

AMERICAN UNIVERSITY OF BEIRUT

THE ROLE OF CHILDHOOD MALTREATMENT IN
AFFECTIVE AND COGNITIVE EMPATHY

by
REEM WALID JOUDIEH

A thesis
submitted in partial fulfillment of the requirements
for the degree of Master of Arts
to the Department of Psychology
of the Faculty of Arts and Sciences
at the American University of Beirut




Beirut, Lebanon
December 2021

AMERICAN UNIVERSITY OF BEIRUT

THE ROLE OF CHILDHOOD MALTREATMENT IN
AFFECTIVE AND COGNITIVE EMPATHY

by
REEM WALID JOUDIEH

Approved by:

	Signature
Dr. Tania Bosqui, Assistant Professor Department of Psychology, American University of Beirut	Advisor
	Signature
Dr. Julien Besle, Assistant Professor Department of Psychology, American University of Beirut	Member of Committee
	Signature
Dr. Leila Akoury Dirany, Associate Professor Department of Psychiatry, American University of Beirut Medical Center	Member of Committee

Date of thesis defense: December 07, 2021

AMERICAN UNIVERSITY OF BEIRUT

THESIS RELEASE FORM

Student Name: Joudieh Reem Walid

I authorize the American University of Beirut, to: (a) reproduce hard or electronic copies of my thesis; (b) include such copies in the archives and digital repositories of the University; and (c) make freely available such copies to third parties for research or educational purposes:

- As of the date of submission
- One year from the date of submission of my thesis.
- Two years from the date of submission of my thesis.
- Three years from the date of submission of my thesis.

Reem Walid Joudieh

Signature: 

Date: Monday, August 29, 2022

ACKNOWLEDGEMENTS

I would like to express my special thanks to Dr. Zahra Hussein, Assistant Professor and Chairperson at the Psychology Department, for her support and guidance throughout the data analysis process and write up.

I would also like to express my appreciation to Dr. Tania Bosqui, Assistant Professor at the Psychology Department, for her support and mentoring throughout this research study.

ABSTRACT OF THE THESIS OF

Reem Walid Joudieh

for

Master of Arts

Major: Clinical Psychology

Title: The Role of Childhood Maltreatment in Affective and Cognitive Empathy

Maltreatment during childhood has been associated with poorer affective and cognitive empathy. Poor empathy is one of the many negative consequences of childhood maltreatment, and is associated with poorer interpersonal functioning and anti-social behaviors. Despite the strong link between maltreatment and empathy, few studies have examined different types of empathy and the mechanisms underlying their relationship. The current study aimed to explore the association between childhood maltreatment and empathic subcomponents, as well as factors mediating this association. Mediating factors suggested in the literature remain untested, such as attachment security, emotional regulation, emotional avoidance, and attribution biases. The main hypotheses were that childhood maltreatment is associated with poorer affective and cognitive empathic abilities, but that attachment security, emotional regulation, and emotional avoidance mediate the relationship with affective empathy, while attachment security and attribution biases mediate the relationship with cognitive empathy. Undergraduate students from the Psychology Department at the American University of Beirut were invited to participate in the study through completing a web-based survey that included measures of childhood maltreatment, empathy, and the hypothesized mediators. The study did not find a relation between childhood maltreatment and empathy, nor its subcomponents. Regression models showed that attachment and emotional regulation were significant predictors of affective empathy, as opposed to maltreatment and emotional avoidance. For cognitive empathy, none of the potential predictors (maltreatment, attachment and attribution biases) were significant predictors. Possible explanations for these unexpected findings are explored, including situation-specific empathy and the role of personal distress, as well as low levels of maltreatment severity in the sample. This study has implications for future research to further understand the role of attachment security and emotional regulation in the development of empathy, and inform interventions that promote empathic abilities.

Keywords: child maltreatment, abuse, neglect, empathy, cognitive empathy, affective empathy, emotional regulation, emotional avoidance, attachment, attribution biases

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	1
ABSTRACT.....	2
ILLUSTRATIONS	6
TABLES	7
INTRODUCTION	8
LITERATURE REVIEW	10
A. Empathy.....	10
1. Subcomponents of Empathy.....	11
2. Childhood Maltreatment and Empathy	11
B. Mediating Factors	14
1. Emotional Regulation.....	15
2. Emotional Avoidance	15
3. Attachment Security	16
4. Attribution Biases.....	17
C. Theoretical Framework.....	17
D. Rationale.....	20
E. Aim of The Study.....	21
F. Hypotheses	22
METHODS	23
A. Participants	23

B. Measures	23
1. Demographic Questionnaire	23
2. Childhood Maltreatment.....	24
3. Subcomponents of Empathy.....	24
4. Attachment Security	25
5. Emotional Regulation.....	26
6. Emotional Avoidance	26
7. Attribution Biases.....	27
RESULTS	28
A. Data Analysis.....	28
B. Missing Data	28
C. Participant Demographics.....	29
1. Childhood Maltreatment.....	30
2. Empathy.....	32
D. Association Between Total Maltreatment and Empathy	32
1. The Correlation Between Potential Covariates (Attachment Insecurity, Emotional Avoidance, Emotional Regulation) and Affective Empathy	33
2. The Correlation Between Potential Covariates (Attachment Insecurity, Attribution Biases) and Cognitive Empathy.....	35
3. The Effect of Maltreatment and Covariates (Attachment Insecurity, Emotional Avoidance, Emotional Regulation) and Affective Empathy	36
4. The Effect of Maltreatment and Covariates (Attachment Insecurity, Attribution Biases) and Cognitive Empathy	37
E. Association Between Maltreatment Types and Empathy	38
DISCUSSION	40
A. Strengths and Limitations	43
B. Implications, Conclusions, and Future Research.....	44

APPENDIX I	47
APPENDIX II	48
APPENDIX III.....	50
APPENDIX IV	52
APPENDIX V.....	54
APPENDIX VI	55
APPENDIX VII.....	56
APPENDIX VIII.....	59
APPENDIX IX	60
APPENDIX X.....	61
REFERENCES	62

ILLUSTRATIONS

Figure

1. Mediating model for affective empathy	19
2. Mediating model for cognitive empathy	20
3. Histograms of the subscales of childhood maltreatment, and the total maltreatment	30
4. Correlation matrix of maltreatment subscales	31
5. Relation between cognitive and affective empathy	32
6. Scatterplot of the subcomponents of empathy and total empathy against total maltreatment	33
7. Association between emotional regulation, emotional avoidance and attachment security, and affective empathy	34
8. Association between attachment insecurity and attribution biases, and cognitive empathy	35
9. Association between the subcomponents of maltreatment and empathy	39

TABLES

Table

1. Descriptive statistics of demographic variables	29
2. Descriptive statistics of the variable.....	29
3. Type III sums of squares and significance tests for predictors in the full regression model.....	36
4. Type III sums of squares and significance tests for predictors in the reduced regression model.....	37
5. Type III Sums of Squares and Significance Tests for Predictors in the Full Regression Model.....	38

CHAPTER I

INTRODUCTION

Child maltreatment refers to abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and emotional ill treatment sexual abuse, neglect, negligence, and commercial or other exploitation (WHO, 2016). Maltreatment results in actual or potential harm to a child's health, survival, development or dignity in the context of a relationship of responsibility, trust or power (WHO, 2016).

Approximately 23% of children experience physical abuse, 16% physical neglect, and 36% emotional abuse perpetrated by caregivers worldwide, with severe and long-lasting consequences on their psychological, neurological, and socio-emotional development (WHO, 2017).

The exposure to threatening experiences disrupts child development and leads to psychobiological sensitization in response to chronic stress. The lack of early positive stimulation impairs a child's adaptation, social functioning, and emotional regulation (Briere, 2002; Dias et al., 2018). In many households, multiple forms of maltreatment are likely to co-occur although some may remain unnoticed or overlooked. Emotional maltreatment and neglect, for example, are more likely to coincide with other forms of maltreatment, and cause disturbances in development and patterns of attachment (Naughton et al., 2013).

Social and emotional deficits in maltreated individuals are thought to undermine their emotional awareness and impede their ability to maintain adaptive relationships. For instance, maltreated children and adolescents are at risk for social maladjustment and interpersonal difficulties (Burack et al., 2006). Childhood maltreatment is also

associated with disruptive behaviors, the perpetration of violence, and violent responses in the family context (Fry, McCoy and Swales, 2012). The effects of childhood maltreatment may also extend to adulthood through mental health difficulties (Spertus et al., 2003; Norman et al., 2012), self-harm and suicidality (Norman et al., 2012), interpersonal disturbances (Alink et al., 2012), and violent offending and criminal behavior (Tiwari et al., 2019). Research suggests that behavioral difficulties and violent tendencies may be explained by emotional dysregulation resulting from childhood maltreatment and poor empathic abilities (Kostic and Nestic, 2015).

Empathy is the act of perceiving, understanding, experiencing, and responding to the emotional state and ideas of another person (Barker, 2008). Although behavioral outcomes may result from empathy, the behavioral component is not necessarily part of the construct itself (Cuff et al., 2016). Nonetheless, empathy has been linked to prosocial behavior (Van der Graaff et al., 2018; Lissa et al., 2017). Empathic abilities, therefore, influence interpersonal functioning and behavior. In fact, empathy relates to sensitivity to others, emotionality, and social competence (Davis, 1983).

Dias, Mooren and Kleber (2018) discussed the need for specific approaches for adults with a history of childhood maltreatment. Such approaches should aim to endorse protective factors and mitigate the effects of early adversity, to allow maltreated adults to build resilience and improve social and emotional functioning. An understanding of the mechanisms between childhood maltreatment and poor empathy has yet to be realized, and could help inform such initiatives to promote adaptive functioning in maltreated adults. This paper, therefore, investigates the role of childhood maltreatment in cognitive and affective empathy.

CHAPTER II

LITERATURE REVIEW

A. Empathy

There is a dichotomy in the literature concerning the construct of empathy being an inherent ability, similar to personality traits, or a situation-specific state. This disparity reflects underlying assumptions about the developmental course of empathy, and the individual or inter-individual differences in empathic behavior (Duan and Hill, 1996). Some authors believe that empathy is a stable trait affected by nature and development, while others believe that an individual's empathic reaction depends on the situation. Empathy, therefore, may be susceptible to learning even if it was shaped by developmental and environmental factors. This suggests that empathy may be the result of an interaction between state and trait influences (Cuff et al., 2016).

In a comprehensive review of the empathy literature, Cuff et al., (2016), concluded that empathy may be an emotional response (affective), dependent upon the interaction between trait capacities and state influences. Empathic processes are automatically elicited, but are also shaped by top-down control processes. The resulting emotion is similar to one's perception (directly experienced or imagined), and understanding (cognitive empathy) of the stimulus emotion, with recognition that the source of the emotion is not one's own. Several definitions of empathy highlight affective and cognitive processes. Therefore, in order to understand empathic ability, a differentiation between the subcomponents of empathy is warranted.

1. Subcomponents of Empathy

Cognitive empathy is defined as the intellectual and conscious understanding of the mental states and behaviors of others, while affective empathy is considered an automatic emotional resonance (Smith, 2006). Empathy is conceptualized as a multidimensional construct represented by distinct neural and structural correlates. In fact, functional magnetic resonance imaging investigations, lesion-based studies, and volumetric analyses are consistent in showing that individual differences in the subcomponents of empathy are related to differences in brain anatomy (Eres et al., 2015).

In a meta-analysis of fMRI studies, Fan and colleagues (2011) showed that affective empathy is associated with insula activity, while cognitive empathy is associated with activity in the mid-cingulate cortex and adjacent dorsomedial prefrontal cortex. Structural differences in gray matter density have also been found in those regions (Eres et al., 2015). Empathy, therefore, involves distinct abilities. As previously discussed, emotional deficits associated with childhood maltreatment are expected to impede empathic abilities. However, in order to explore the relationship between childhood maltreatment and empathy levels, it is essential to consider the impact of maltreatment on cognitive and affective empathic abilities. This is important because the measure of empathy may not be as informative as considering the levels of the subcomponents separately.

2. Childhood Maltreatment and Empathy

Literature on childhood maltreatment and empathy is inconsistent in terms of findings and methods used to measure empathy. Most of the available research explores

empathic abilities in maltreated parents. There are not as many studies that examine the association between empathic abilities and childhood maltreatment in late adolescence or early adulthood. These studies also do not provide empirical evidence on the mechanisms that influence affective and cognitive empathy.

Childhood maltreatment was found to be associated with delays in social perspective taking skills in adolescents (Burack et al., 2006). Deficits were particularly related to differentiating and understanding conflicting needs and perspectives of characters in a story. In this study, participants were presented with picture frames, and asked to tell the story from the perspectives of distinct characters, a protagonist and a bystander, keeping in mind the amount of information that each character knows. Participants, who were able to explain the emotions and behaviors of the characters, keeping in mind the information known to each, were considered to have higher perspective taking skills.

Locher and colleagues (2014) found similar results using mixed methods. Empathy levels were measured quantitatively through a self-rating scale, and qualitatively through the analysis of participants' answers to open-ended questions in response to clips of victims and perpetrators. Findings showed an association between childhood maltreatment and impaired empathic abilities, as well as an effect for the severity of maltreatment on empathy levels. In terms of the subcomponents of empathy, maltreatment was linked to affective subthemes related to emotional blunting, and minimal emotional contagion. Cognitive subthemes were related to poor perspective taking, poor understanding of others' emotions, and inaccurate attributions to behavioral stimuli.

It was also observed that participants with severe childhood maltreatment reported high levels of empathy on the self-rating scale, which was inconsistent with their results on the qualitative measure. The authors attributed the overstated self-rate of empathy to intense personal distress experienced by severely maltreated individuals while watching the clips. In fact, personal distress was found to increase with maltreatment severity. It was hypothesized that this distress, misinterpreted by participants as empathy, was more related to emotional over-involvement and an orientation towards personal recollections, as opposed to emotional resonance with the victims. The authors, therefore, suggested that poor emotional regulation, failed emotional avoidance, and insecure attachment styles might explain the lower levels of empathy in maltreated individuals. Those suggestions, however, were not investigated.

In terms of the research design, the measures used by Locher, Burack and their colleagues were specific and situational, which means they did not offer a comprehensive measure of empathic abilities. Empathic reactions, *emotional contagion* and *the understanding of mental states*, may be influenced by contextual factors, such as the observation setting, the salience of the emotional stimuli, and the relationship to the distressed individuals (Shaver et al., 2016). In addition to that, results on those measures of empathy may be influenced by individual differences in cognitive and verbal abilities. For this reason, this study uses a self-report measure of empathy that includes items not specific to distressing situations.

In contrast to the study by Locher and colleagues (2014), Greenberg et al. (2018) found that the subcomponents of empathy were positively associated with the severity of childhood trauma. In addition to that, personal distress did not significantly differ between the trauma and control groups. The authors hypothesized that personal

distress may have been alleviated over time, thus allowing trauma-exposed participants to have higher empathy levels. Nonetheless, this study used self-report empathy questionnaires; therefore, personal distress was not measured in context of salient stimuli similar to traumatic experiences. In other words, recollections of the trauma may not have been triggered, and self-related worries not activated.

The inconsistent results between the two studies may also be related to the measures of childhood trauma and its severity. Locher et al. (2014) assessed the frequency of occurrence of different types of child maltreatment, while Greenberg et al. (2018) assessed for the presence of trauma, with the severity rated by participants based on how traumatic it was for them. The latter, therefore, does not reliably quantify the severity of trauma exposure, rather the perception of its impact on the individual's life. This warrants a differentiation between the rate of maltreatment experiences and the severity of outcomes. For the purpose of this study, severity will be conceptualized as the cumulative exposure to maltreatment (Gross et al., 2019).

To our knowledge, the mentioned studies are the only ones that explore the association between childhood maltreatment and empathic abilities in community samples, with a focus on the subcomponents of empathy, to date. This highlights the existing limitation in understanding the association of interest. In addition to the inconsistent results, our understanding of the mechanisms that mediate the maltreatment-empathy association remains limited.

B. Mediating Factors

Based on the existing literature outlined below, there is evidence that emotional regulation, emotional avoidance, and attachment security are associated with both

maltreatment and affective empathy. On the other hand, attribution biases and attachment security are associated with both maltreatment and cognitive empathy. These variables are therefore likely to help to explain the relationship between childhood maltreatment and empathic abilities.

1. Emotional Regulation

Emotional regulation is the ability to monitor or adjust the duration or intensity of an emotional reaction in order to cope constructively with a distressing situation or to achieve a goal (Panfile and Laible, 2012). Childhood maltreatment has been found to be directly associated with an individual's ability to regulate their emotional responses (Dias et al., 2018). In a meta-analytic review, Gruhn and Compass (2020) found child abuse and neglect to be associated with decreased emotional regulation and increased emotional dysregulation, with a dose effect for the severity of maltreatment. The literature also shows a link between emotional regulation and empathic abilities. Individuals who are able to regulate negative emotions have been found to have higher empathy towards others, and to experience less personal distress (Eisenberg, 2000; Bandura et al., 2003).

2. Emotional Avoidance

Emotional avoidance is an effort to disengage from a stressor or negative emotions (Gruhn and Compas, 2020). Based on experiences of abuse and neglect, individuals are more likely to interpret non-maltreatment related experiences as uncontrollable. In fact, childhood maltreatment was associated with dysfunctional coping in the form of emotional avoidance, emotional suppression, and maladaptive

emotional expression (Gruhn and Compas, 2020). The authors explained maltreated individuals' attempts at coping with overwhelming experiences as efforts to orient away from unwanted emotions or sources of stress. The literature, however, does not include studies that directly link emotional avoidance to poor empathy. This study takes into consideration Locher and colleagues' (2014) suggestion that emotional avoidance may be a mechanism that explains the relationship between maltreatment and empathy.

3. Attachment Security

Attachment security refers to a type of attachment that is derived from a safe and nurturing relationship with primary caregivers. This is thought to promote a healthy development (Ainsworth, 1969). In relation to the variables in this study, childhood maltreatment has been found to have direct negative effects on attachment security to caregivers (Naughton et al., 2013). Physical abuse in childhood has been found to be associated with anxious attachment, emotional abuse and neglect with avoidant attachment, and sexual abuse with both types of insecure attachment (Harel and Finzi-Dottan, 2018).

Insecure attachment to caregivers is also linked to empathic abilities, particularly the affective subcomponent (Britton and Fuendeling, 2005). There are contradicting findings in the literature regarding the association between attachment security and empathy. Insecurely attached individuals, high in anxiety and low in avoidance, were found to have *high* levels of emotional empathy in a sample of counseling trainees (Trusty et al., 2005). The authors attributed their findings to the ability of individuals who are less prone to avoid their problems (such as family or parent-child conflict) to be attuned to their emotions, and resonate with the emotions of

others. Contradicting findings, however, showed that insecure adults, high in anxiety, *lacked* empathic concern, and were more likely to be occupied with their own needs and problems (Shaver et al., 2016). This discrepancy may be explained by the low avoidance in the sample of counseling trainees, but warrants further investigation.

4. Attribution Biases

Attribution bias is the tendency to interpret others' intentions, in ambiguous social situations, in an inaccurate or hostile manner (Hiemstra et al., 2018). Individuals with a history of childhood maltreatment were found to be more likely to interpret the intentions of others inaccurately, and negatively to be more precise (Locher et al., 2014). Attribution biases, especially misinterpreting the intentions of others, have also been associated with low empathy (Slavny and Moore, 2018). The association was found for cognitive but not affective empathy, indicating that the mechanism may be unique to cognitive empathy.

C. Theoretical Framework

In an attempt to understand the mechanisms that contribute to the relationship between childhood maltreatment and empathy, we will draw on Attachment Theory. This theory explains how maltreatment disrupts emotional development (Bowlby, 1969), and empathic abilities (Panfile and Laible, 2012). Maltreated children are thought to form negative representational models of their caregivers as absent, demanding, or rejecting, and of the self as unlovable and responsible for the conflict with the attachment figures (Crittenden, 1988). Those who are insecurely attached interpret behavioral stimuli based on existing models of the self and others. For

example, an insecurely attached individual may believe that a colleague postponing a meeting is a sign of rejection, and a confirmation of the unworthy self, when it could have been interpreted as the colleague just being busy. This indicates that they were not open to alternative attributions of intent behind the colleague's behavior. The individual, therefore, is more likely to respond in a negative manner. Attachment theory explains how the development of attachment security during childhood shapes cognitive relational models, emotional regulation abilities, and capacities to care for others (Stern and Cassidy, 2018), all of which are related to the mediating factors mentioned earlier.

In terms of affective empathy, maltreated individuals are more likely to have difficulties in regulating their emotions (Stern and Cassidy, 2018). Attachment and emotional regulation, therefore, may explain the relationship between maltreatment and affective empathy. This may be especially true since poor emotional regulation not only leads to maladaptive emotional expression, but also overwhelms coping and reasoning capacities (Smith et al., 2014). Maladaptive coping strategies, particularly emotional avoidance, are associated with childhood maltreatment as well (Gruhn and Compas, 2020). The tendency to avoid emotions and stress stimuli is expected to influence maltreated individuals' ability to relate to the negative emotions and needs of others. Thus, it may further contribute to the association between maltreatment and affective empathic abilities.

In terms of cognitive empathy, attachment theory suggests that relationships with attachment figures remain fixed over time due to cognitive constructs called *internal representational models*. These models allow individuals to interpret others' behaviors and predict the future. Adaptive internal models facilitate the cognitive manipulation of possible responses, while maladaptive models impede individuals'

capacity to consider new information (Crittenden, 1990). It is important to note here that the ability to take the cognitive perspective of others promotes accurate attributions of intent, and regulates behavioral responses (Singer and Klimecki, 2014). This would, therefore, explain poorer cognitive empathy in maltreated individuals who show difficulties in accurately interpreting others' intentions.

The proposed relationship between these different models is depicted below in Figure 1 and 2.

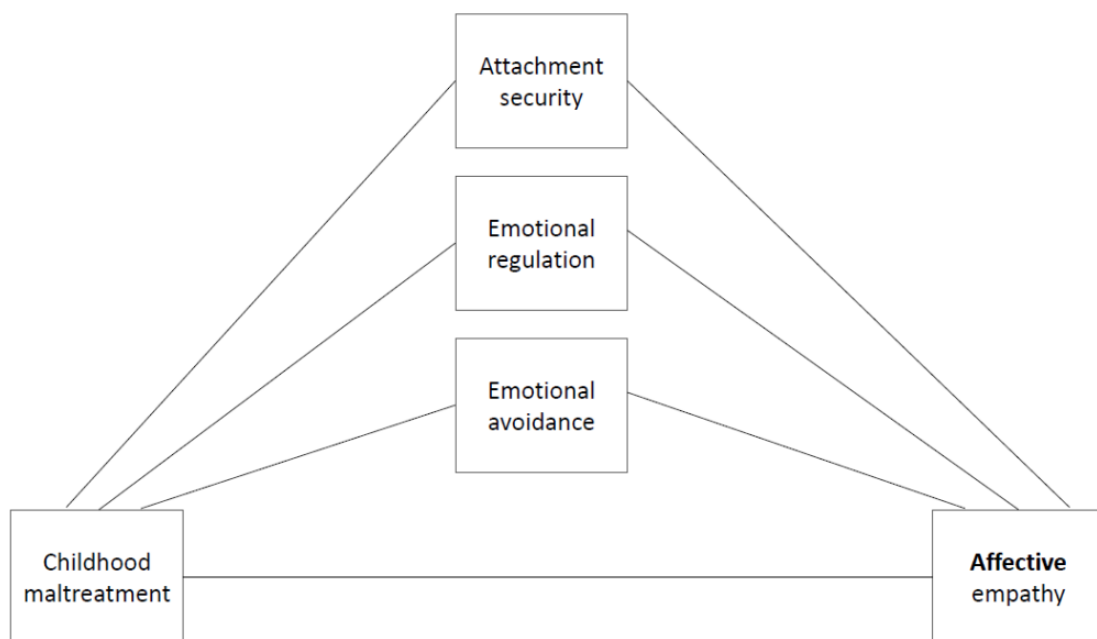


Figure 1: Mediating model for affective empathy

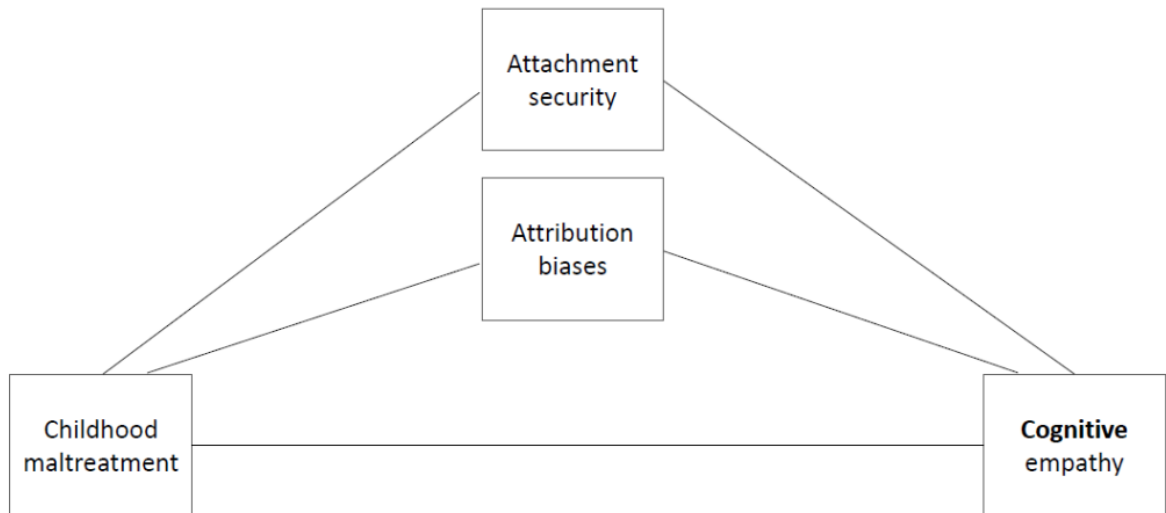


Figure 2: Mediating model for cognitive empathy

D. Rationale

Maltreatment during childhood has been associated with poorer affective and cognitive empathy. Poor empathy is one of the many negative consequences of childhood maltreatment, and is associated with difficulties in interpersonal functioning. Despite this, few studies have examined the mechanisms underlying the relationship between maltreatment and different types of empathy. This has implications for our theoretical understanding of the sequelae of childhood maltreatment, which may help to inform initiatives that attempt to mitigate its effects, and promote protective factors in adults who experienced similar adversity as children.

Empathy research highlights cognitive and affective subcomponents that require distinct abilities, and these may therefore be differentially affected by early life experiences. Exploring the association between childhood maltreatment and cognitive and affective empathic abilities, in addition to the mediating factors that underlie this

association, is essential for understating the development of empathy. This may also inform interventions that develop empathic abilities.

There are contrasting findings in the literature on the effects of maltreatment on the subcomponents of empathy. This inconsistency may have resulted from the varying methods used to measure empathy and maltreatment severity, and the insufficient differentiation between cognitive and affective subcomponents. The current study proposes an investigation of the association between childhood maltreatment and empathic subcomponents using a quantitative measure of empathy. This measure intends to offer a non-contextual interpretation of empathic abilities. Mediating factors suggested in the literature were also empirically tested in this research project: attachment security, emotional regulation, emotional avoidance, and attribution biases.

E. Aim of The Study

The aim of the study is to explore the association between childhood maltreatment and the subcomponents of empathy, cognitive and affective abilities. This study's secondary aim is to explore the mechanisms that influence the maltreatment-empathy association. Mediating factors have been suggested in the literature, but no known study has tested them yet.

The study variables include a total childhood maltreatment score, with subscales for emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect, as well as a total empathy score that includes cognitive and affective empathy subscales. The suggested mediating variables for the relationship between maltreatment and affective empathy are emotional regulation, emotional avoidance, and attachment security. Attribution biases and attachment security are expected to mediate the

relationship between maltreatment and cognitive empathy.

F. Hypotheses

Hypothesis 1: Maltreatment will be negatively correlated with each measure of empathy.

Hypothesis 2: Emotional regulation, emotional avoidance, and attachment security will mediate the association between maltreatment and affective empathy.

Hypothesis 3: Attribution biases, and attachment security will mediate the association between maltreatment and cognitive empathy.

CHAPTER III

METHODS

A. Participants

Participants were recruited from a student sample at the psychology department at the American University of Beirut. Students received course credit for completing a web-based survey on *Limesurvey*. Their participation was voluntary and there was no penalty or extra course work for students who decided not to take part in the study. Participation included completing six questionnaires, in addition to basic demographic questions.

A sample size calculation was conducted using Tabachnick and Fidell's (2014) formula. The estimated number of participants required for this study was 90, based on the rule $N \geq 50 + 8m$ with (N) being the number of participants and (m) being the number of independent variables, which are (1) history of childhood maltreatment, (2) attachment security, (3) emotional regulation, (4) emotional avoidance, and (5) attribution bias. This rule is used to estimate the number of participants required to detect an association between the outcome and the predictors given the number of predictors. The rule assumes a medium-size relationship between the independent variables and the dependent variable, $\alpha = .05$ and $\beta = .20$. This means that the desired power is .8.

B. Measures

1. Demographic Questionnaire

The questionnaire included basic questions about age, gender, and nationality (See Appendix I).

2. *Childhood Maltreatment*

The Childhood Trauma Questionnaire short form (CTQ–SF: Bernstein et al., 2003) was used to measure maltreatment. The short form, consisting of 28 items, is a retrospective self-report on a history of child abuse and neglect. The measure provides scores for five subscales (physical abuse, sexual abuse, emotional abuse, physical neglect, and emotional neglect), total maltreatment, and level of severity. It also includes a minimization and denial scale for detecting underreporting of maltreatment experiences. The estimated completion time is five minutes. The measure has an acceptable overall internal consistency ($\alpha = .9$), as well as four of its five subscales: physical abuse ($\alpha = .69$), emotional abuse ($\alpha = .83$), emotional neglect ($\alpha = .85$), and sexual abuse ($\alpha = .94$). The alpha coefficient for physical neglect ($\alpha = .58$) is the lowest (Scher et al., 2001). The measure also has acceptable test-retest reliability (alpha ranging from .79 to .86 over four months), suggesting that results on the measure are not likely to be influenced by reporting biases associated with mood or psychological distress (Bernstein and Fink, 1998) (See Appendix II).

3. *Subcomponents of Empathy*

The Questionnaire of Cognitive and Affective Empathy (QCAE: Reniers et al., 2011) was used to measure empathy levels. The measure includes 31 non-contextual items that provide a cognitive empathy score (perspective-taking and online simulation subscales), an affective empathy score (emotion contagion, proximal responsivity, and peripheral responsivity subscales), and a total empathy score. The estimated completion time is five to ten minutes. The measure, administered online in an Italian community

sample, has acceptable internal consistency for the affective and cognitive subscales, and the total empathy score ($\alpha \geq .81$). The alpha coefficients range from .69 for peripheral responsiveness, and .84 for perspective taking (Di Girolamo et al., 2019). The measure, self-administered by Italian university students, has adequate internal consistency for the affective and cognitive subscales, and the total empathy score ($\alpha \geq .77$). The alpha coefficients range from .58 for proximal and peripheral responsiveness, to .87 for perspective taking (Di Girolamo et al., 2019). In a Portuguese sample (mean age = 27.5), the cognitive and affective subcomponents ($\alpha = .87$ and $.80$ respectively) had acceptable internal consistency (Queiros et al., 2018). Reniers and colleagues found similar results in English university and community samples (See Appendix III).

4. Attachment Security

The Attachment Style Questionnaire (ASQ; Feeney et al., 1994) was used to measure adult attachment. The measure consists of 40 items that correspond to five subscales: confidence, discomfort with closeness, need for approval, preoccupation with relationships, and relationships as secondary. It assesses dimensions of insecurity (anxiety and avoidance) based on views of the self and views of others (Ravitz et al., 2010). The estimated completion time is five to ten minutes. This measure has acceptable internal consistency (alpha ranging from .76 to .84 for the five subscales). It also has adequate test-retest reliability (alpha ranging from .67 to .78 over ten weeks). The reliability results are based on a sample of university students (Feeney et al., 1994) (See Appendix IV).

5. *Emotional Regulation*

The Emotional Regulation Questionnaire (ERQ; Gross and John, 2003) was used to measure emotional regulation. The measure consists of 10 items, and is designed to assess the use of two emotional regulation strategies: cognitive reappraisal and expressive suppression. The estimated completion time is less than five minutes. The measure has acceptable internal consistency in a university student sample in the United States of America: alpha ranging from .75 to .82 for cognitive reappraisal, and from .68 to .76 for expressive suppression (Gross and John, 2003). Melka and colleagues (2011) found similar results in a sample of undergraduate students in psychology classes at a university in the United States of America as well: alpha is .79 for the reappraisal subscale, and .73 for the suppression subscale (See Appendix V).

6. *Emotional Avoidance*

The Emotional Avoidance Strategy Inventory for Adolescents (EASI-A; Fairholme et al., 2008) was used to measure emotional avoidance. The measure consists of 17 items that correspond to three subscales: avoidance of thoughts and feelings, avoidance of emotion expression, and active avoidance coping or distraction. The estimated completion time is less than five minutes. The measure has acceptable internal consistency for the three subscales: avoidance of thoughts and feeling ($\alpha = .83$), avoidance of emotion expression ($\alpha = .78$), and distraction ($\alpha = .75$). The overall internal consistency of the measure is .86 in a United States sample of adolescents with a mean age of 14.73 (ages ranging from 11.39 to 19.62) (Kennedy and Ehrenreich-May, 2017) (See Appendix VI).

7. Attribution Biases

The Social Information Processing-Attribution and Emotional Response Questionnaire (SIP-AEQ: Coccaro et al., 2009) was used to measure hostile attribution biases. The measure also assesses for reactive aggression; however, the emotional response questions were excluded for the purpose of this study. The measure asks participants to specify their reactions to eight scenarios. Individuals in the scenarios have ambiguous intentions and their actions lead to negative consequences. The estimated completion time is five to ten minutes. Responses to the intention items were averaged together to create a measure of attribution of hostile intent with higher numbers indicating greater perceived hostile intentions. The measure has acceptable internal consistency ($\alpha = .83$) in a community sample with a mean age of 33.80 (ages ranging from 25 to 45) (Coccaro et al., 2009) (See Appendix VII).

CHAPTER IV

RESULTS

A. Data Analysis

Data analysis was conducted using R software for statistical computing (R Core Team, 2020). The data were examined for missing values, and descriptive statistics were computed for all variables. Descriptive measures are first presented for each scale (maltreatment and empathy) alongside the internal reliabilities of the scales. The relationship between maltreatment and empathy was examined (including the subcomponents of empathy) graphically using Pearson's correlation coefficient, r . The relationship between potential covariates were examined (emotional regulation, emotional avoidance, attachment security and attribution biases) and the subcomponents of empathy in the same way. Finally, a multiple regression model was run for maltreatment and with all the potential covariates identified in the preceding analyses. This model used Type III sums of squares to determine the contribution of each predictor to the overall model. Mediation analyses were not possible due to no evidence of mediational effects.

B. Missing Data

Ninety-six subjects participated in the study. Some entries, however, were not complete. There were missing data on multiple items or entire subscales. Cases with missing data were removed and only complete cases were used. The final sample size after removing the missing cases was 64 participants.

C. Participant Demographics

The sample size was 64 individuals. Participants' ages ranged between 18 and 25 years. The majority of the sample comprised of females (67.18%) and was Lebanese (79.6%).

Table 1: Descriptive statistics of demographic variables

Variable	N	%
Gender		
Female	43	67.18%
Male	20	31.25%
Other	1	1.56%
Nationality		
Lebanese	51	79.6%
Dual nationality	6	9.3%
Non-Lebanese	7	10.9%

Table 2: Descriptive statistics of the variable

Variable	Range	M	SD
Maltreatment	29-87	41.27	12.67
Emotional abuse	5-25	9.7	4.83
Physical abuse	5-25	7.1	3.55
Sexual abuse	5-25	6.14	3.62
Emotional neglect	7-23	12.34	3.6
Physical neglect	5-14	5.87	1.75
Empathy	38-117	62.73	17.92
Cognitive empathy	19-70	35.88	13.19
Affective empathy	17-47	26.86	7.13
Attachment security	105-187	146.4	18.22
Emotional regulation	24-141	53.95	27.42
Emotional avoidance	14-62	36.62	10.39
Attribution biases	27-67	47.53	7.6

1. Childhood Maltreatment

The maltreatment scale includes emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Table 2 gives summary statistics for the subscales of maltreatment. Figure 3 shows that the data were not normally distributed as most scores were towards the low end of the scoring range. This is especially evident for emotional, physical, and sexual abuse, as well as physical neglect.

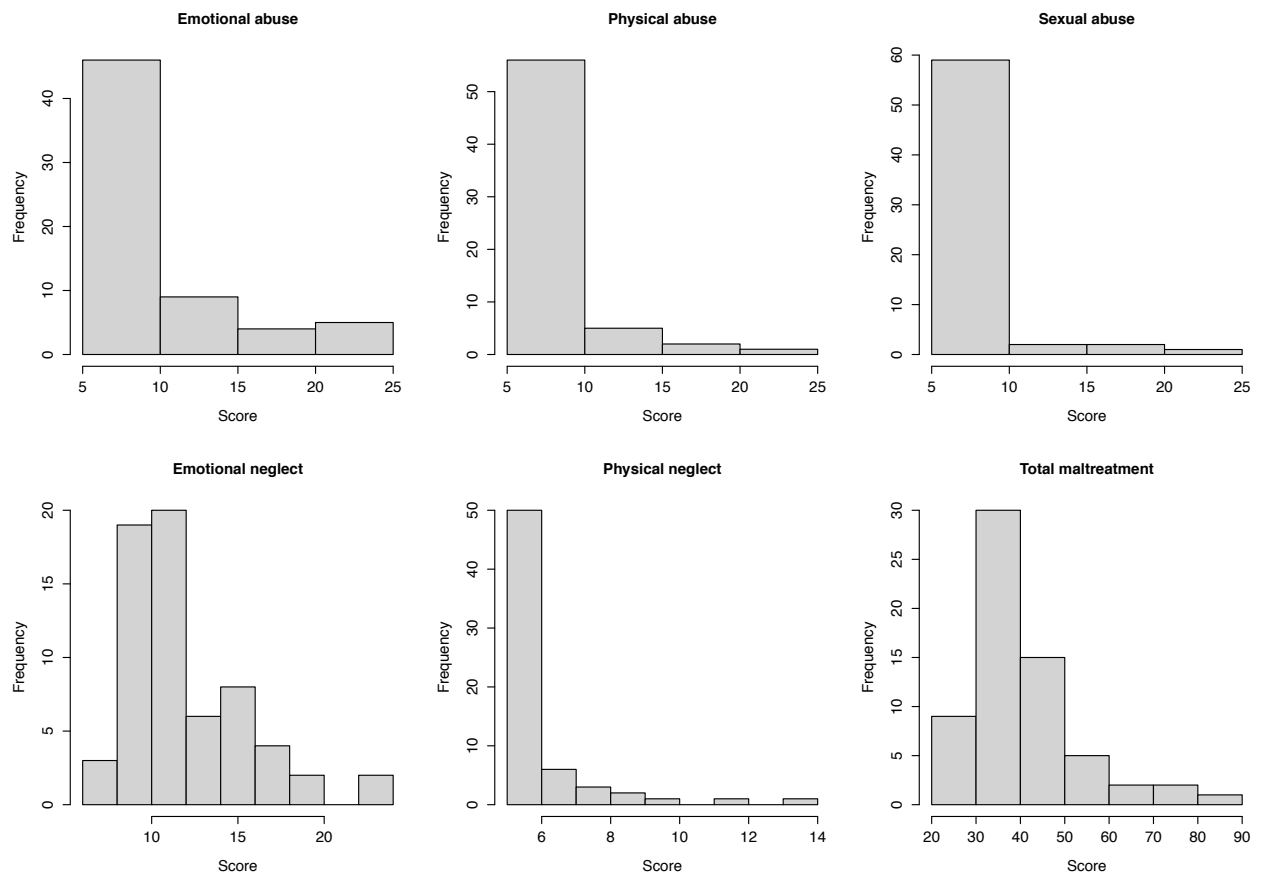


Figure 3: Histograms of the subscales of childhood maltreatment, and the total maltreatment

A correlation matrix and scatterplots of the subscales of the maltreatment measure are shown in Figure 4 and Appendix VIII, respectively. There were six significant positive correlations between the subscales: emotional abuse and physical

abuse ($r = .5, p < .001$), emotional abuse and emotional neglect ($r = .76, p < .001$), emotional abuse and physical neglect ($r = .44, p < .01$), physical abuse and emotional neglect ($r = .4, p < .001$), sexual abuse and emotional neglect ($r = .37, p < .01$), and emotional neglect and physical neglect ($r = .63, p < .001$). Cronbach's alpha for the maltreatment scale computed with the current sample was .74, indicating acceptable internal consistency.

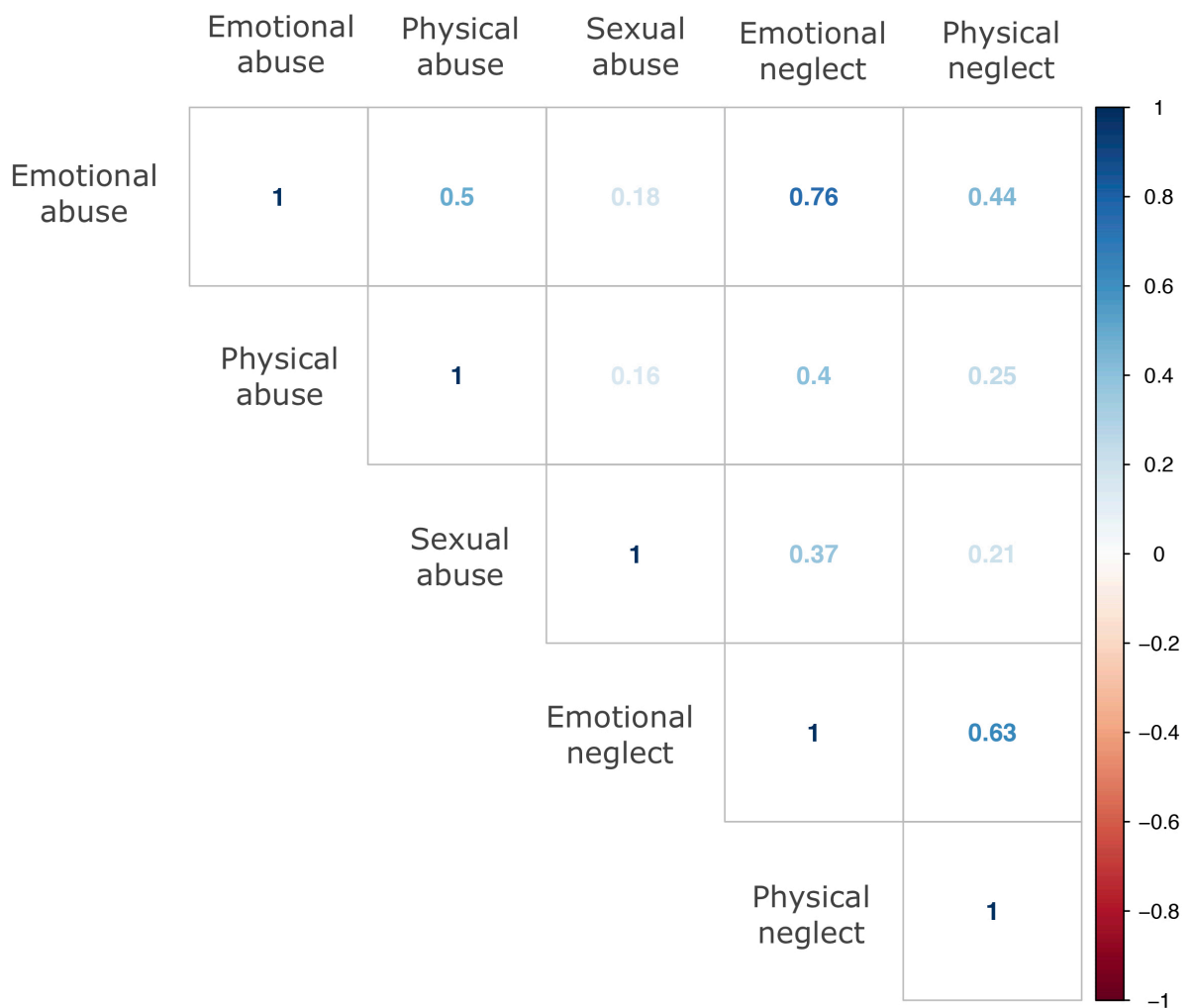


Figure 4: Correlation matrix of maltreatment subscales

2. Empathy

The empathy scale includes cognitive and affective subcomponents. The relation between the subcomponents is presented below in Figure 5. Cognitive and affective empathy were strongly correlated ($r = .51$, $t(62) = 4.65$, $p < 0.0001$), Cronbach's alpha for the empathy scale as measured with the current sample was 0.6, which indicates relatively low internal consistency.

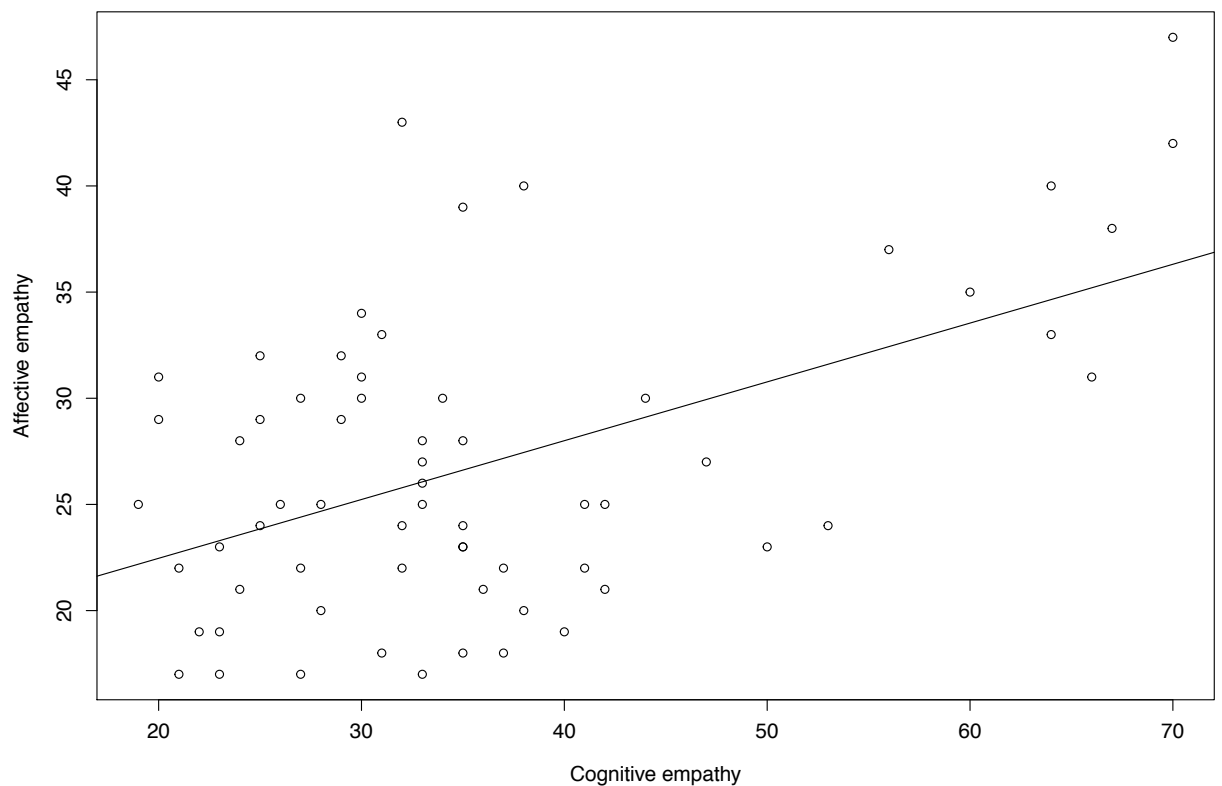


Figure 5: Relation between cognitive and affective empathy

D. Association Between Total Maltreatment and Empathy

Based on the literature, it was hypothesized that maltreatment is negatively correlated with each measure of empathy (hypothesis 1). Figure 6 shows scatterplots of total maltreatment against each measure of empathy. Maltreatment appears not to be correlated with either subscale or with total empathy. Pearson correlations were

computed separately between total maltreatment and each of cognitive empathy, affective empathy and total empathy. Consistent with Figure 6, none of the correlations were found to have a significant association (maltreatment & cognitive empathy: $r = .017$, $t(62) = .13$, $p = .88$; maltreatment & affective empathy: $r = -.06$, $t(62) = -.51$, $p = .61$; maltreatment & total empathy: $r = -.012$, $t(62) = .10$, $p = .91$). Therefore, hypothesis 1 was not supported by the results. There is no evidence for an association between maltreatment and the measures of empathy. This renders further analysis of the possible mediation effects unnecessary (hypothesis 2 and 3).

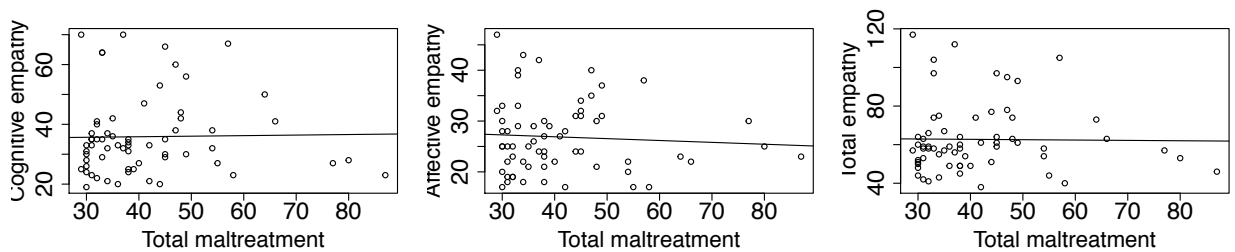


Figure 6: Scatterplot of the subcomponents of empathy and total empathy against total maltreatment

1. The Correlation Between Potential Covariates (Attachment Insecurity, Emotional Avoidance, Emotional Regulation) and Affective Empathy

The relationship between these variables is shown in the correlation matrix in Figure 7, and the scatterplot in Appendix IX. The results showed three significant correlations: affective empathy was negatively correlated with attachment insecurity ($r = -.52$, $p < .001$) and positively correlated with emotional regulation ($r = .58$, $p < .001$), and attachment insecurity was negatively associated with emotional regulation ($r = -.47$, $p < .001$). The correlation between affective empathy and emotional avoidance was not significant ($r = -.14$, $p = .27$).

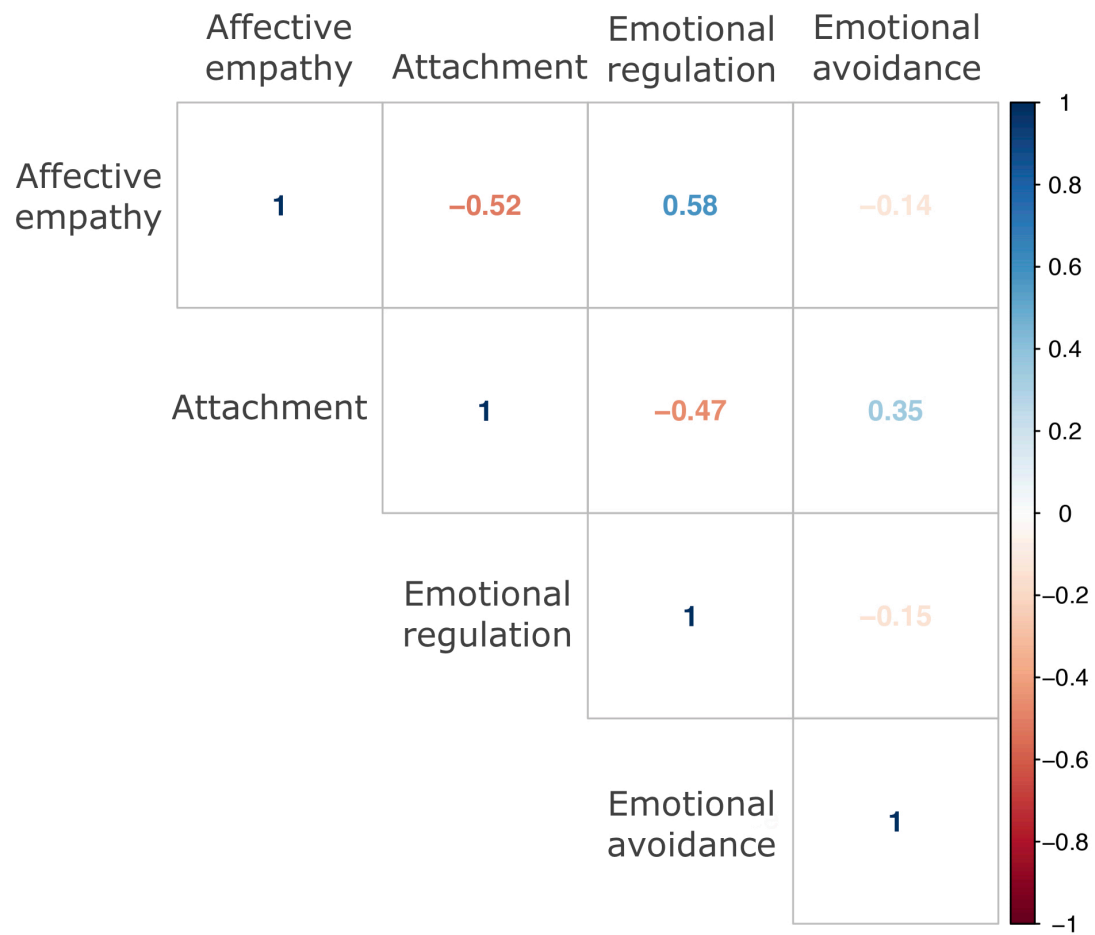


Figure 7: Association between emotional regulation, emotional avoidance and attachment security, and affective empathy

2. The Correlation Between Potential Covariates (Attachment Insecurity, Attribution Biases) and Cognitive Empathy

Figure 8 shows one significant positive correlation between attachment insecurity and attribution biases ($r = .33, p < .01$), this is also shown in the scatterplot in Appendix X. The correlation between cognitive empathy and attachment insecurity was not significant ($r = -.14, p = .27$), and neither was the correlation between cognitive empathy and attribution biases ($r = -.08, p = .54$). The results, therefore, do not show a relationship between these variables and cognitive empathy.

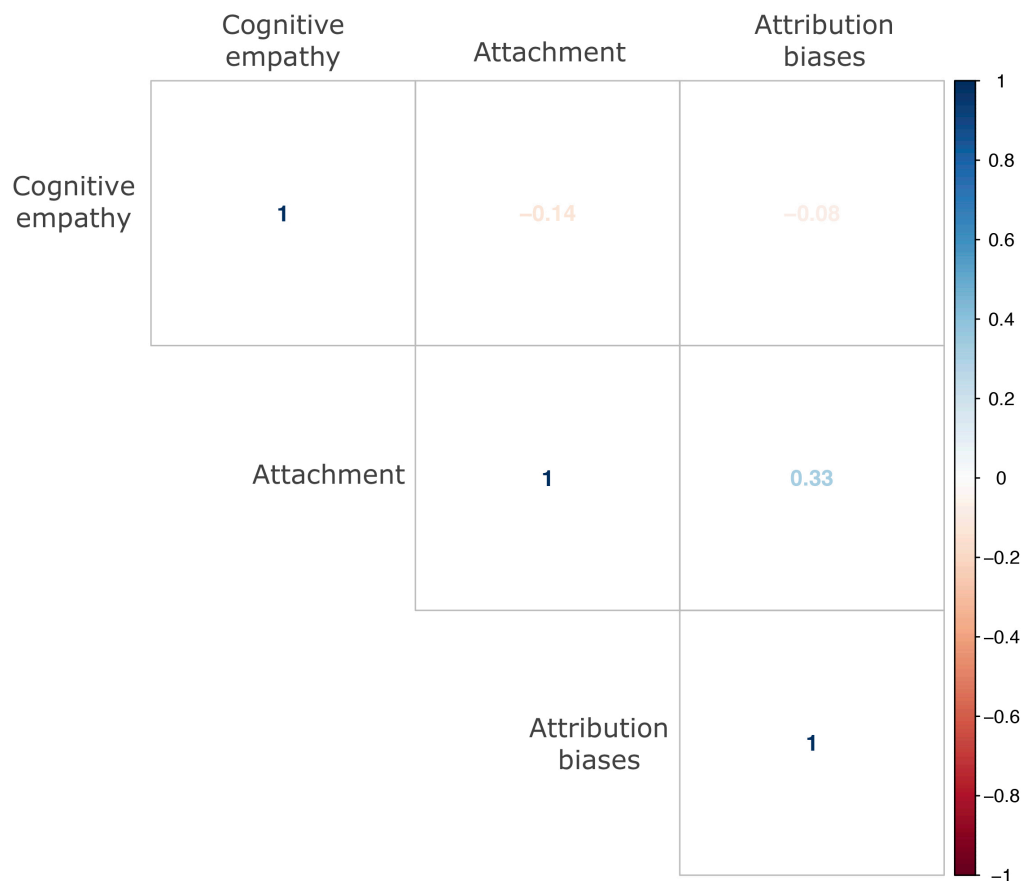


Figure 8: Association between attachment insecurity and attribution biases, and cognitive empathy

3. *The Effect of Maltreatment and Covariates (Attachment Insecurity, Emotional Avoidance, Emotional Regulation) and Affective Empathy*

The effect of maltreatment and the above-described potential covariates (attachment insecurity, emotional avoidance, and emotional regulation) on affective empathy was tested using a multiple regression. Table 3 shows Type III sums of squares and significance tests for each predictor in the model. The full regression model accounted for 37% of the variance in affective empathy ($F(5, 58) = 8.42, p < .001$, adjusted $R^2 = .37$). Only attachment ($F(1, 58) = 8.05, p = .0062$) and emotional regulation ($F(1, 58) = 14.45, p = .00034$) were significant predictors of affective empathy, whereas emotional avoidance ($F(1, 58) = .076, p = 0.78$) and maltreatment ($F(1, 58) = 0.31, p = 0.58$) were not.

Table 3: Type III sums of squares and significance tests for predictors in the full regression model

Variable	Df	Sum of Sq.	RSS	F-value	P-value
Attachment	1	257.91	2115.8	8.05	0.0062
Emotional regulation	1	463.16	2321.1	14.45	0.00034
Emotional avoidance	1	2.46	225.66	0.076	0.78
Maltreatment	1	9.79	225.91	0.3055	0.58

A reduced regression model without the non-significant predictors was conducted. This model, including only emotional regulation and attachment, accounted for 39.6% of the variance in affective empathy (i.e., the same proportion as with all four predictors), confirming that emotional avoidance and maltreatment did not predict

affective empathy. Table 4 shows Type III sums of squares and significance tests for each significant predictor in the reduced model.

Table 4: Type III sums of squares and significance tests for predictors in the reduced regression model

Variable	Df	Sum of Sq.	RSS	F-value	P-value
Attachment	1	250	2125	8.136	0.006
Emotional regulation	1	471.75	2347	15.347	0.00022

A Shapiro test was conducted on the residuals of the full and reduced models to assess whether the residuals were normally distributed. The test was not significant in either case (full model: $W = 0.97, p = 0.10$; reduced model: $W = 0.972, p = 0.15$), confirming that the residuals were normally distributed. Examination of the residuals of both models confirmed that the residuals were evenly spread about the fitted values, and that three cases had high residual error (i.e., were outliers). However, according to the Cook's distance criterion, none of these cases was influential.

4. The Effect of Maltreatment and Covariates (Attachment Insecurity, Attribution Biases) and Cognitive Empathy

In a similar procedure, attachment security, attribution biases and maltreatment were tested as predictors of cognitive empathy. Table 5 shows Type III sums of squares and significance tests for each predictor in the model. The full regression model accounted for less than 3% of the variance in cognitive empathy, and was not significant ($F(4, 59) = 0.38, p = 0.81, R^2 = -0.04$). Therefore, there were no significant associations between the suggested predictor variables and cognitive empathy.

Table 5

Table 5: Type III Sums of Squares and Significance Tests for Predictors in the Full Regression Model

Variable	Df	Sum of Sq.	RSS	F-value	P-value
Attachment	1	188.1	10689	1.03	0.31
Attribution biases	1	29.08	10718	0.16	0.69
Maltreatment	1	251.45	10741	0.28	0.59

A Shapiro test was conducted to assess whether the residuals of the above model were normally distributed. The test was significant ($w = .896, p < .001$), suggesting that the residuals were not normally distributed. Inspection of the residuals showed that a few points had relatively high residual error, but none had particularly high influence using Cook's distance as a measure. A regression computed on the data without the above outliers yielded the same results, and a Shapiro test of the residuals of the model without the outliers remained significant, suggesting that the absence of significant associations between the above variables was not due to a few outlying points.

E. Association Between Maltreatment Types and Empathy

Although total maltreatment was not found to be associated with each component of empathy, the five subscales of maltreatment were examined separately in relation to the total empathy score. Consistent with the total score results, no significant associations were found between empathy and each of the maltreatment subcomponents: emotional abuse ($t(62) = -0.9, p = 0.36$), physical abuse ($t(62) = -0.95, p = 0.34$), sexual abuse ($t(62) = 0.26, p = 0.79$), emotional neglect ($t(62) = 0.75, p = 0.45$), and physical neglect ($t(62) = 1.6, p = 0.11$).

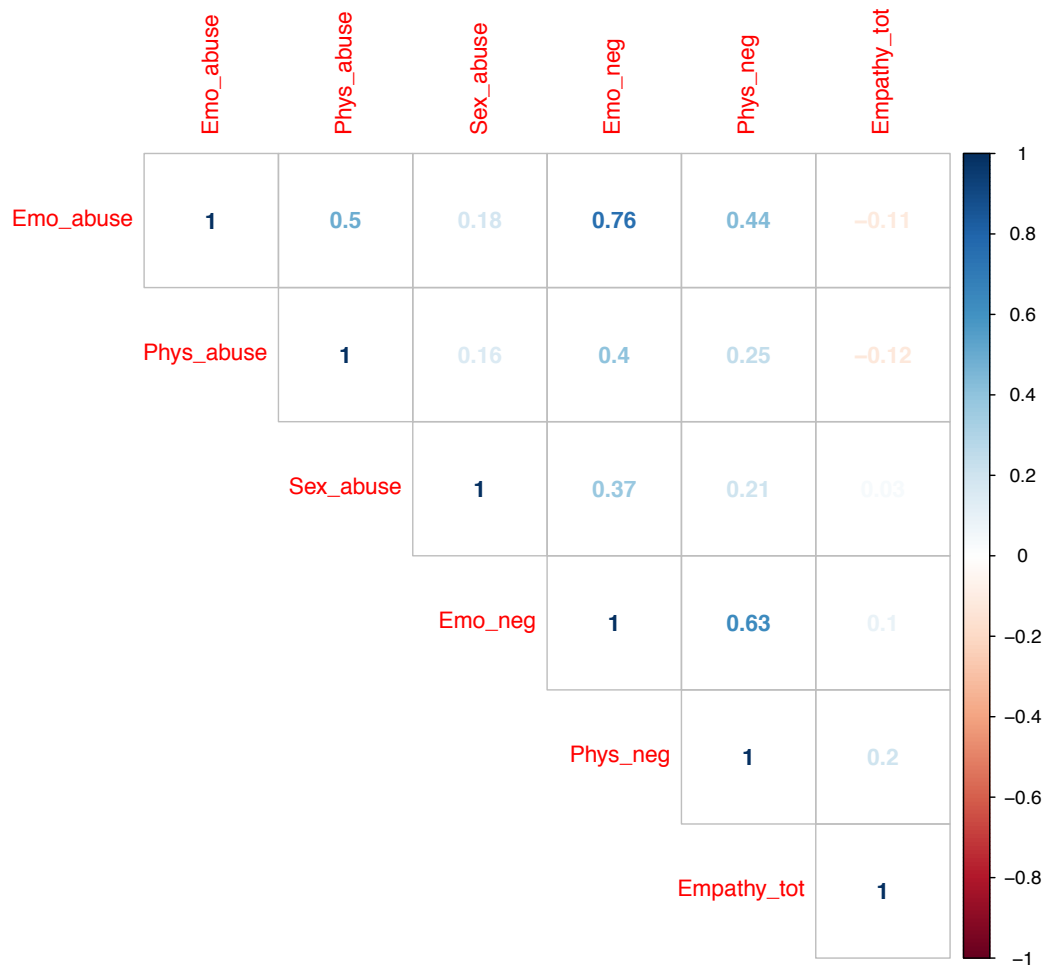


Figure 9: Association between the subcomponents of maltreatment and empathy

CHAPTER V

DISCUSSION

The aim of the study was to explore the role of childhood maltreatment on the subcomponents of empathy, cognitive and affective abilities. The study's secondary aim was to explore the potential mechanisms that influence this role. The findings of this study do not support an association between maltreatment and empathy, nor between cognitive empathy and attachment insecurity or attribution biases. However, an association was found between affective empathy and attachment and emotional regulation.

Eres et al. (2015) conceptualized empathy as a multidimensional construct with individual differences in its subcomponents related to differences in brain anatomy. This indicates that cognitive and affective empathic abilities are based on separate physiological mechanisms. Findings of this study showed that cognitive and affective empathy subscales were strongly correlated. Nonetheless, neither subscale nor the total empathy score were correlated with levels of childhood maltreatment. These results are inconsistent with previous research that has found a *negative* association between childhood maltreatment and empathic abilities (Locher et al., 2014). Greenberg et al. (2018) found a positive association, but a correlation nonetheless. The authors, however, attributed their findings to the variable of personal distress that may have led to the misinterpretation of subjects' emotional state as a feeling of empathy when in fact it may be a form of recollection of personal experiences. It may be argued that future studies should consider including measures of personal distress when measuring empathy levels as it may lead to misinterpretation or the promotion of empathy towards other.

Other explanations for the null findings may also relate to the community sample we drew from, with low levels of maltreatment. This may have contributed to limited sensitivity in picking up on a possible association. Although severe maltreatment was low in our sample, we did find associations between subscales of maltreatment, indicating a high level of co-occurring abuse. This is in line with previous findings and observations that show multiple forms of abuse and neglect often co-occurring. For instance, emotional abuse and neglect were mostly found to accompany other forms of maltreatment (Naughton et al., 2013).

Another point to consider is that in Greenberg's study, participants rated the severity of their maltreatment experience based on its perceived impact. Locher et al. (2014) considered the frequency of maltreatment occurrences as an indication of severity, which is similar to the measure of childhood maltreatment used in the current study. This suggests a differentiation between the intensity and frequency of maltreatment incidents and the *extent* to which these incidents cause severe negative outcomes for the maltreated individual, thus indicating a role for unaccounted for protective factors.

On another note, the state of the study sample at the time of participation is worth highlighting as the country had just gone into strict lockdown due to the COVID-19 pandemic, which was preceded by the economic collapse and the October Revolution. Our null findings may, therefore, reflect stress and difficulties in coping with a rapidly changing environment making our measures less sensitive to picking up on low levels of empathy and maltreatment. In relation to mediators, emotional regulation (Eisenberg, 2000; Bandura et al., 2003), emotional avoidance, and insecure attachment (Britton and Fuendeling, 2005) were indicated in the literature as factors that

may explain low levels of empathy in maltreated individuals, specifically for affective abilities (Locher et al., 2014). Similar findings appeared in this study, with affective empathy negatively correlated with attachment insecurity, and positively correlated with emotional regulation. As expected, attachment insecurity was also negatively associated with emotional regulation. This is in line with the attachment theory that explains how maltreatment affects internal working models of the self and the world, thus impeding socio-emotional development (Bowlby, 1969). A correlation, however, was not found between emotional avoidance and affective empathy in the current study. Although, to our knowledge, emotional avoidance has not been previously examined in relation to empathy, Locher and colleagues (2014) proposed it as one of the mechanisms that may explain the relationship between maltreatment and empathy. This is the reason why it was examined in the current study, in addition to its relation to coping mechanisms and resilience. Individuals affected by traumatic experiences are more likely to display maladaptive coping strategies, such as emotional disengagement and avoidance (Gruhn and Compas, 2020). Considering that this study's sample had low levels of maltreatment, it is expected that emotional avoidance would also be low, which may explain the absence of an association.

For cognitive empathy, results show no association with attachment insecurity or attribution biases. This also does not align with research findings showing an association between misinterpreting the intentions of others and low empathy levels (Slavny and Moore, 2018). Attribution bias is defined as the tendency to interpret others' intentions, in ambiguous social situations, in an inaccurate or hostile manner (Hiemstra et al., 2018). Since the exposure to threatening experiences disrupts child development and leads to psychobiological sensitization in response to chronic stress, it

is expected that the low levels of maltreatment detected in this sample may have affected the lack of association here as well. In other words, the limited impact of low maltreatment levels may not lead to interpreting intentions as purposely harmful or hostile. The lack of an association between cognitive empathy and attachment security is an interesting finding though, especially that the latter was associated with affective empathy. Britton and Fuendeling (2005) found similar results with insecure attachment particularly linked to affective empathy.

A. Strengths and Limitations

Some limitations to the study methodology may have contributed to these results. For example, the sample size used for the statistical analysis was sixty-four students; despite having ninety-six students participate in the study. The sample size was reduced after removing participants with missing data. In addition, the distribution of maltreatment scores for this sample was skewed towards low scores indicating a low level of childhood maltreatment in the sample. Past research has shown an effect of the *severity* of maltreatment occurrences on empathy levels (Locher et al, 2014), and a dose effect for the severity of maltreatment on decreased emotional regulation (Gruhn and Compass, 2020). Therefore, the lack of severe maltreatment levels reported by participants in this study may explain the lack of an association. In other words, it is expected that at low to medium risk, the consequences of maltreatment on emotional and cognitive abilities may not be as pronounced as with high levels of abuse and neglect. This study may also be replicated with a clinical sample.

Another limitation may be in the use of self-report measures for all variables. This is especially an issue for maltreatment and empathic abilities as inaccurate

reporting is expected, due to social desirability for instance. Similarly, Locher and colleagues (2014) observed a discrepancy in the empathy levels reported by maltreated individuals on a self-rating scale and their results on a qualitative measure. Referring back to the multidimensional definitions of the construct of empathy, Cuff et al., (2016), suggested that empathy may be dependent upon the interaction between trait capacities and state influences. In other words, assessing empathy using a self-report measure with abstract examples may not lead to the same results as when situation-specific examples or salient emotional stimuli are used (Shaver et al., 2016). This means that testing subjects' empathic abilities in relation to others' experiences of abuse may lead to different results than when testing them in relation to daily life occurrences. Finally, as discussed before, personal distress in relation to relevant emotional stimuli warrants consideration as a factor that may bias conclusions about empathic abilities.

To our knowledge, this is the only study that aimed to examine mediation variables in the association between maltreatment and empathy, an association that has also not been widely tested in previous research. The devastating impact of childhood maltreatment on the development of children, and their adaptation as adults, indicates that understanding the effects of experiences of abuse and neglect on adaptive skills warrants continuous investigation. The main strength of this study is that it built on existing findings in the literature and attempted to expand the scope by examining hypothesized mediators.

B. Implications, Conclusions, and Future Research

In terms of implications, results in this study confirm findings in the literature showing a link between attachment security, emotional regulation and empathic

abilities. Further research is needed on the maltreatment-empathy link, with attention to possible mediator variables. The study of mediators is expected to facilitate interventions that prevent or mitigate the impact of such childhood experiences especially for young adults on adaptive skills.

Empathy is a multidimensional construct that cannot be brought down to whether you feel bad for someone or not. It is considered a combination or interplay of different traits, factors and variables. Having an empathic reaction to another's experience involves emotional, cognitive and behavioral components, as well as the understanding of that experience, and whether or not personal recollections of a similar experience interfere in this reaction. The question, then, becomes whether or not measuring empathy without a specific context or in relation to specific events results in similar findings. In the case of a childhood maltreatment-empathy association, stimuli would be related to forms of abuse and neglect from caregivers.

The research question in this study originated from the notion of maltreatment cycles, with impaired empathy as one mechanism by which trans-generational cycles of maltreatment may perpetuate. It is important to note here that the purpose of examining empathy is not merely to check for an emotional or cognitive reaction. Having an empathic reaction towards someone may direct behavior. In other words, a person may feel the urge to intervene with the other person's negative experience and not inflict further harm. It may be hypothesized that looking into situation-specific empathic abilities using relatable and salient stimuli is a better way to address this idea. Different severity levels of maltreatment and forms of abuse and neglect should also be considered. For example, will a subject with a predominant history of physical abuse empathize more with a picture or a visual recording of a child being neglected or a child

being physically harmed? Or will this subject's emotional reaction to the stimulus be a result of empathy and emotional resonance or personal distress due to reliving past experiences? These questions need to be taken into consideration in future research.

In relation to this study, the effect of attachment security and emotional regulation on affective empathic abilities may be further investigated in the context of intervention programs that attempt to promote empathic abilities in adults, such as the Roots of Empathy Program (Rolheiser and Wallace, 2005). Understanding the effect of attachment security and emotional regulation on the development of empathy may inform these interventions and address the effects of early life adversity in order to improve social and emotional functioning in future generations. Ultimately, this may have an impact on trans-generational cycles of maltreatment.

APPENDIX I
Demographic Questions

1	How old are you?	— Below 18; — 18 to 25; — 25 to 29; — 30 to 39; — above 40
2	What is your gender?	— Female; — Male; — Other
3	What is your nationality	— Lebanese; — Other, please specify _____

APPENDIX II

Childhood Trauma Questionnaire Short Form – CTQ

The following statements describe experiences you may have had growing up as a child and as a teenager. Read each statement carefully and choose the answer that best describes how you feel. Although some of these questions are of a personal nature, try to answer quickly and honestly. Your answers will be kept confidential.

1 = Never True 2 = Rarely True 3 = Sometimes True 4 = Often True 5 = Very Often True

When I was growing up,

1	I didn't have enough to eat.	1	2	3	4	5
2	I knew that there was someone to take care of me and protect me.	1	2	3	4	5
3	People in my family called me stupid, lazy or ugly.	1	2	3	4	5
4	My parents were too drunk or high to take care of the family.	1	2	3	4	5
5	There was someone in the family who helped me feel important or special.	1	2	3	4	5

1 = Never True 2 = Rarely True 3 = Sometimes True 4 = Often True 5 = Very Often True

When I was growing up,

6	I had to wear dirty clothes.	1	2	3	4	5
7	I felt loved.	1	2	3	4	5
8	I thought that my parents wished I had never been born.	1	2	3	4	5
9	I was hit so hard by someone in my family that I had to see a doctor or go to the hospital.	1	2	3	4	5
10	There was nothing I wanted to change about my family.	1	2	3	4	5

1 = Never True 2 = Rarely True 3 = Sometimes True 4 = Often True 5 = Very Often True

When I was growing up,

11	People in my family hit me so hard that it left me with bruises or marks.	1	2	3	4	5
12	I was punished with a belt, a board, a cord, or some other hard object.	1	2	3	4	5
13	People in my family looked out for each other.	1	2	3	4	5
14	People in my family said hurtful or insulting things to me.	1	2	3	4	5
15	I believe that I was physically abused.	1	2	3	4	5

1 = Never True 2 = Rarely True 3 = Sometimes True 4 = Often True 5 = Very Often True

When I was growing up,

16	I had the perfect childhood.	1	2	3	4	5
17	I was hit so badly that someone like a teacher, neighbor, or doctor noticed it.	1	2	3	4	5
18	Someone in my family hated me.	1	2	3	4	5
19	People in my family felt close to each other.	1	2	3	4	5
20	Someone tried to touch me in a sexual way or tried to make me touch them.	1	2	3	4	5

1 = Never True 2 = Rarely True 3 = Sometimes True 4 = Often True 5 = Very Often True

When I was growing up,

21	Someone threatened to hurt me or tell lies about me unless I did something sexual with them.	1	2	3	4	5
22	I had the best family in the world.	1	2	3	4	5
23	Someone tried to make me do sexual things or watch sexual things.	1	2	3	4	5
24	Someone molested me – took advantage of me sexually.	1	2	3	4	5
25	I believe that I was emotionally abused.	1	2	3	4	5

1 = Never True 2 = Rarely True 3 = Sometimes True 4 = Often True 5 = Very Often True

When I was growing up,

26	There was someone to take me to the doctor if I needed it.	1	2	3	4	5
27	I believe that I was sexually abused.	1	2	3	4	5
28	My family was a source of strength and support.	1	2	3	4	5

APPENDIX III

Questionnaire of Cognitive and Affective Empathy – QCAE

People differ in the way they feel in different situations. Below, you are presented with a number of characteristics that may or may not apply to you. Read each characteristic and indicate how much you agree or disagree with the item by ticking the appropriate box. Answer quickly and honestly. Your answers will be kept confidential.

4 = Strongly Agree 3 = Slightly Agree 2 = Slightly Disagree 1 = Strongly Disagree

1	I sometimes find it difficult to see things from the 'other guys' point of view.	4	3	2	1
2	I am usually objective when I watch a film or play, and I don't often get completely caught up in it.	4	3	2	1
3	I try to look at everybody's side of a disagreement before I make a decision.	4	3	2	1
4	I sometimes try to understand my friends better by imagining how things look from their perspective.	4	3	2	1
5	When I am upset at someone, I usually try to 'put myself in his shoes' for a while.	4	3	2	1
6	Before criticizing somebody, I try to imagine how I would feel if I was in their place.	4	3	2	1
7	I often get emotionally involved with my friends' problems.	4	3	2	1
8	I am inclined to get nervous when others around me seem to be nervous.	4	3	2	1
9	People I am with have a strong influence on my mood.	4	3	2	1
10	It affects me very much when one of my friends seems upset.	4	3	2	1
11	I often get deeply involved with the feelings of a character in a film, play or novel.	4	3	2	1
12	I get very upset when I see someone cry.	4	3	2	1
13	I am happy when I am with a cheerful group and sad when the others are glum.	4	3	2	1
14	It worries me when others are worrying and panicky.	4	3	2	1
15	I can easily tell if someone else wants to enter a conversation.	4	3	2	1
16	I can pick up quickly if someone says one thing but means another.	4	3	2	1
17	It is hard for me to see why some things upset people so much.	4	3	2	1
18	I find it easy to put myself in somebody else's shoes.	4	3	2	1
19	I am good at predicting how someone will feel.	4	3	2	1
20	I am quick to spot when someone in a group is feeling awkward or uncomfortable.	4	3	2	1
21	Other people tell me I am good at understanding how they are feeling and what they are thinking.	4	3	2	1
22	I can easily tell if someone else is interested or bored with what I am saying.	4	3	2	1

4 = Strongly Agree 3 = Slightly Agree 2 = Slightly Disagree 1 = Strongly Disagree

23	Friends talk to me about their problems as they say that I am very understanding.	4	3	2	1
24	I can sense if I am intruding, even if the other person does not tell me.	4	3	2	1
25	I can easily work out what another person might want to talk about.	4	3	2	1
26	I can tell if someone is masking their true emotion.	4	3	2	1
27	I am good at predicting what someone will do.	4	3	2	1
28	I can usually appreciate the other person's viewpoint, even if I do not agree with it.	4	3	2	1
29	I usually stay emotionally detached when watching a film.	4	3	2	1
30	I always try to consider the other fellow's feelings before I do something.	4	3	2	1
31	Before I do something I try to consider how my friends will react to it.	4	3	2	1

APPENDIX IV

The Attachment Style Questionnaire – ASQ

Please rate the extent to which you believe each of the following statements describes your feelings about close relationships.

1 = Totally disagree 2 = Strongly disagree 3 = Slightly disagree 4 = Slightly agree
5 = Strongly agree 6 = Totally agree

1	Overall, I am a worthwhile person.	1	2	3	4	5	6
2	I am easier to get to know than most people.	1	2	3	4	5	6
3	I feel confident that other people will be there for me when I need them.	1	2	3	4	5	6
4	I prefer to depend on myself rather than other people.	1	2	3	4	5	6
5	I prefer to keep to myself.	1	2	3	4	5	6
6	To ask for help is to admit that you are a failure.	1	2	3	4	5	6
7	People's worth should be judged by what they achieve.	1	2	3	4	5	6
8	Achieving things is more important than building relationships.	1	2	3	4	5	6
9	Doing your best is more important than getting along with others.	1	2	3	4	5	6
10	If you've got a job to do, you should do it no matter who gets hurt.	1	2	3	4	5	6
11	It is important that others like me.	1	2	3	4	5	6
12	It's important to me to avoid doing things that others won't like.	1	2	3	4	5	6
13	I find it hard to make a decision unless I know what other people think.	1	2	3	4	5	6
14	My relationships with others are generally superficial.	1	2	3	4	5	6
15	Sometimes I think I am no good at all.	1	2	3	4	5	6
16	I find it hard to trust other people.	1	2	3	4	5	6
17	I find it difficult to depend on others.	1	2	3	4	5	6
18	I find that others are reluctant to get as close to me as I would like them to.	1	2	3	4	5	6
19	I find it relatively easy to get close to other people.	1	2	3	4	5	6
20	I find it easy to trust others.	1	2	3	4	5	6
21	I feel comfortable depending on other people.	1	2	3	4	5	6
22	I worry that others won't care about me as much as I care about them.	1	2	3	4	5	6
23	I worry about people getting too close.	1	2	3	4	5	6
24	I worry that I won't measure up to other people.	1	2	3	4	5	6
25	I have mixed feelings about being close to others.	1	2	3	4	5	6
26	While I want to get close to others, I feel uneasy about it.	1	2	3	4	5	6
27	I wonder why people would want to be involved with me.	1	2	3	4	5	6
28	It's very important to me to have a close relationship.	1	2	3	4	5	6

1 = Totally disagree 2 = Strongly disagree 3 = Slightly disagree 4 = Slightly agree
 5 = Strongly agree 6 = Totally agree

29	I worry a lot about my relationships.	1	2	3	4	5	6
30	I wonder how I would cope without someone to love me.	1	2	3	4	5	6
31	I feel confident about relating to others.	1	2	3	4	5	6
32	I often feel left out or alone.	1	2	3	4	5	6
33	I often worry that I do not really fit in with other people.	1	2	3	4	5	6
34	Other people have their own problems, so I don't bother them with mine.	1	2	3	4	5	6
35	When I talk over my problems with others, I generally feel ashamed or foolish.	1	2	3	4	5	6
36	I am too busy with other activities to put much time into relationships.	1	2	3	4	5	6
37	If something is bothering me, others are generally aware and concerned.	1	2	3	4	5	6
38	I am confident that other people will like and respect me.	1	2	3	4	5	6
39	I get frustrated when others are not available when I need them.	1	2	3	4	5	6
40	Other people often disappoint me.	1	2	3	4	5	6

APPENDIX V

Emotion Regulation Questionnaire – ERQ

Following are questions about your emotional life, in particular, how you control your emotions. Although some of the questions may seem similar to one another, they differ in important ways. Please indicate to what degree you agree with each of the following statements.

1 = Strongly disagree 2 = Mostly disagree 3 = Somewhat disagree 4 = Neither agree nor disagree
5 = Somewhat agree 6 = Mostly agree 7 = Strongly agree

1	When I want to feel more positive emotion (such as joy or amusement), I change what I am thinking about.	1	2	3	4	5	6	7
2	I keep my emotions to myself.	1	2	3	4	5	6	7
3	When I want to feel less negative emotion (such as sadness or anger), I change what I am thinking about.	1	2	3	4	5	6	7
4	When I am feeling positive emotions, I am careful not to express them.	1	2	3	4	5	6	7
5	When I am faced with a stressful situation, I make myself think about it in a way that helps me stay calm.	1	2	3	4	5	6	7
6	I control my emotions by not expressing them.	1	2	3	4	5	6	7
7	When I want to feel more positive emotion, I change the way I am thinking about the situation.	1	2	3	4	5	6	7
8	I control my emotions by changing the way I think about the situation I am in.	1	2	3	4	5	6	7
9	When I am feeling negative emotions, I make sure not to express them.	1	2	3	4	5	6	7
10	When I want to feel less negative emotion, I change the way I am thinking about the situation.	1	2	3	4	5	6	7

APPENDIX VI

Emotion Avoidance Strategy Inventory for Adolescents – EASI-A

Please indicate the degree to which you feel that each of the following statements is characteristic of you.

0 = Not at all true of me 1 = A little true of me 2 = Somewhat true of me 3 = Very true of me
4 = Extremely true of me

1	I try to avoid situations that might make me have unpleasant thoughts and feelings.	0	1	2	3	4
2	I do whatever I can to avoid feeling sad or worried or afraid.	0	1	2	3	4
3	I will "lose it" if I don't distract myself from my feelings.	0	1	2	3	4
4	If I begin to feel upset, I try to do something else to take my mind off of it.	0	1	2	3	4
5	I try to avoid uncomfortable situations.	0	1	2	3	4
6	When I have thoughts and feelings I don't like, I try not to think about them.	0	1	2	3	4
7	Even if people ask what's bothering me, I pretend nothing's wrong.	0	1	2	3	4
8	I try hard to forget about the things that make me worried or upset.	0	1	2	3	4
9	To avoid having to make hard decisions, I stay away from hard or stressful situations.	0	1	2	3	4
10	I try not to seem sad even when I feel that way.	0	1	2	3	4
11	When things do not go as well as I hoped, I try not to show that I am upset or sad about it.	0	1	2	3	4
12	I have a hard time showing my true feelings.	0	1	2	3	4
13	I try hard to calm myself down when I start getting angry.	0	1	2	3	4
14	Staying busy helps me avoid upsetting thoughts or ideas.	0	1	2	3	4
15	I prefer to keep conversations happy or light.	0	1	2	3	4
16	No matter how nervous or upset I am, I try to seem calm.	0	1	2	3	4
17	I have a hard time telling others how much they mean to me.	0	1	2	3	4

APPENDIX VII

Social Information Processing-Attribution Questionnaire – SIP-AQ

Please read these short stories about relationships with other people and answer all questions asked about the story as honestly as possible.

STORY 1

You tell a friend something personal and ask your friend not to discuss it with anyone else. However, a couple of weeks later, you find out that a lot of people know about it. You ask your friend why they told other people and your friend says: *“Well, I don’t know, it just came up and I didn’t think it was a big deal.”*

Why do you think your friend shared your secret when you told them not to share it with anyone?

Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	My friend wanted to expose my secret.	0	1	2	3
2	My friend wanted to impress other people with their secret knowledge about me.	0	1	2	3
3	My friend forgot that this was an important secret for me.	0	1	2	3
4	My friend wanted me to feel stupid for asking to keep my secret.	0	1	2	3

STORY 2

Imagine that you are in a karate class competition and you have to demonstrate your abilities to your instructor. You are matched up to “fight” with someone in the class who you do not know well. While you are being evaluated, your karate classmate hits you in a way other than the way you were taught and you are hurt.

Why do you think your classmate hit you in a way other than the way you were taught?

Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	My Karate classmate wanted to physically hurt me.	0	1	2	3
2	My Karate classmate wanted to win the match.	0	1	2	3
3	My Karate classmate did it by accident.	0	1	2	3
4	My Karate classmate wanted me to look “bad”.	0	1	2	3

STORY 3

Early one morning (at “rush hour”) you go to a busy local coffee shop to get a cup of coffee. While you are waiting, someone you see at the coffee shop regularly, but do not know personally, cuts in the line in front of you.

Why do you think this person cut in line in front of you?

Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	The person wanted to make me wait longer for my coffee.	0	1	2	3
2	This person was in a hurry to get to work.	0	1	2	3
3	This person didn’t realize that he (or she) cut in front of me.	0	1	2	3

4	This person wanted to make me feel unimportant.	0	1	2	3
---	---	---	---	---	---

STORY 4

Imagine that you and a group of your coworkers went on a business trip. While at the hotel, waiting to meet a customer, you stop to buy a cup of coffee. Suddenly, one of your coworkers bumps your arm and spills your coffee over your shirt. The coffee is hot and your shirt is wet.

Why do you think your coworker bumped your arm making you spill your coffee?

Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	My coworker wanted to burn me with hot coffee.	0	1	2	3
2	My coworker was focused on the meeting.	0	1	2	3
3	My coworker did it by accident.	0	1	2	3
4	My coworker wanted to make me look “bad” to the customer.	0	1	2	3

STORY 5

You make plans with one of your friends to go on a short trip for the weekend. You’re very excited about these plans and have been looking forward to the trip. However, at the last minute, your friend says that they no longer want to go on the trip, and have made plans with another friend for the weekend.

Why do you think your friend said they no longer wanted to go on the trip?

Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	My friend doesn’t want to be with me.	0	1	2	3
2	My friend wanted to do something else.	0	1	2	3
3	My friend forgot about the plans we made.	0	1	2	3
4	My friend wanted me to feel unimportant.	0	1	2	3

STORY 6

One day at work you decide to go to the cafeteria for lunch. After you purchase your lunch, you notice that the seating area is very crowded and no empty tables are available. You notice one of your coworkers sitting alone at a small table, and ask if you can join them for lunch. Your coworker says “no”.

Why do you think your coworker said no?

Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	My coworker wanted to exclude me.	0	1	2	3
2	My coworker wanted to be alone at that time.	0	1	2	3
3	My coworker was “lost in thought” and didn’t realize I had asked to join them.	0	1	2	3
4	My coworker wanted me to feel bad.	0	1	2	3

STORY 7

Imagine that you go to the first meeting of a club you want to join. You would like to make friends with the other people in the club. You walk up to some of the other club members and say “hi”, but they don’t say anything back.

Why do you think the club members didn't say anything back to you?

Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	The club members wanted to ignore me.	0	1	2	3
2	The club members were more interested in talking among themselves.	0	1	2	3
3	The club members didn't hear me say "hi".	0	1	2	3
4	The club members wanted me to feel unimportant.	0	1	2	3

STORY 8

You are driving in to work one day and just after you pull into a parking space, another car pulls up into the space to your right. As the person in the other car, a coworker, gets out of his/her car, their car door hits your passenger side door, and leaves a scratch on your car. The person walks away as you get out of your car.

Why do you think this person acted this way?

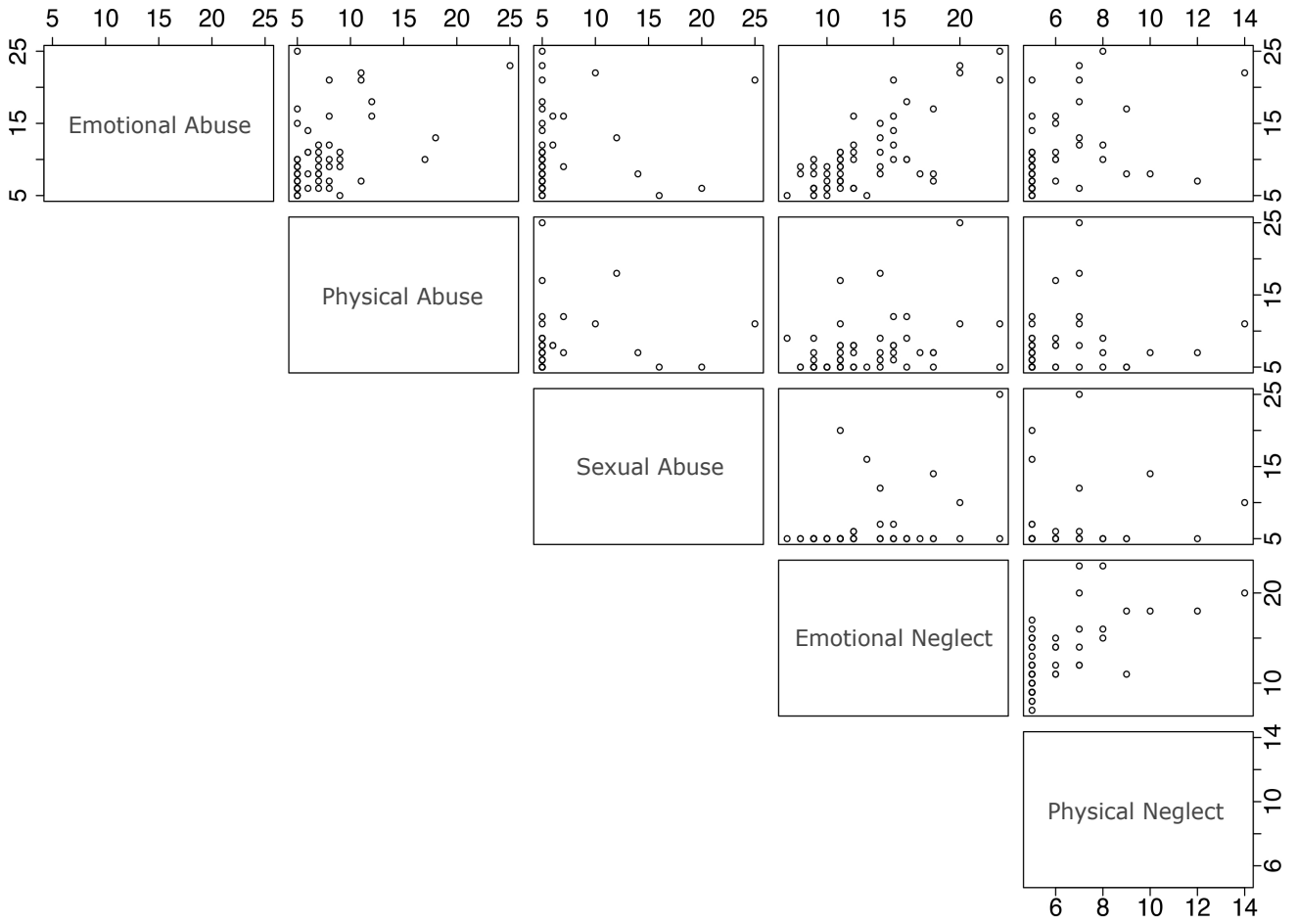
Rate the likelihood of each of the following statements:

0 = Not at all likely 1 = Unlikely 2 = Likely 3 = Very Likely

1	This person wanted to damage my car.	0	1	2	3
2	This person was in a hurry to get to work.	0	1	2	3
3	This person scratched my car by accident and didn't notice.	0	1	2	3
4	This person wanted me to feel unimportant.	0	1	2	3

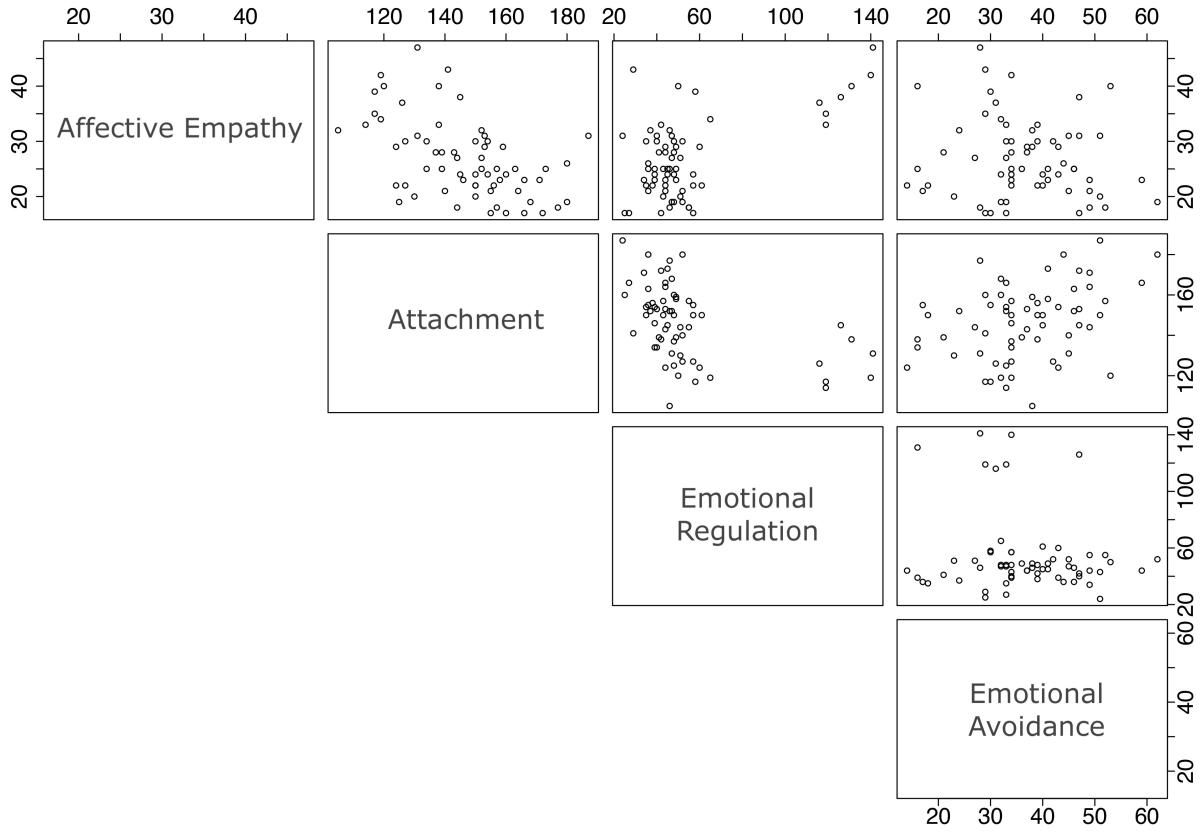
APPENDIX VIII

Scatterplots of Maltreatment Subscales



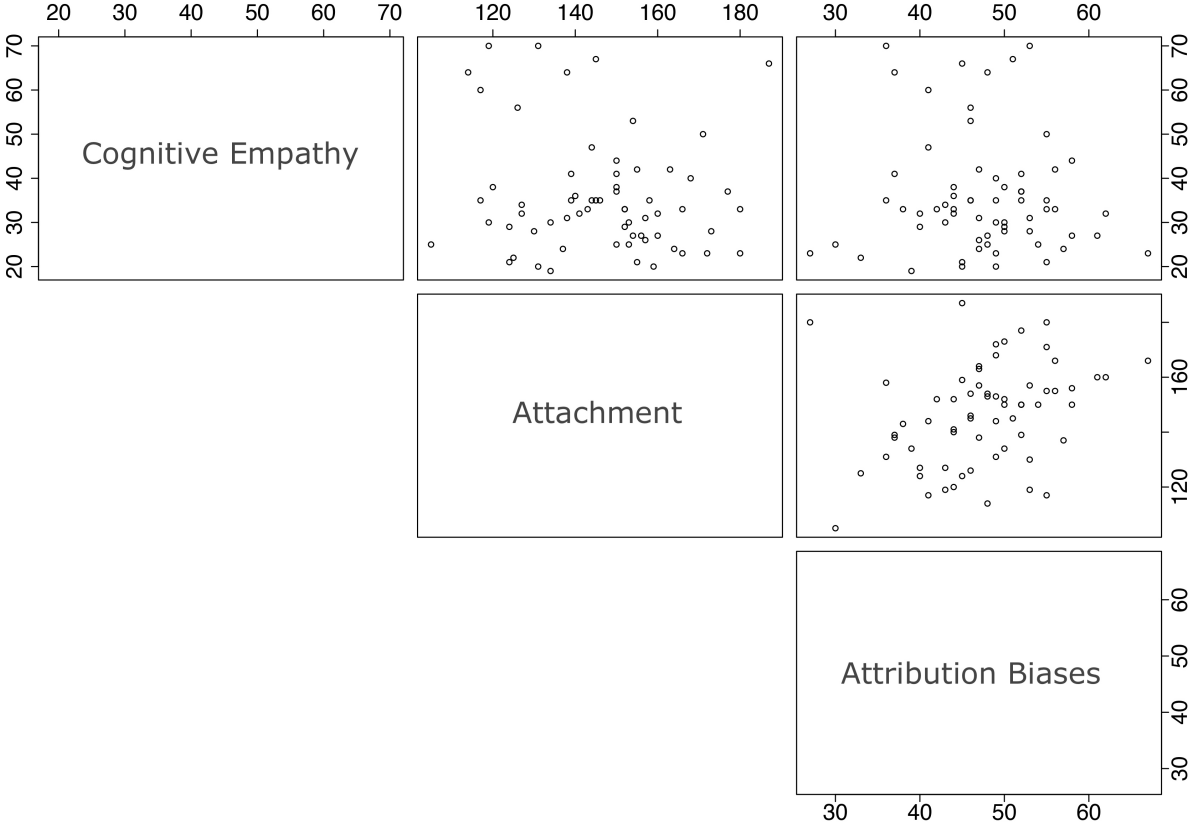
APPENDIX IX

Scatterplot Showing the Correlation Between Potential Covariates (Attachment Insecurity, Emotional Avoidance, Emotional Regulation) and Affective Empathy



APPENDIX X

Scatterplot Showing The correlation between potential covariates (attachment insecurity and attribution biases) and cognitive empathy



REFERENCES

- Ainsworth, M. (1969). Individual differences in strange-situational behavior of one-year-olds. In H. R. Schaffer (Ed.), *The origins of human social relations*. London: Academic Press
- Alink, L., Cicchetti, D., Kim, J., & Rogosch, F. (2012). Longitudinal associations among child maltreatment, social functioning, and cortisol regulation. *Journal of Developmental Psychology, 48*(1), 224–236
- Bandura, A., Caprara, G., Barbaranelli, C., Gerbino, M., & Pastorelli, C. (2003). Role of affective self-regulatory efficacy in diverse spheres of psychosocial functioning. *Child Development, 74*, 769–782
- Barker, R. L. (2008). *The social work dictionary*. Washington, DC: NASW Press
- Bernstein, D., Stein, J., Newcomb, M., Walker, E., Pogge, D., Ahluvalia, T., Stokes, J., Handelsman, L., Medrano, M., Desmond, D., & Zule, W. (2003). Developmental and validation of a brief screening version of the childhood trauma questionnaire. *Child Abuse and Neglect, 27*, 169–190
- Bernstein, D., & Fink, L. (1998). *Childhood trauma questionnaire: A retrospective self-report*. San Antonio, TX: Harcourt, Brace, and Company
- Bowlby, J. (1969). *Attachment and loss (volume 1)*. New York, NY: Basic Books
- Briere, J. (2002). Treating adult survivors of severe childhood abuse and neglect: Further development of an integrative model. In J. E. B. Myers, L. Berliner, J. Briere, C. T. Hendrix, C. Jenny, & T. A. Reid (Eds.), *The APSAC handbook on child maltreatment* (pp. 175-203). Thousand Oaks, CA, US: Sage Publications, Inc.

- Britton, P., & Fuendeling, J. (2005). The relations among varieties of adult attachment and the components of empathy. *The Journal for Social Psychology, 145*(5), 519–530
- Burack, J., Flanagan, T., Peled, T., Sutton, H., Zygmuntowicz, C., & Manly, J. (2006). Social perspective-taking skills in maltreated children and adolescents. *Journal of Developmental Psychology, 42*(2), 207–217
- Coccaro, E., Noblett, K., & McCloskey, M. (2009). Attributional and emotional responses to socially ambiguous cues: Validation of a new assessment of social/emotional information processing in healthy adults and impulsive aggressive patients. *Journal of Psychiatric Research, 43*, 915–925
- Crittenden, P. (1990). Internal representational models of attachment relationships. *Infant Mental Health Journal, 11*(3)
- Crittenden, P. (1988). Distorted patterns of relationship in maltreating families: The role of internal representational models. *Journal of Reproductive and Infant Psychology, 6*, 183–199
- Cuff, B., Brown, S., Taylor, L., & Howat, D. (2016). Empathy: A review of the concept. *Emotion Review, 8*(2), 144–153
- Davis, M. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology, 44*(1), 113–126
- Di Girolamo, M., Giromini, L., Winters, C., Serie, C., & de Ruiter, C. (2019). The questionnaire of cognitive and affective empathy: A comparison between paper-and-pencil versus online formats in Italian samples. *Journal of Personality Assessment, 101*(2), 159–170

- Dias, A., Mooren, T., & Kleber, R. (2018). Public health actions to mitigate long-term consequences of child maltreatment. *Journal of Public Health Policy, 39*, 294–303
- Duan, C., & Hill, C. (1996). The current state of empathy research. *Journal of Counseling Psychology, 43*(3), 261–274
- Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology, 51*, 665–697
- Eres, R., Decety, J., Louis, W., & Molenberghs, P. (2015). Individual differences in local gray matter density are associated with differences in affective and cognitive empathy. *NeuroImage, 117*, 305–310
- Fairholme, Ehrenreich-May, Ellard, Boisseau, Farchione, & Barlow, (2008). Emotional avoidance strategy inventory for adolescents (EASI-A). Unpublished measure. Boston University, Boston, MA & University of Miami, Miami, FL.
- Fan, Y., Duncan, N., de Greck, M., & Northoff, G. (2011). Is there a core neural network in empathy? An fMRI based quantitative meta-analysis. *Neuroscience and Biobehavioral Reviews, 35*(3), 903–911
- Feeney, J., Noller, P., & Hanrahan, M. (1994). Assessing adult attachment. In M. B. Sperling, & W.H. Berman (Eds.). *Attachment in adults: Clinical and developmental perspectives* (128–152). New York: Guilford Press
- Ferrier-Auerbach, A., Erbes, C., & Polusny, M. (2009). Does trauma survey research cause more distress than others types of survey research? *Journal of Traumatic Stress, 22*(4), 320–323

- Fry, D., McCoy, A., & Swales, D. (2012). The consequences of maltreatment on children's lives: A systematic review of data from the East Asia and Pacific Region. *Journal of Trauma, Violence, and Abuse, 13*(4), 209–233
- Greenberg, D., Baron-Cohen, S., Rosenberg, N., Fonagy, P., and Rentfrow, P. (2018). Elevated empathy in adults following childhood trauma. *PLoS ONE 13*(10): e0203886
- Gross, D., DiVietro, S., Beebe, R., Clough, M., & Lapidus, G. (2019). Quantifying severity of maltreatment, adversity, and trauma from child protective services case record files. *Journal of Interpersonal Violence, 1–22*
- Gross, J., & John, O. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*, 348–362
- Gruhn, M., & Compas, B. (2020). Effects of maltreatment on coping and emotion regulation in childhood and adolescence: A meta-analytic review. *Journal of Child Abuse and Neglect, 103*, 104446
- Harel, G., & Finzi-Dottan, R. (2018). Childhood maltreatment and its effect on parenting among high-risk parents. *Journal of Child and Family Studies, 27*, 1513–1524
- Hiemstra, W., De Castro, B., & Thomaes, S. (2019). Reducing aggressive children's hostile attributions: A cognitive bias modification procedure. *Cognitive Therapy and Research, 43*, 387–398
- Kennedy, S., & Ehrenreich-May, J. (2017). Assessment of emotional avoidance in adolescents: Psychometric properties of a new multidimensional measure. *Journal of Psychopathology and Behavioral Assessment, 39*, 279–290

- Kostic, J., & Nesic, M. (2015). Deficit of cognitive and affective empathy in adolescents with behavior disorders. *Journal of Clinical Neurophysiology*, *126*(9), e181
- Lissa, C., Hawk, S., & Meeus, W. (2017). The effects of affective and cognitive empathy on adolescents' behavior and outcomes in conflicts with mothers. *Journal of Experimental Child Psychology*, *158*, 32–45
- Locher, S., Barenblatt, L., Fourie, M., Stein, D., & Gobodo-Madikizela, P. (2014). Empathy and childhood maltreatment: A mixed-methods investigation. *Annals in Clinical Psychiatry*, *26*(2), 97–110
- Melka, S., Lancaster, S., Bryant, A., & Rodriguez, B. (2011). Confirmatory factor and measurement invariance analyses of the emotion regulation questionnaire. *Journal of Clinical Psychology*, *67*(12), 1283–1293
- Naughton, A., Maguire, S., Mann, M., Lumb, R., Tempest, V., Gracias, S., & Kemp, A. (2013). Emotional, behavioral, and developmental features indicative of neglect or emotional abuse in preschool children: A systematic review. *JAMA Pediatrics*, *167*(8), 769–775
- Norman, R., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). The long-term healthy consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis. *PLoS Med* *9*(11): e1001349
- Panfile, T., & Laible, D. (2012). Attachment security and child's empathy: The mediating role of emotional regulation. *Merrill-Palmer Quarterly*, *58*(1), 1–21
- Queiros, A., Fernandes, E., Reniers, R., Sampaio, A., Coutinho, J., & Seara-Cardoso, A. (2018). Psychometric properties of the questionnaire of cognitive and affective empathy in a Portuguese sample. *PLoS ONE*, *13*(6): e0197755

- R Core Team (2020). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org>
- Ravitz, P., Maunder, R., Hunter, J., Sthankiya, B., & Lancee, W. (2010). Adult attachment measures: A 25-year review. *Journal of Psychosomatic Research*, *69*, 419–432
- Reniers, R., Corcoran, R., Drake, R., Shryane, N., & Vollm, B. (2011). The QCAE: A questionnaire of cognitive and affective empathy. *Journal of Personality Assessment*, *93*(1), 84–95
- Rolheiser, C., & Wallace, D. (2005). The Roots of Empathy programme as a strategy for increasing social and emotional learning. *Programme Evaluation-Final report*. Ontario Institute for Studies in Education, University of Toronto.
- Scher, C., Stein, M., Asmundson, G., McCreary, D., & Forde, D. (2001). The childhood trauma questionnaire in a community sample: Psychometric properties and normative data. *Journal of Traumatic Stress*, *14*, 843-857
- Shaver, P., Mikulincer, M., Gross, J., Stern, J., & Cassidy, J. (2016). A lifespan perspective on attachment and care for others. In J. Cassidy & P. Shaver (Eds.), *Handbook of attachment: Theory, research and clinical applications*, *3*, 878–916. New York, NY: Guilford Press Publications
- Singer, T., & Klimecki, O. (2014). Empathy and compassion. *Current Biology*, *24*(18), R875–R878
- Slavny, R., & Moore, J. (2018). Individual differences in the intentionality bias and its association with cognitive empathy. *Personality and Individual Differences*, *122*, 104–108

- Smith, A., Cross, D., Winkler, J., Jovanovic, T., & Bradley, B. (2014). Emotional dysregulation and negative affect mediate the relationship between maternal history of child maltreatment and maternal child abuse potential. *Journal of Family Violence, 29*, 483–494
- Smith, A. (2006). Cognitive empathy and emotional empathy in human behavior and evolution. *The Psychological Record, 56*, 3–21
- Spertus, I., Yehuda, R., Wong, C., Halligan, S., & Seremetis, S. (2003). Childhood emotional abuse and neglect as predictors of psychological and physical symptoms in women presenting to a primary care practice. *Journal of Child of Abuse and Neglect, 27*, 1247–1258
- Stern, J., & Cassidy, J. (2018). Empathy from infancy to adolescence: An attachment perspective on the development of individual differences. *Developmental Review, 47*, 1–22
- Tabachnick, B., & Fidell, L. (2014). *Using multivariate statistics*. Boston, MA: Allyn and Bacon
- Tingley, D., Yamamoto, T., Hirose, K., Keele, L., & Imai, K. (2014). Mediation: R package for causal mediation analysis
- Tiwari, A., Andrews, K., Casey, A., Lui, A., Tonmyr, L., & Gonzalez, A. (2019). Associations among child maltreatment, mental health, and police contact in adulthood: Findings from a national Canadian sample. *Journal of Interpersonal Violence, 1–27*
- Trusty, J., Ng, K., & Watts, R. (2005). Model of effects of adult attachment on emotional empathy of counseling students. *Journal of Counseling & Development, 83*, 66–77

- Van der Graaff, J., Carlo, G., Crocetti, E., Koot, H., & Branje, S. (2018). Prosocial behavior in adolescence: Gender differences in development and links with empathy. *Journal of Youth and Adolescence*, 47, 1086–1099
- Van der Velden, P., Bosmans, M., & Scherpenzeel, A. (2013). The burden of research on trauma for respondents: A prospective and comparative study on respondents' evaluations and predictors. *PLoS ONE*, 8(10): e77266
- Violence and injury prevention, child maltreatment (2016, September 30). Retrieved from who.int/en/news-room/fact-sheets/detail/child-maltreatment
- Violence and injury prevention, child maltreatment infographics (2017). Retrieved from who.int/violence_injury_prevention/violence/child/en/