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SUMMARY of Ph.D. THESIS

THE ROLE OF PARENTAL SOCIAL COGNITIONS IN RELATION TO CHILD ABUSE RISK AND PARENT TRAINING OUTCOMES

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TABLE OF CONTENTS

Abstract

Child abuse is a public health issue, and interest has been paid to explaining risk factors associated with its occurrence. However, the literature investigating the role of parental cognitive processes in the prediction of child abuse is scarce. The present thesis aimed to (1) identify parental social cognitive processes that place individuals at risk of child abuse; and (2) explore the role of parental social cognitive processes in predicting change in maladaptive parenting after participation in parent training (PT). During Study 1, we developed and validated a new measure of parental expectations, which are hypothesized to contribute to child abuse risk. During Study 2, we tested the validity of the social information processing model of parenting. During study 3, we explored whether parental cognitive processing biases are the link through which children's behavioral difficulties and parenting stress are associated with maladaptive parenting. During Study 4, we explored whether parental social cognitive processes predict change in maladaptive parenting after participation in PT. Our findings offer important guidelines for clinicians assessing child abuse risk, as well as for practitioners developing PT programs. Specifically, we (1) provide practitioners with a new and valid instrument for assessing parental unrealistic expectations related to children (Study 1); (2) point to the importance of assessing parental cognitions, given their association with maladaptive parenting behavior (Study 2 and 3); and (3) underline that targeting parental cognitive processes in PT programs may increase their effectiveness and contribute to the reduction of child abuse (Study 4).

Keywords: social information processing, child abuse, parent training, prevention of child maltreatment, risk factors for child abuse, parental cognitions;

CHAPTER I. INTRODUCTION

1.1. Overview of Child Abuse

Despite advances in mental health research and delivery, child abuse remains a public health issue worldwide. Estimates show that up to one billion or one out of two children between the ages of 2 to 17 years have experienced at least one form of abuse in the past year (Hillis et al., 2016; World Health Organization, 2020). Child abuse has been defined as any type of "*physical and / or emotional ill-treatment, sexual abuse, neglect, negligence, and commercial or other exploitation, resulting in actual or potential harm to the child's health, survival, development, or dignity in the context of a relationship of responsibility, trust, or power*" (World Health Organization, 2020). Due to differences in the etiology and consequences of different forms of child abuse (Strathearn et al., 2020), our focus will be on physical abuse of children. Findings emphasize that use of physical punishment (i.e., being pushed, hit or smacked) increases the likelihood of committing physical child abuse (Afifi et al., 2017; Grogan-Kaylor et al., 2018). Thus, conceptualizations of child abuse on a continuum have been proposed, where physical discipline and physical abuse represent endpoints along a gradually intensifying aggression continuum (Gershoff, 2016; Rodriguez, 2010). Such conceptualizations have been important in the prevention of child abuse, with 65 states around the world banning all forms of physical punishment of children (End Violence Against Children, 2023).

1.2. Consequences of Child Abuse

1.2.1. Behavioral and Emotional Consequences of Child Abuse

Exposure to child abuse increases the risk of experiencing adverse psychosocial and behavioral outcomes for children (Gershoff et al., 2012; Gershoff & Grogan-Kaylor, 2016; Pace et al., 2019), although the magnitude of the consequences varies depending on the type of abuse, its severity and chronicity (Teicher & Samson, 2016). Children exposed to abuse

are more aggressive toward peers at young ages (Gershoff et al., 2012) and at risk for conduct disorders, delinquency, and violence during adolescence and young adulthood (Strathearn et al., 2020). In addition to externalizing difficulties, exposure to child abuse is associated with long-term consequences for mental health. Adults who report being abused during childhood meet diagnostic criteria for at least one mental health disorder (Merrick & Latzman, 2014). Exposure to any form of child abuse is associated with more than a two-fold increase in the risk of depression (Li et al., 2016). Abused children are also at high risk for the development of substance use and substance use disorders in adolescence and adulthood (Hagborg et al., 2020; Strathearn et al., 2020).

1.2.2. Economic Consequences of Child Abuse

In addition to the behavioral and emotional consequences associated with child abuse, there are also economic losses related to such events. In the United States alone, the total lifetime economic burden resulting from child abuse is estimated at 124 billion dollars (Fang et al., 2012). These costs are borne out in high medical costs, child welfare, low education, productivity losses, and criminal justice. Individuals with histories of child abuse, compared to matched controls, have an almost two-fold increase in the likelihood of using mental health services and an almost three fold increase in the likelihood of using social services during middle adulthood (Yanos et al., 2010). They also have lower levels of education, employment, and earnings compared to matched non-abused individuals.

1.3. Theoretical Frameworks for Understanding Child Abuse

1.3.1. The Ecological Systems Theory

One of the most common models attempting to explain child abuse is the ecological model (Belsky, 1980; Bronfenbrenner, 1979), which was adopted as a global framework for understanding violence against children (Krug et al., 2002). The ecological model considers child abuse as the product of multiple levels of social ecology, arguing that human behavior

is complex and determined by characteristics of the individual, the family, the community, and the culture in which individuals are embedded. Child abuse is most likely to occur in families characterized by multiple risk factors, either from the same or different levels of influence (Patwardhan et al., 2017).

The first level of the ecological model seeks to identify individual factors that increase the likelihood of committing child abuse. Parent characteristics associated with child abuse are personal exposure to abuse during childhood (van IJzendoorn et al. 2020), mental health issues, alcohol or substance use (Patwardhan et al., 2017), as well as parental cognitions related to children and child-rearing (Rodriguez et al., 2020).

The second level of the ecological model explores how proximal relationships influence the perpetuation of child abuse. Within the microsystem, the model suggests that family, household members and children themselves can increase risk of child abuse. Families characterized by conflict, low cohesion or single parenthood (Stith et al., 2009) are at increased risk for child abuse.

The third level of the ecological model explores the community context in which the social relationships of the individual are embedded. Some meso-system characteristics associated with child abuse risk are neighborhood socioeconomic status, social climate, and family socioeconomic status (Black et al., 2001; Coulton et al., 2007).

The fourth level of the ecological model points up to the macro-system and explores larger societal factors that may increase risk for child abuse. Included here are risk factors that create an acceptable climate for violence occurrence or reduce inhibitions toward using violence against children, along with social, health, educational, and economic policies which may increase inequalities between individuals.

Although the ecological model has been useful in guiding interventions and in organizing potential risk factors for child abuse, it provides a nested approach where the

relations and interactions among risk factors pertaining to different levels of influence are elusive (Neal & Neal, 2013). However, Belsky (1980) acknowledged this limitation of the model, pleading for its utility in guiding future empirical research rather than identifying which conditions are necessary for child abuse to occur. This model is also useful for integrating the different existing theories or models of child abuse within the specified levels.

1.3.2. The Social Information Processing (SIP) Model of Child Abuse

Embedded in the first level of the socioecological model (Bronfenbrenner, 1979), the social information processing model (Milner, 1993, 2003) organizes parental cognitions associated to child abuse risk. The model consists of a pre-processing stage, three cognitive processing stages, and a fourth cognitive-behavioral stage of response execution. At the preprocessing stage, the SIP model explores pre-existing schema that parents hold regarding children and child-rearing methods. Preexisting schemas are reflected in general beliefs regarding child-rearing methods (e.g., attitudes toward the use of negative discipline) and expectations regarding their children's abilities or behaviors (i.e., how children should behave). Schemas act as a filter for the three cognitive stages that follow, influencing subsequent cognitive activities (Milner, 1993).

The first stage of cognitive processing postulates that abusive parents fail to accurately perceive parent-child interactions and make errors when encoding child-related information (Crouch et al., 2010). This is supported by research suggesting that abusive parents exhibit an attentional bias toward negative stimuli such as negative child behaviors or emotions (Rodriguez, 2018; Camilo et al., 2021; Wagner et al., 2015).

The second stage of cognitive processing focuses on interpretations and evaluations that parents make about children's behaviors. There is evidence that abusive parents and parents at risk of child abuse evaluate misbehaviors as intentional or blameworthy (Rodriguez et al., 2018, 2020) and attribute misbehaviors to factors internal to the child (e.g., child

temperament) (Paúl et al., 2006; Paz Montes et al., 2001), which has been associated with the use of more severe discipline (Camilo et al., 2020; Crouch et al., 2017).

The third stage of cognitive processing explores how parents integrate mitigating information (i.e., information that lessens the child's responsibility for the outcome) into the context and how they select a response to be implemented. Abusive parents present deficits in problem solving skills (Camilo et al., 2020), have less knowledge regarding discipline methods, or are unable to generate other discipline methods apart from those deemed as harsh on the child (Camilo et al., 2020; Rodriguez et al., 2020).

The fourth cognitive-behavioral stage is one of response implementation and monitoring. It is proposed that abusive parents lack the necessary skills to monitor or change their behavior response (Milner, 1993).

The Social Information Processing model of child abuse (Milner, 1983) has been widely used as a framework to understand how parental cognitions related to children and child-rearing influence discipline responses, with results supporting the association among SIP biases and increased child abuse risk (Haskett, Scott, et al., 2003; Rodriguez et al., 2020). The model has also been used to adapt parent training programs (e.g., by including attributional training components) as means to increase their effectiveness, with promising results (Bugental et al., 2002).

1.4. Parent Training to Prevent or Reduce Child Abuse Risk

Over the years, many parent training (PT) programs were developed as means to prevent child abuse, laying on a variety of theoretical foundations (Kumpfer & Alvarado, 2003). One characteristic common to most parent training interventions is the inclusion of a behaviorally based component where parents participate in skills training as means to improve parental and child behaviors (Thomas & Zimmer-Gembeck, 2007). Behavioral components shared across different evidence-based parent training programs include

instructing parents on how to use positive reinforcement strategies, to apply natural or logical consequences to extinguish inappropriate children's behaviors, give positive and clear instructions, and set clear limits for children's behaviors (Mah & Johnston, 2008). Enhancing these parenting skills is hypothesized to reduce negative parent-child interactions and thus the need for harsh discipline, while subsequently improving children behavioral outcomes (Gardner et al., 2010).

Evidence supports that parent training programs applying behavioral components are effective on improving both parental and child outcomes (Leijten et al., 2019), although their effects range from small to moderate (Chen & Chan, 2016; Euser et al., 2015). Clearly, their effectiveness depends on the attendance and participation of parents (Nock & Ferriter, 2005), which has been recognized as a major limitation of parent training programs (Chacko et al., 2016). Furthermore, regardless of parental attendance and engagement, there is evidence that approximately one-third of the participants show no improvement in their behavior (Sawrikar & Dadds, 2018). Thus, given the heterogeneity in response to PT and the modest effects on parental outcomes, emphasis has been placed on the need to identify risk factors present before participation in parent training that are associated with better or worse PT outcomes.

1.4.1. Risk Factors That Influence the Effectiveness of Parent Training

There is some evidence that severity of externalizing problems of children, parental psychopathology and stress, as well as some demographic risk factors may alter the way individuals benefit from participation (Lundahl et al., 2006a; Reyno & McGrath, 2006). It has also been proposed that parent`s social cognitions may interfere with parent`s acceptance and engagement in PT (Mah & Johnston, 2008; Sawrikar & Dadds, 2018), which are essential features for PTs to be effective (Nock & Ferriter, 2005). However, only limited research has focused on testing whether parental cognitions predict behavioral change after PT participation (Pereira & Barros, 2019). Some studies support that worse treatment outcomes

are associated to parents making more hostile attributions for children`s misbehaviors before treatment (Corcoran & Ivery, 2004; Mattek et al., 2016), albeit the result have been mixed (Whittingham et al., 2009). However, to our knowledge, no study was conducted to investigate whether preexisting parental attitudes and expectations predict PT outcomes.

1.5. Rationale For the Present Thesis: Research Gaps Linking SIP Deficits to Child Abuse Risk and Parent Training Outcomes

The present thesis is guided by ecological (Belsky, 1980; Bronfenbrenner, 1979) and cognitive models (Milner, 1993, 2003) of child abuse, which propose how several risk factors are organized in predicting violence toward children. The ecological framework forwards the idea that risk factors for child abuse are organized across four different levels of influence. At the first level of influence are characteristics of the parent (e.g., parenting stress and cognitions). Due to their proximity to the parent (i.e., who is also the perpetrator of abuse), and due to them being related to both the parent and the child (i.e., both involved in child abuse incidences), they may exert a larger influence on parenting behavior compared to risk factors from more distal levels. At the second level of influence, characteristics of children which are unrelated to the parent (e.g., behavioral difficulties) have been of most relevance to understand child abuse, while contextual characteristics such as socioeconomic status have been placed at the third level of influence, being more distal to parenting. Larger societal factors, such as economic policies or societal values, are situated at the last, most distal level of influence within the model.

The social information processing model of child abuse (Milner, 1993) is nested within the first level of the ecological perspective, emphasizing that parental cognitions related to children and child-rearing are the foundation underlying child abuse. Such cognitions are reflected in parental attitudes endorsing use of physical punishment, unrealistic

expectations regarding children's behaviors or abilities, as well as interpretations of misbehaviors as hostile.

Although ecological and social-cognitive models of child abuse have received support throughout research (Bugental et al., 2002; Camilo et al., 2020; Patwardhan et al., 2017), four issues deserve further attention. First, the role of parental expectations in influencing child abuse risk has yield inconsistent results throughout research. Inconsistencies may be attributable to lack of instruments validity or low applicability to the actual context, due to measures being developed over four decades ago. Thus, new and valid measures of parental expectations related to children`s behaviors are needed in order to advance research and understanding regarding the contribution of parental expectations in increasing risk for child abuse.

Second, social cognitions from the SIP model (Milner, 1993) have been tested in the prediction of child abuse independent of the theoretical model, with little research attempting to integrate them to explain child abuse risk or occurrence (Azar et al., 2016; Rodriguez et al., 2018, 2020). Therefore, holistic evaluations of social cognitive processes associated to risk of child abuse are needed to expand the SIP`s model validity and to increase our knowledge about which social cognitive variables to address in parent trainings aimed at reducing child abuse risk.

Third, the SIP model acknowledges that information processing is influenced by factors occurring at other levels of human etiology (Milner, 2003), an idea consistent with the ecological framework of child abuse (Belsky, 1980; Bronfenbrenner, 1979). Although the interconnection among child characteristics, parental adjustment, cognitions, and behaviors has been documented, little research has been conducted to test the pathways through which they are all associated to risk for child abuse. Hence, more research is needed to test the

theoretical assumption that parent`s cognitive processes are the link through which child behavioral difficulties and parenting stress act to increase risk for child abuse.

Finally, considering the role of parental cognitive processes in the prediction of child abuse, it is important to explore whether such cognitive processes may interfere with parent`s ability to improve their behavior after participation in parent training. So far, the evidence linking parental cognitive processes to parent training outcomes is scarce, with mixed results for the role of parental attributions in interfering with treatment success (Mattek et al., 2016; Whittingham et al., 2009). To our knowledge, the role of parental attitudes and expectations in interfering with parent training outcomes has not been investigated. Thus, more research is needed to test for the role of parent`s cognitive processes in the prediction of PT outcomes, as well as to test whether the role of such cognitive processes is additive beyond other risk factors.

CHAPTER II. RESEARCH OBJECTIVES AND METHODOLOGY

Considering the high prevalence of child abuse and the limited effectiveness of parent training in reducing child abuse risk, the studies that top our research agenda aim to: (1) identify parental social-cognitive risk factors that place individuals at risk of child abuse, which would further contribute to our understanding of this phenomenon; and (2) explore the role of parental social cognitive processes in the prediction of change in maladaptive parenting after participation in parent training, as means to guide intervention or preventive efforts in the area of child abuse reduction.

To reach our first aim, three specific objectives were formulated as follows.

The first specific objective was to develop and validate a new measure of parental expectations regarding children`s behaviors, which are hypothesized to contribute to child abuse risk. To achieve this objective, in Study 1 we tested the factorial structure of a newly

developed instrument, through both exploratory and confirmatory procedures. Next, the validity of the new measure was examined through concurrent and criterion validity.

The second specific objective was to test the validity of the social information processing model in the prediction of child abuse risk. To achieve this objective, a two-stage meta-analytic structural equation modeling procedure (MASEM) was employed in Study 2.

The third specific objective was to examine the role of risk factors related to parents and children in the prediction of child abuse risk, as well as the pathways through which they are linked to maladaptive parenting. To achieve this specific objective, in Study 3 we tested whether a) behavioral difficulties of children, which are more distal to the parent, would exert an indirect influence on parental behavior through parenting stress and cognitions; and whether b) the relation among parenting stress and maladaptive parenting is mediated by parental cognitions, which are hypothesized to be the risk factors most proximal to parenting.

To reach the second aim of this thesis, the fourth specific objective was to investigate the role of parental social cognitive processes in influencing parent training outcomes. This objective was achieved in Study 4, where we conducted a randomized controlled trial with two parallel arms. Throughout this study, we aimed to 1) examine the effects of a parent training program in reducing maladaptive parenting; and 2) investigate whether pre-treatment parental cognitions (e.g., parental expectations regarding children`s behaviors, attitudes supporting the use of physical discipline and hostile intent attributions) predict additional change in parental behavior post-intervention, above other risk factors (e.g., demographics, children`s behavioral difficulties and parental adjustment).

CHAPTER III. ORIGINAL RESEARCH CONTRIBUTIONS

3.1. Study 1. Development And Validation of The Parental Expectations Scale[1]

Introduction

Cognitive behavioral and social cognitive models of parenting enumerate several types of cognitions which may be predictive of parents disciplinary choices, one of which are parental expectations (Azar & Rohrbeck, 1986; Milner, 1993, 2003). Parental expectations constitute preexisting cognitive schema representing dispositional beliefs about children`s abilities and behaviors. According to the social information processing model of child abuse (SIP; Milner, 1993, 2003), such schemata might influence cognitive processing of child related information in an automatic manner, contributing to the development and maintenance of parental aggressive behavior (Anderson & Bushman, 2002; Milner, 2003) and increasing child abuse risk (Zolotor et al., 2008).

Although there is evidence for a link between UE and subsequent processing of child related information, evidence for a link between negative parental behavior and UE is mixed (Haskett et al., 2006; Slep & O'Leary, 2007). Mixed findings may be attributable to differences among samples employed, as well as by differences in measurement and conceptualization of UE. Also, it remains unclear whether the inconsistent findings are best attributed to the fact that available measures do not accurately assess the construct of parental expectations or they fail to assess behaviors valued by parents as important. Considering the theoretical and clinical importance of parental expectations in the child abuse literature, refinements of this assessment may facilitate development in both areas.

The present study

The purpose of the study was to develop and evaluate the validity and reliability of a new measure of unrealistic parental expectations that are thought to contribute to parental

[1] This study was accepted for publication in European Journal of Psychological Assessment

negative behavior. We hypothesized that UE would be positively associated with cognitive rigidity. Then, we hypothesized that UE would positively relate to parental attitudes endorsing PP, attributions of hostile intent and perception of children as misbehaved. Our third hypothesis was that UE would be positively associated to negative parental behavior and negatively associated to positive parenting and that UE would contribute uniquely to the prediction of negative parental behavior. Our last hypothesis was that the association between UE and parental negative behavior would be stronger for parents reporting higher parenting stress.

Methods

Description and development of the PES

The PES was developed after a thorough review of the literature and consultation with child development specialists. A pool of 30 items reflecting child behaviors related to autonomy and prosocial behaviors was created. After consultations with experts and parents, the final item pool consisted of 15 items for preliminary scale testing.

Participants

Two samples of parents of children between the age of two and nine, living in Romania, were recruited: a development sample and a cross-validation sample. In the development sample, 179 parents completed the PES. In the cross-validation sample, all 249 parents completed the PES. Comparison of the parents in the two samples reveal no significant differences regarding demographic characteristics ($p < .05$). In the total sample, the mean parent age was 36.31 years (SD=5.22) and 95.7% of participants were mothers. The mean child age was 5.23 years (SD=1.88), and 62.2% of children were boys.

Measures

Parental expectations were assessed with the Parental Expectations Scale (PES). The PES consisted of 15 items related to child prosocial behavior, autonomy and compliance with

parental requests. Items were scored on a categorical scale, with two choices (yes/no) and the total score was computed by summing "yes" responses. Higher scores indicate higher parental expectations.

Parental attributions were assessed using the Plotkin Child Vignettes (Plotkin,1983). Higher scores indicate more hostile attributions.

Parental endorsement of PP were assessed with the Attitudes Toward Spanking Questionnaire (Holden et al., 1995). Higher scores indicate more endorsement of PP. Cognitive rigidity was measured with the Rigidity subscale of the CAPI (Milner et al., 1986). Higher scores are indicative of higher cognitive rigidity.

Perception of child behavior was assessed with the externalizing subscale of the parent-report version of The Child Behavior Checklist (Achenbach & Rescorla, 2001) for children aged $1^1/_2$–5 and 6–18. Higher scores are indicative of more behavior problems of the child.

Parenting stress was assessed using the Parental Stress Scale (Berry & Jones, 1995). Higher scores indicate more parenting stress.

Positive parental behavior was assessed using the Parenting of Young Children Scale (McEachern et al., 2012). Higher scores indicate more positive parenting.

Negative parental behavior was assessed with the Overreactivity subscale from the Parenting Scale (Arnold et al., 1993). Higher scores reflect higher levels of dysfunctional parenting.

Procedure

The 15 items PES was subjected to an Exploratory Factor Analysis (EFA). Model fit was evaluated by examining root mean square error of approximation (RMSEA < .06), standardized root-mean-square residual (SRMR <.08), Comparative Fit Index (CFI >.90) and Goodness of Fit Index (GFI >. 90). Items were considered to load on a factor if the loading

was >.40 on a single factor. The number of factors to be retained was determined by number of eigenvalues > 1 and Horn`s parallel analysis results. Next, we performed Confirmatory Factor Analysis (CFA) on the cross-validation sample.

Analysis to test for concurrent and criterion validity were performed on the cross-validation sample. First, we conducted correlation analysis among the PES and parental attitudes, attributions, perception of child behavior, parenting stress and behavior. Then, a hierarchical multiple regression analysis was conducted to test whether the PES predicted negative parental behavior after controlling for other parental cognitions. Lastly, a multiple linear regression analysis was conducted to test for the interaction among parental expectations and parenting stress in predicting negative parental behavior.

Results

Exploratory factor analysis

Four factors had eigenvalues > 1. Five items were removed due to weak factor loadings. For the remaining ten items, results supported a one or two-factor solution, with two eigenvalues higher than those generated by random data.

Both models showed an adequate fit, with $x^2(35, N = 179) = 31.17$, $p = .65$, RMSEA = .00, CFI =1.00, TLI =1.00, SRMR =.08 for the one-factor model and $x^2(26, N = 179) = 22.73$, $p = .64$, RMSEA = .00, CFI = 1.00, TLI = 1.00, SRMR = .07 for the two-factor model. A χ^2 difference test was run to compare models. The one-factor solution was an improvement in fit $x^2(1) = 2.33$, $p > .05$ and accounted for 30.85% of variance. Factor loadings for the one factor solution ranged from .51 to .84. The total score of the PES demonstrated good internal consistency (α=.74; ω=.76). The average inter-item correlation was .41.

Confirmatory factor analysis

The 10 items model provided a modest fit: $x^2(35, N = 249) = 44.50$, $p = .13$, RMSEA = .03, CFI = .97, TLI = .96 and SRMR = .07. Internal consistency of the PES was good in the cross-validation sample, with α =.70 and ω =.70.

Validity of the PES

PES and demographic variables. No demographic variable was significantly associated with more unrealistic expectations. The mean score of the PES was 5.44 (SD = 2.24; range = 0-10).

Concurrent validity. Total score for the PES was positively associated with more hostile attributions (r=.27, $p<.01$), endorsement of PP (r=.23, $p<.01$), perceived child behavior problems (r=.16, $p<.05$), cognitive rigidity (r=.22, $p<.01$) and parenting stress (r=.12, $p<.05$). UE were also associated to parental behavior. Namely, more UE were positively associated to parental use of physical discipline (r=.39, $p<.01$) and negatively associated to parental use of positive discipline strategies (r=-.14, $p<.05$).

Criterion validity. Results indicate that UE predict unique variance in parental negative behavior. Parental attitudes endorsing use of PP (β = .22), hostile attributions (β = .23) and perception of child behavior problems (β = .26) predicted 22% of the variance in use of negative discipline. Adding the PES explained an additional 6% of the variance. All variables remained significant in the second step. There was a significant interaction between UE and stress (β = -.08, $p < .05$). UE were significantly associated with parental behavior at high (β = .20, $t = 3.08$, $p < .001$) but not at low levels of parental stress (β = -.47, t = -1.24, $p > .05$).

Discussion

Our results provide preliminary support for the PES. Results of EFA evidenced that a one factor model is the best fit, which was further supported by CFA. Reliability analysis

demonstrated that the internal consistency of the instrument was good. Concurrent validity was demonstrated through the significant associations of the PES with theoretically linked constructs as hypothesized: positive correlations with parental attitudes endorsing use of PP, hostile attributions, perception of child as misbehaved, cognitive rigidity and parenting stress. Criterion validity was supported by significant associations of the PES to parental behavior in the expected direction. Namely, higher parental expectations are associated to parents using more negative behavior toward children and to less positive parent-child interactions. Furthermore, scores on the PES predicted negative parental behavior over and above other cognitive variables known to contribute to maladaptive parenting. An interaction effect among the PES and parenting stress was also found such that UE were significantly associated with negative parental behavior at high levels of parenting stress but not at lower levels of stress. Overall, the results suggest that the PES is associated with parental aggression, cognitive and affective variables as hypothesized.

Considering the ability of the PES to predict maladaptive parenting, the PES could be included in current child maltreatment risk assessment practices to identify parents at risk for child abuse. Furthermore, assessing parental expectations might help tailor parenting interventions, which are limited by failures of parents to attend or engage in program activities (Lundahl et al., 2006a).

3.2. Study 2. Pathways to Harsh Parenting: Testing a Social Information Processing Model of Child Abuse Using Meta-Analytic Structural Equation Modeling[2]

Introduction

Child maltreatment is happening at alarmingly high rates worldwide (Stoltenborgh et al., 2015) and has been associated to deleterious effects on child subsequent development

[2] This study was published as Dănilă, I., Balazsi, R., & Băban, A. (2022). Pathways to Harsh Parenting: Testing a Social Information Processing Model of Child Abuse Using Meta-Analytic Structural Equation Modeling. *Journal of Family Violence*, 1-15. https://doi.org/10.1007/s10896-022-00428-z

and well-being (Cicchetti & Toth, 2005). Hence, models considering risk factors that contribute to child abuse have evolved. One framework guiding research on the link between social-cognitive factors and child abuse is the Social Information Processing (SIP) model of parenting (Milner, 1993). The model indicates that parents enter discipline situations holding preexisting schemas reflected through beliefs and values related to children and child rearing. Preexisting schemas influence the processing of new information. The first stage of processing begins with parents perceiving the information. Next, parents proceed to develop personal interpretations and evaluations regarding the event. During the third stage, parents integrate additional information about the situation and select a response to the situations. The fourth stage is one of response execution. Milner`s model (1993, 2000) suggests that parents need a series of SIP capacities in order to correctly process, interpret social cues and respond in a non-aggressive manner, such as realistic expectations and beliefs regarding children`s abilities and appropriate discipline; problem solving abilities; and the ability to make unbiased interpretations and evaluations regarding children`s behavior. SIP deficits during any stage of processing may increase risk for abusive parenting (Milner 1993, 2000).

Research supports the link between SIP deficits and child abuse risk. High risk parents hold maladaptive preexisting schemas regarding their children and discipline (Azar et al., 2016; Haskett et al., 2006; Holden et al., 1995), perceive children`s behavior as more problematic or difficult than what an independent observer would rate (Reid et al., 1987), and interpret children`s behavior as more hostile (Paz Montes et al., 2001). Despite research supporting the role of SIP variables in abuse risk or occurrence, most available research uses SIP factors independent from the theoretical model, with little research trying to integrate them to explain physical abuse (Azar et al., 2016; Rodriguez, Smith, et al., 2016).

Thus, little is known about the way SIP factors act together to increase risk of child abuse and more research combining variables to evaluate the SIP model is needed.

Present study

The present study aims to examine the relation between information processing deficits and child abuse risk, employing a two stage meta-analytic structural equation modeling procedure (MASEM) (Cheung, 2015). We hypothesized that preexisting schema can influence child abuse risk directly and indirectly through cognitive processing. We propose the following path will be initiated by preexisting schema: a) attitudes endorsing physical discipline will predict abuse risk directly and indirectly through perception of child adjustment and hostile attributions; b) unrealistic parental expectations will predict abuse risk indirectly through parent`s perceptions of children adjustment and hostile attributions.

Methods

Literature search

The primary method for identifying articles for inclusion consisted of searches through three main databases: The Psychological Abstracts International, ISI Web of Science and PubMed.

Inclusion criteria

To be included, each study had to report the zero-order correlation coefficient (r). Studies had to report data on samples consisting of at least 80% biological parents or primary caregivers of a child aged between 0 and 12 years old. Regarding SIP cognitive processes, studies were included if they reported data on (i) parental expectations regarding how children should behave and (ii) parental attitudes endorsing use of negative parenting strategies; (iii) parent`s perception of child adjustment such as perception of the child as being problematic; and (iv) parents` attributions of hostility.

Study quality

The first author and a postgraduate student assessed the quality and risk of bias of included articles using the AXIS quality checklist (Downes et al., 2016). No studies were excluded based on quality.

Publication bias

To determine publication bias in our results, a funnel plot was constructed and visually examined for asymmetry, and Egger`s test was conducted (Egger et al., 1997).

Data analysis

A two-stage MASEM procedure with random effects (Cheung, 2002) was used to produce a pooled correlation matrix from the data and to use the pooled matrix to perform the structural equation model analysis. To test for heterogeneity of effect sizes across studies, the I^2 statistic was estimated using the Q test of homogeneity. To address heterogeneity of parameters in MASEM, bootstrap credible intervals (CVs) were created through a Full Information MASEM (FIMASEM) procedure (Yu et al., 2016). In the second stage of the analysis, the pooled correlation matrix was used to estimate the specified model. Path analysis was performed by the weighted least squares method with the weighted correlation matrix as the input.

Model fit was assessed using chi-square goodness of fit test, root mean square error of approximation (RMSEA), Tucker–Lewis Index (TLI), standardized root mean residuals (SRMR) and comparative fit index (CFI).

Results

Descriptive results

Our meta-analysis included data from 59029 parents. Most participants were mothers (65.7%), with the mean age of 33.13 years (SD=5.20). The mean child age was 66.69 months (SD=58.08). Most studies employed self-reported measures for the main outcome (70.1%), and 69.6% of the studies were cross sectional.

Publication bias

Funnel plots indicate some asymmetry for the following two relations: attitudes endorsing corporal punishment and child abuse risk; and hostile attributions and child abuse risk. Egger`s test supported the asymmetry in the funnel plot for the relation depicted between attitudes endorsing corporal punishment and child abuse risk, with a *p*-value < .001. After conducting a trim and fill analysis, the effect size remained significant (95% CI [.27, .45]), albeit the magnitude of the adjusted effect size was smaller (r = .36 compared to r = .42 prior to adjustment).

First stage results

The analysis included 184 independent samples and 236 effect sizes. The averaged correlation coefficients ranged from .048 to .494, with one non-significant correlation estimated between unrealistic expectations and perception of child adjustment (r =.04, p>.05). All the other pooled correlation coefficients were significantly different from zero (p<.05). The Q statistic (Q (226) = 1102; p<.05) indicated significant heterogeneity in the correlation matrices.

Second stage results

The model met the criteria for model fit ($\chi 2$ (2, N = 59029) = 0.53, p > .05, RMSEA = 0.00, SRMR = 0.017, TLI = 1.00, CFI = 1.00) (Figure 1). Consistent with the SIP model, hostile attributions (β = 0.19), perception of child as difficult or misbehaved (β = 0.16) and attitudes endorsing physical discipline (β = 0.32) are predictors of parental use of harsh discipline methods, an indicator of child abuse risk. Attitudes endorsing physical discipline have the strongest effect on parental behavior and predict parent`s perception regarding child`s adjustment (β = 0.11). Hostile attributions are predicted by unrealistic expectations (β = 0.48) and perception of child`s adjustment (β = 0.23). No direct effect was found for unrealistic expectations on parent`s perception of child`s adjustment (β = 0.02). Analysis

revealed small but significant indirect effects for all the specified pathways (β = 0.01 to β = 0.06). Overall, the model accounts for 22% of the variance in child abuse risk. Unrealistic expectations and parental perception of the child as difficult account for 31% of the variance in hostile parental attributions.

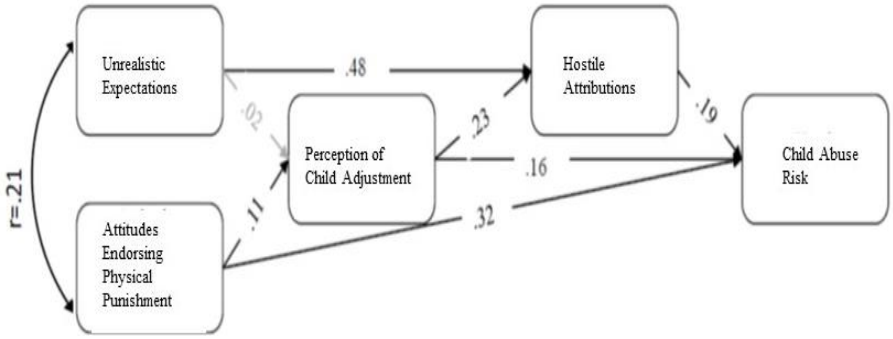

Figure 1. Path analysis of the pattern of effects for the SIP model.

Note: Path coefficients are unstandardized regression weights. Gray paths are non-significant. All other paths are significant at $p<0.05$. Perception of Child Adjustment $R^2=0.02$. Hostile Attributions $R^2=0.31$. Child Abuse Risk $R^2=0.22$

Discussion

Findings support the role of SIP variables in predicting abuse risk. Namely, attitudes endorsing physical discipline (preexisting schema), parental perceptions of children as misbehaved (stage one) and hostile attributions of intent (stage two) account for 22% of the variance in parental use of harsh disciplinary choices (stage four). Holding unrealistic expectations regarding children`s behavior and perceiving the child as misbehaved account for 31% of the variance in attributions of hostility.

Findings reveal that parental attitudes endorsing physical discipline have the largest direct effect on parental behavior, an idea supported by past research (Ateah & Durrant, 2005; Lansford et al., 2014). However, contrary to our expectations, PP endorsement only marginally predicted parental perceptions of children as difficult. Our results also indicate that holding unrealistic expectations can lead to parents attributing intentionality to misbehaviors, an association supported by previous research (Haskett et al., 2003, 2006).

Hostile attributions mediate the relation between unrealistic expectations and parental behavior, supporting the theoretical assumption that high expectations increase child abuse risk through increasing attributional biases for children`s misbehaviors (Milner, 2000; Azar et al., 1984). However, the effect of expectations on perception of children`s adjustment was not supported by our results. One explanation for the nonsignificant relation between unrealistic expectations and parent`s perceptions of children`s adjustment might be that some expectations (e.g., those related to children compliance) are more important than others in shaping perception of children as misbehaved or difficult. Future research should further address this issue.

Regarding stage one, findings support that perceiving the child as difficult can influence parental behavior directly and indirectly through hostile attributions. Perceiving children's behaviors as problematic might create a context for interpreting behaviors as hostile or intentionally annoying, a finding supported by previous research (Haskett et al., 2003), increasing the risk for parents to engage in child abuse (Milner & Crouch, 2013; Crouch et al., 2017). For stage two, findings support the role of hostile attributions in increasing child abuse risk. However, only a small direct effect was found for attributions in our study, which is comparable to other meta-analytic results (Camilo et al., 2020).

Considering the malleability of parental cognitions, our results may inform interventions aimed to reduce child abuse risk. Most parenting programs to date focus on teaching parents behavior management strategies (Scott & Dadds, 2009), although they are limited by failures of parents to attend sessions or actively engage in program activities (Sanders et al., 2007). Possibly, some parents hold cognitive schema (e.g., attitudes endorsing corporal punishment) or process the information in a way that is incompatible with such strategies (e.g., assuming misbehaviors are intentional), which may lower parental expectations regarding program applicability or usefulness and decrease willingness to attend

or apply positive discipline strategies. Thus, alongside more mainstream strategies employed by parenting programs, specific strategies for cognitive restructuring should also be considered. Although some programs show positive effects for including attributional training (Whittingham et al., 2009), our results emphasize that interventions should also attempt to target parental pre-existing schema (e.g., expectations and values regarding children and child rearing strategies), given their influence on shaping attributions.

3.3. Study 3. Parental Social Cognitions, Parenting Stress and Child Adjustment in Relation to Child Abuse Risk

Introduction

Ecological models of child abuse (Belsky, 1980; Bronfenbrenner, 1979) argue that characteristics of the individual, family, community, and culture in which individuals are embedded can all increase the likelihood of parents becoming abusive. However, they also acknowledge that some factors (e.g., characteristics of the parent) are more proximal to parental behavior than others (e.g., characteristic of the child), a view further expanded by cognitive-behavioral and social cognitive frameworks (Azar & Rohrbeck, 1986; Milner, 1993). Cognitive-behavioral models share the idea that parent characteristics such as parental cognitive processes may increase the likelihood to become abusive (Azar & Rohrbeck, 1986; Milner, 1993). Milner`s social information processing (SIP) model (Milner, 1993, 2003) entails four stages in which parental cognitive processes shape their use of discipline. Antecedent to entering these stages, parents bring preexisting cognitive schemas into their role as parents. During the first stage, parents perceive the situation taking place. In the second stage parents interpret the event, whereas in the third stage they proceed to consider alternative information regarding the situation as well as an appropriate response. In the last stage parents implement the selected response and monitor its implementation. The general parenting literature provides support for the social information processing model of

parenting, offering evidence that parental cognitions are predictive of disciplinary choices. Parents endorsing use of physical punishment as means to discipline children (Ateah & Durrant, 2005; Danila et al., 2022), those holding more unrealistic expectations for their children (Azar & Rohrbeck, 1986) and those interpreting misbehaviors as intentional or blameworthy (Crouch et al., 2017; Rodriguez, Smith, et al., 2016) are at higher risk for committing child abuse.

The social information processing model also acknowledges that information processing is affected by factors occurring at other levels of the human etiology (Milner, 2003), an idea consistent with the ecological framework of child abuse (Belsky, 1980). Among these factors, a great focus has been placed on situational (e.g., stress) and child characteristics (e.g., behavioral difficulties). Research demonstrates that parenting stress is a risk factor for child abuse occurrence and a predictor of maladaptive parenting (Miragoli et al., 2018; Rodriguez & Richardson, 2007). Furthermore, parenting stress has been associated with processing of social information by parents, such that those who are higher on measures of stress attribute more hostile intent to children`s misbehaviors (Beckerman et al., 2020), hold higher child-related expectations (Haskett et al., 2003), and show more endorsement of the use of physical discipline practices (Pinderhughes et al., 2000). Regarding child characteristics, exhibiting externalizing and internalizing difficulties have received considerable attention as they may place children at increased risk for child abuse (Stith et al., 2009; Lansford et al., 2015). It is hypothesized that parents of children with externalizing or internalizing difficulties face more stressors, which can affect their ability to appropriately manage misbehaviors (Krahé et al., 2015; Morgan et al., 2002). An association among children's behavioral difficulties and parenting stress has been documented (Williford et al., 2007). Also, children`s behavioral difficulties have been linked to more parental social information processing biases, such as more unrealistic expectations (McElroy & Rodriguez,

2008), endorsement of physical discipline (Coley et al., 2014) and to interpreting misbehaviors as hostile (Haskett et al., 2003).

Purpose of the present study

To date there is limited evidence for the potential role of parental cognitions as an underlying mechanism between parenting stress and behavior (Beckerman et al., 2020) and for the role of parenting stress and cognitions in the relation between child behavior and parental behavior (McElroy & Rodriguez, 2008; Miragoli et al., 2018). Thus, our aim was to simultaneously test for the role of these three risk factors in their association to maladaptive parenting. We hypothesized that a) child characteristics (e.g., externalizing and internalizing difficulties) would exert an indirect influence on parental behavior through parenting stress and cognitions; and that b) parenting stress would exert a direct and indirect effect on parental behavior through parental cognitions.

Methods

Participants

Participants were parents of children between the age of two and nine living in Romania (N = 249). Most participants were mothers (97.6%) and the mean parental age was 36.17 years (SD=4.87).

Procedure

All data were collected over the phone by trained data assessors.

Instruments

Measures for child abuse risk. Negative parental behavior was assessed with the Overreactivity subscale from the Parenting Scale (Arnold et al., 1993). Higher scores reflect higher levels of maladaptive parenting. Due to low factor loadings (< .30), three items were removed from the subscale.

Measures of parental cognitive processes. Parental cognitive processes were assessed with three observed variables: parental expectations, attitudes endorsing physical punishment and attributions of hostility.

Parental expectations were assessed with the Parental Expectations Scale (PES; Danila et al., unpublished). Higher scores indicate higher, more unrealistic parental expectations.

Parental attributions were assessed with the attribution subscale of the Plotkin Child Vignettes (PCV; Plotkin,1983). Higher scores indicate more hostile attributions.

Parental endorsement of physical punishment was assessed with the Attitudes Toward Spanking questionnaire (ATS; Holden et al., 1995). Higher scores indicated more endorsement for use of physical punishment. One item (item 7) was removed from the scale due to low factor loading (< .20).

Measures of parenting stress. Parenting stress was assessed using the Parental Stress Scale (Berry & Jones, 1995). Higher scores indicate more parenting stress. Due to low factor loadings (<.30), five items were removed from the scale.

Measures of child characteristics. Child behavioral difficulties were assessed with the parent-report versions of The Child Behavior Checklist (Achenbach, 2011) for children aged $1^{1/2} - 5$ and 6 – 18. Higher scores are indicative of more behavior problems in the child. For the present study, the externalizing and internalizing subscales were included as the observed variables.

Data analysis

Structural equation modelling, using maximum likelihood estimation was used. First, we used a confirmatory factor analysis framework to test the fit of the measurement model. Then, we computed the hypothesized structural model (Figure 1). The hypothesized model was then compared to the next-best-constrained and the next-best-unconstrained model. The

next-best-constrained model had one indirect path from parenting stress to parental behavior removed. The next-best-unconstrained model contains an additional direct path from child behavior to parent behavior. Model fit was evaluated with several goodness-of-fit indices, such as Tucker-Lewis Index (TLI) > .90, Comparative Fit Index (CFI) > .90, standardized root mean residuals (SRMR) < .08, and the root-mean square error of approximation (RMSEA) < .08. A χ^2 difference test was used to compare the models.

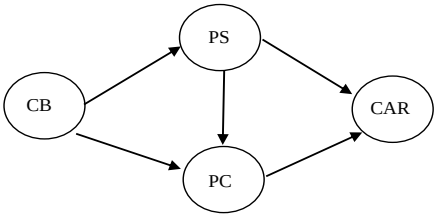

Figure 1. The hypothesized structural model.

Note. PS= Parenting Stress; CB = Child behavior; PC = Parental cognitions; CAR = Child abuse risk;

Results

Structural equation modeling results

Measurement model. The measurement model showed an adequate fit with the data: $\chi^2(269, N = 249) = 406.55$, $p < .001$, CFI = .90, TLI = .89, RMSEA = .04, SRMR = .05. All the observed variables were found to have significant factor loadings on the appropriate latent variable.

Structural models. The hypothesized model showed a good fit with the data, with $\chi^2(270, N = 249) = 407.21$, $p < .001$, CFI = .90, TLI = .89, RMSEA = .04, SRMR = .05. The constrained model gained one degree of freedom and was an improvement in model fit compared to the hypothesized model ($\Delta\chi^2(1) = .17$, $p > .10$). Next, we compared the hypothesized model to the next-best-unconstrained model, in which we lost one degree of freedom, while there was no significant improvement in model fit ($\Delta\chi^2(1) = .65$, $p > .10$). We preferred and retained the constrained model.

Results for the retained (constrained) model. Parenting stress (β = .20) and cognitions (β = .77) contribute to the prediction of parental behavior. Parental cognitions (β = .41) and parenting stress (β = .39) are predicted by child behavioral difficulties. Child behavior, parenting stress and cognitions account for 69% of the variance in parental behavior. Child behavior accounts for 17% of the variance in parental cognitions and for 15% of the variance in parenting stress. A significant indirect effect of child behavior via parenting stress (β = .07, $p < .05$) and cognitions (β = .32, $p < .001$) was found on parental behavior.

Discussion

Although the hypothesized model showed a good fit with the data, results lend support for a more constrained model, in which the mediating path from parenting stress to parental behavior via parental cognitions was constrained to zero. Thus, our hypothesis that one way in which parenting stress influences parenting is through influencing cognitive processing of child-related information was not supported.

The constrained model`s results suggest that child related characteristics, parenting stress, and cognitions account for 69% of the variance in parental behavior. Despite previous evidence that found stronger effects attributed to parenting stress compared to parental cognitions (Rodriguez & Richardson, 2007), our results indicate higher association among parental cognitions and behavior and only a small effect of parenting stress on parental behavior. Findings are consistent with ecological and social-cognitive models of child abuse emphasizing that cognitions may be more proximal to parenting compared to situational or child-related factors, thus exerting a larger effect on parental behaviors. Regarding child characteristics, we found an indirect effect of child behavior problems on parental behavior through parenting stress and cognitions. Specifically, child behavioral difficulties exert an influence on parental behavior by increasing parenting stress and by interfering with parent`s

processing of social information, which in turn may increase parents' likelihood to engage in maladaptive parenting.

Overall, our results indicate that both parental cognitions and parenting stress are important dimensions which mediate the relation between child behavior and maladaptive parenting. Based on the present study results, we assume that parenting programs may benefit from incorporating specific strategies for cognitive restructuring and reattribution training alongside more mainstream behavioral strategies, especially in low- and middle- income countries, where social information processing biases are more apparent and physical punishment is often considered normative (Lansford & Deater-Deckard, 2012).

3.4. Study 4. The Additive Contribution of Parental Cognitions to Change in Maladaptive Parenting After Participation in Parent Training[3]

Introduction

Child abuse has become a global problem (Stoltenborgh et al., 2015), and the main strategies employed to prevent child abuse comprise parenting programs aimed at reducing maladaptive parenting practices. Parent training (PT) interventions most often include a behaviorally based component where parents participate in skills training as means to improve parental and child behaviors (Thomas & Zimmer-Gembeck, 2007). Although evidence indicates that PTs are effective in improving parent and child outcomes, their effects range from small to moderate (Lundahl et al., 2006a; Weber et al., 2019). PT`s effectiveness on changing parental and child outcomes is contingent upon parent`s attendance and engagement (Boggs et al., 2005; Nock & Ferriter, 2005), which has been recognized as one of their major limitation (Chacko et al., 2016). Also, research indicates that not all participants benefit the same from PTs and about one third of participants show no

[3] Parts of this chapter were published: Dănilă, I., Tăut, D. & Băban, A. (2020). Optimisation of the Parenting for Livelong Health (PLH) for Young Children parent programme: Lessons learned from Romania. In D. Cozman & A. D. Cozman & A. Paziuc (Eds.), *Proceedings of the 23rd International Congress of Social Psychiatry* (pp. 52-58). Bologna, Italy: Filodiritto Publisher.

improvements (Sawrikar & Dadds, 2018). Given heterogeneity in response to PT and the modest effects on parental outcomes, it is important to identify which variables present previous to the intervention are associated with better or worse outcomes of PT.

To date, existing research suggest that the outcome of parent training is influenced by a diverse set of variables, such as characteristics of the child, the parent and more extended contextual characteristics. For example, more severe initial levels of child behavioral difficulties (Mattek et al., 2016), parental psychopathology (Chen & Fortson, 2015) and socio-economic difficulties (Reyno & McGrath, 2006) have been found to negatively influence treatment outcomes. However, some of the previously identified risk factors are less susceptible to change (e.g., socio-economic difficulties), are not the main focus of PT (e.g., parental psychopathology), or are more distal to parenting (e.g., child related characteristics). According to ecological models of child abuse (Belsky, 1980; Bronfenbrenner, 1979), risk factors for child abuse are nested across different levels of influence. For example, characteristics of the parent are nested at the first level of influence, while contextual characteristics or those related to the child are more distal, exerting thus less influence on parenting choices. Thus, attention also needs to be placed on risk factors that are more proximal predictors of parenting.

In the last decades, parental cognitions (nested within the first level of the ecological perspective) received considerable attention as being related to parental behavior. Parents at high risk for child abuse have been found to endorse use of physical punishment as means to discipline children (Ateah & Durrant, 2005; Walker et al., 2021), to hold higher expectations regarding children`s behaviors and abilities (Haskett et al., 2003), and to attribute child misbehaviors to more hostile intent (Camilo et al., 2020). Cognitive variables may also predict how parents accept, engage in, or benefit from parent training (Mah & Johnston, 2008; Sawrikar & Dadds, 2018). Limited evidence supports that, compared to parents that

completed PT, drop-outs had more maladaptive attributions, holding children responsible for misbehaviors (Chacko et al., 2016).

Although there is reason to believe that biased social-cognitions pre-treatment may prevent parents from benefiting from PT, the evidence base investigating whether such parental cognitions predict parental behavioral change following PT is scarce (Pereira & Barros, 2019). There is some evidence that families with more hostile attributions for children`s misbehaviors at pre-treatment experience worse outcomes following PT (Corcoran & Ivery, 2004; Mattek et al., 2016), albeit results have been mixed. However, to our knowledge, no study to date has investigated whether pre-treatment parental expectations and attitudes regarding children and child-rearing interfere with PT outcomes.

Purpose of the study

In the present study, we first investigated the effects of the Parenting for Lifelong Health Young Children program (PLH-YC) on parenting outcomes (e.g., overreactivity). Because this was a randomized control trial with an active control group (e.g., receiving a lecture), we hypothesized that both groups would show improvements in parenting, although we expected improvements to be larger for the intervention group. Next, we aimed to investigate whether pre-treatment parental cognitions would predict additional change in parental behavior post-intervention, above other risk factors. We hypothesized that more unrealistic expectations, attributional biases and more endorsement of physical punishment would predict less change in parenting outcomes after participation in the PLH-YC and that they would contribute to explain program effectiveness above and beyond distal risk factors.

Methods

Participants

Eligible parents were randomly allocated to one of the two parallel study arms (control group or a parenting intervention group). A total of 249 parents agreed to participate in the study, out of which 126 were part of the control group and 123 received the PLH-YC.

Procedures

After giving their informed consent, parents were invited to answer the interview questions for the baseline assessment. Post-test assessments were conducted three-months after the intervention.

Study design and Intervention

Control group. All parents allocated to the control group benefited from a one-hour lecture on parenting and child development issues, called "Raising Healthy Children".

Intervention group. Parents randomized to the intervention group were offered a five sessions version of the PLH-YC. PLH-YC is focused around consolidating parenting skills involved in relationship building, teaching parent`s positive reinforcement strategies and positive discipline strategies (Lachman et al., 2019).

Measures

Demographics. The questionnaire included questions regarding parent`s and children`s age and gender, as well as questions regarding the household structure.

Child characteristics. The Child Behavior Checklist (Achenbach & Rescorla, 2001) for children aged $1\frac{1}{2}$–5 and 6–18 was used to assess children`s behavioral difficulties. Higher scores are indicative of more behavior problems of the child. For the purpose of the present study, the externalizing and internalizing subscales were used.

Parental adjustment. Parenting stress was assessed using the Parental Stress Scale (Berry & Jones, 1995). Higher scores indicate more parenting stress.

Symptoms of stress and depression in parents were assessed using the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995; DASS-21). For the purpose of the present study, only the stress and depression subscales were used. Higher total scores reflect more symptoms of stress or depression.

Parental cognitions. Parental expectations were assessed with the Parental Expectations Scale (PES; Dănilă et al., unpublished). Higher scores indicate higher parental expectations.

Parental attributions were assessed using the Plotkin Child Vignettes (Plotkin,1983). Higher scores indicate more hostile attributions.

Parental endorsement of physical punishment were assessed with the Attitudes Toward Spanking Questionnaire (Holden et al., 1995). Higher scores indicate more endorsement of physical discipline.

Parental behavior. Negative parental behavior was assessed with the Overreactivity subscale from the Parenting Scale (Arnold et al., 1993). Higher scores reflect higher levels of dysfunctional parenting.

Data analysis

Preliminary analyses on the effectiveness of treatment on parental overreactivity were conducted using repeated measures analysis of variance (ANOVA). To further explore what predicted change in parental overreactivity after participation in the PLH-YC program, a two-step procedure was employed, using data from the intervention group only. First, multivariate regressions were conducted with each individual predictor category (demographics, child behavior, parental adjustment and cognitions) being introduced separately in the regression model. Next, a hierarchical linear regression was conducted with the significant predictors.

Results

ANOVA results

ANOVA results indicate a significant main effect for time on overreactivity F (1,176) = 66.90, $p < .001$, $\eta_p^2 = .27$. No significant main effect was found for the condition on overreactivity, F (1, 176) = .22, $p = .63$. The interaction between time of assessment and group allocation was significant F (1, 176) = 7.71, $p < .001$, partial $\eta_p^2 = .04$. Planned comparison t-test indicated a significant reduction in parental overreactivity from pre- to post-assessment for both the experimental (t (85) = 7.90, $p < .001$) and control group (t (91) = 3.76, $p < .001$), albeit the improvement in parenting behavior was larger in the intervention group (d = .36).

Multivariate regression results

Among demographic characteristics, only parental age was a significant predictor of change in parental overreactivity (β = -.33). Initial level of child behavioral difficulties did not significantly contribute to change in parental overreactivity. Among those characteristics related to the parent, stress related to the parenting role (β = .33) and parental cognitions predicted change in parenting outcomes. Higher parental expectations predicted less change in parental overreactivity (β = -.61), whereas parental hostility attributions predicted more change in overreactivity (β = .18) after participating in the PLH-YC.

Next, a hierarchical regression analysis was conducted. Parental age was added in the first step, followed by parenting stress in the second step and by parental cognitions in the last step of the model. The regression model yielded an $R^2 = .50$, F(2, 81) = 28.18, $p < .001$. Parental cognitions accounted for an additional 34% of explained variance in change in parental overreactivity. More change in parental overreactivity was predicted by higher levels of parenting stress at enrollment (β = .23). Less change after participating in the PLH-YC was

predicted by higher parental age at enrollment (β = -.26) and by parents endorsing higher expectations regarding children`s abilities and behaviors at baseline (β = -.60).

Discussion

Results support the effectiveness of the PLH-YC in reducing maladaptive parenting. Regarding predictors of improvement in parenting behavior after participation in the PLH-YC, our findings indicate that parental age at enrollment, as well as initial levels of parenting stress and parental expectations uniquely predict change in parenting after participating in the PLH-YC. Younger parents seem to benefit most from PT and show more reduction in parental overreactivity. Contrary to our expectations, parent`s general adjustment (e.g., stress and depression) and child behavioral difficulties failed to predict parenting outcomes. Thus, it seems that the PLH-YC was at least as successful at improving parenting outcomes regardless of parent`s adjustment. One explanation for our findings is that parent`s stress or depressive symptoms are independent of the child and may be less relevant for parent`s discipline choices. Indeed, the only characteristic related to parent`s adjustment which predicted change in parental overreactivity in our study was parenting stress, which is related to both the parent and the child. Contrary to our expectations, parents higher on parenting stress indicated more improvements in their parenting after participating in the PLH-YC, which may be related to certain program characteristics (e.g., group support). Regarding initial level of child behavioral difficulties, our results indicate that the program was equally effective regardless of children`s behavior at enrollment, highlighting that preventive efforts should begin previous to escalation of behavioral difficulties.

Finally, our findings supported the SIP assumption that parents` cognitive processes can influence discipline outcomes even beyond what is attributable to other risk factors. When all risk factors were considered together, parental expectations accounted for an additional 34% of the variance in change in overreactivity above that accounted for by

parental age and parenting stress, indicating that the role of parental expectations in interfering with treatment outcomes is additive. Thus, we emphasize that tailoring parenting interventions to incorporate developmental cognitive limitations of children to temper high parental expectations could add to program effectiveness.

CHAPTER IV. GENERAL DISCUSSION AND CONCLUSIONS

This thesis aimed to provide information on social cognitive variables that increase child abuse risk, in an effort to advance our understanding of this phenomenon and to assist in the development and tailoring of parent training interventions aimed at its reduction. Framed around ecological (Belsky, 1980; Bronfenbrenner, 1979) and social information processing models of child abuse (Milner, 1993), the present thesis aims to explore the role of parent`s social cognitive processes in increasing risk of child abuse, as well as their role in interfering with parent training outcomes. Thus, throughout the first three studies, we 1) developed and validated a new measure of parental unrealistic expectations, which are associated to risk for child abuse (Study 1); 2) corroborated existing research to validate the relations among parental cognitions, as suggested by the social information processing model of child abuse (Milner, 1993) (Study 2); and 3) explored the role of parental cognitive processes in the link between child behavioral difficulties, parenting stress and risk of child abuse (Study 3). The last study part of the present thesis (Study 4) aimed to explore the contribution of parental social cognitive processes in interfering with the effectiveness of a parent training program aimed at reducing child abuse risk.

4.1. An Overall Perspective on Our Research Studies

In Study 1 we developed and validated the Parental Expectations Scale (PES), a new and valid measure of parental expectations related to children's behaviors, which was found to predict maladaptive parenting (e.g., overreactivity). The PES could help practitioners identify parents at risk for child abuse, and may be used in the assessment of parental

expectations prior to parent training and help practitioners adapt trainings to incorporate developmental limitations of children as means of tempering parental expectations.

In Study 2 we conducted a meta-analytic path analysis (MASEM) to test the Social information processing model of child abuse (Milner, 1993). We explored whether parental preexisting schema (unrealistic expectations and attitudes endorsing physical punishment), parental perception of behavioral difficulties of children (stage one), and hostile attributions (stage two) are linked to maladaptive parenting (stage four), as well as the pathways through which they operate. Our results extend the validity of the SIP model of parenting, while indicating that parental cognitions should be included in current risk assessment practices. Furthermore, they could potentially be targeted in parent training interventions, alongside the more mainstream strategies employed by such programs.

In Study 3, we aimed to test for the role of parental cognitions in the association between child behavioral difficulties, parenting stress and risk of child abuse. Results suggest that parental cognitions and parenting stress mediate the association among risk factors more distal to parenting and risk for child abuse. Findings emphasize that parental cognitions that are related to children exert the largest direct effect on parental behavior, an assumption previously advanced by the SIP model of parenting. Findings of this study further emphasize that parent training programs may benefit from incorporating cognitive strategies as means to correct information processing biases, apart from behavioral management and stress reduction strategies.

Finally, in Study 4 we explored the role of social cognitive processes of parents in interfering with parent training (PT) outcomes, after participation in the PLH-YC parent training program. We found that parents who had high expectations for children`s behaviors were less likely to report improvements after participation. However, no effect was found for parental attitudes and attributional biases in predicting PT outcomes. Results also emphasize

that the role of parental expectations in predicting PT outcomes is additive beyond parental age and parental stress. Thus, parental expectations prior to enrollment in PT should constitute targets for PT interventions.

7.1.1. Overall Contributions

Results outlined in the first three studies contribute to advances in our current knowledge of risk factors for child abuse and to our understanding of the role of parent`s social cognitive processes in increasing risk of child abuse, in conjunction with previously identified risk factors. Identifying risk factors for child abuse is of primordial importance in both child abuse assessment and in guiding intervention or preventive efforts. Parent training programs are the main strategies employed as means to reduce child abuse risk or occurrence, albeit their effects on improving parenting are highly heterogeneous (Gardner et al., 2010; Mattek et al., 2016) and in the small to medium range (Lundahl et al., 2006a). Tailoring or developing parent training is a particularly challenging aspect. It is acknowledged that not all risk factors are suitable targets for intervention (e.g., socioeconomic difficulties), and among those that are, not all are associated with increased parent training effectiveness. Therefore, the last study of this thesis, exploring parental social cognitive processes that interfere with parent training outcomes, may be particularly relevant to inform practitioners on ways to increase parent training effectiveness.

4.2. Overall Limitations of Our Studies and Directions for Future Research

One major limitation of the present thesis is its lack of generalizability to fathers, since most data was provided by mothers. We must acknowledge that the pathways through which social cognitive processes interact to predict child abuse risk may be different for fathers compared to mothers. Second, all of our studies employed self-report measures of child abuse risk. More studies employing multiple informants or parenting measures may support the generalization of our findings.

Third, given the cross-sectional nature of our data, causality of social information processing biases on child abuse risk cannot be established. Further studies should employ longitudinal designs to test the role of parent`s cognitive processes in the prediction of child abuse. Lastly, the main outcome of our thesis was child abuse risk, which was measured through parent`s use of physical discipline methods. However, we must admit that different predictive effects of parental cognitive processes on parenting could have been observed in other areas of parenting, such as neglect, an area that deserves further attention.

4.3. General Conclusion

The results of the present thesis offer important guidelines for clinicians assessing child abuse risk, as well as for practitioners developing or tailoring evidence-based parent training programs. Specifically, our findings point to the importance of assessing parental cognitions related to children and child-rearing, given their association to maladaptive parenting behavior. Our findings also underline that targeting such cognitive processes in parent training programs may increase program effectiveness, thus contributing to the reduction of child abuse.

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