not be used. Then the use of a lesser code is appropriate (typically Code 4).

If mother did not intervene: Child touches/plays in a defiant way, e.g., looking triumphantly/rebelliously at the mother. This is also rare, the more likely code is Code 4.

There are no requirements regarding the form of touching, although deviation/ touching must occur for this code, that involves the TT, as long as the child protests with anger. If there is no touching of the prohibited toys, then the child's behavior is coded, regardless of the presence of the child's verbal protests.