

THE RELATIONSHIP BETWEEN PERCEIVED PARENTAL REJECTION AND  
INTERNALIZING BEHAVIORS: MODERATING ROLE OF SENSORY  
PROCESSING SENSITIVITY AND GENDER

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AND INTERNALIZING BEHAVIORS: MODERATING ROLE OF SENSORY  
PROCESSING SENSITIVITY AND GENDER**

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**I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.**

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## **ABSTRACT**

### **THE RELATIONSHIP BETWEEN PERCEIVED PARENTAL REJECTION AND INTERNALIZING BEHAVIORS: MODERATING ROLE OF SENSORY PROCESSING SENSITIVITY AND GENDER**

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Perceived parental rejection has been studied widely in contemporary literature and studies show its link to problematic outcomes during adolescence (e.g. Putnick et al., 2015). Nowadays, it is being discussed that sensory processing sensitivity (SPS), a term that has been receiving close attention, may be a more salient temperamental susceptibility marker than other temperamental traits (Slagt et al., 2018). The aim of the present research was to investigate the association between perceived maternal and paternal rejection and internalizing behaviors, and whether this association is moderated by SPS, and, whether this relationship is further moderated by child gender. This study was part of a nationally representative project carried out by three universities in two different time points. For this particular study, only data from time one was used, and children aged between 9-18 years old (5 – 11 grades) were selected as a sample. The models were designed as two separate moderated moderation models depicted as Model 3 (Hayes, 2018). The associations were analyzed first by running hierarchical regression analyses and the results revealed that the hypothesized two-way and three-way interactions did not reach significance, however the main effect of

gender and the interaction between SPS and gender were significant. This interaction was further analyzed by Process Macro (Hayes, 2018) and the results revealed that highly sensitive girls were more inclined to experience internalizing problems. The findings are discussed in terms of literature on adolescence problems and SPS, and future directions are suggested accordingly.

**Keywords:** adolescence, internalizing, parental rejection, sensory processing sensitivity, gender

## ÖZ

### ALGILANAN EBEVEYN REDDİ VE İÇE YÖNELİM PROBLEMLERİ ARASINDAKİ İLİŞKİLER: DUYUSAL DUYARLILIK VE CİNSİYETİN DÜZENLEYİCİ ROLLERİ

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Algılanan ebeveyn reddi, alanyazında çok çalışılan bir kavramdır ve birçok çalışma, ergenlik döneminde çocuğun algıladığı ebeveyn reddinin çeşitli olumsuz sonuçlarla ilişkili olduğunu göstermektedir (Putnick vd., 2015). Alanyazında yapılan yeni araştırmalar, duyuşal duyarlılığın diğler mizaç özelliklerine kıyasla, daha güçlü bir hassasiyet göstergesi olduğunu önermektedir (Slagt vd., 2018). Mevcut çalışmanın ana amacı algılanan anne ve baba reddinin, ergenlerde içe yönelim davranışlarıyla ilişkili olup olmadığını, bu ilişkide duyuşal duyarlılık kavramının ve çocuğun cinsiyetinin düzenleyici rollerinin olup olmadığını araştırmaktır. Mevcut çalışma, üç üniversite tarafından yürütölen ulusal bir projenin bir parçasıdır ve çalışmaya katılan 9-18 yaşları arasında ergenler örnekleme olarak seçilmiştir. İncelenecek modeller, Hayes (2018) tarafından Model 3 olarak adlandırılmış olan üç-yönlü etkileşimler üzerine kurulmuştur. Hipotezler, iki ayrı hiyerarşik regresyon analizi yürütölerek incelenmiştir ve sonuçlar, hipotezlerde yer alan iki yönlü ve üç yönlü etkileşimlerin anlamlı olmadığını göstermiştir. Ancak, cinsiyetin ve duyuşal duyarlılık ve cinsiyetin iki yönlü etkileşimin içe yönelim problemleriyle ilişkilerinin anlamlı olduğu görölmüştür.

Anlamalı bulunan iki-yönlü etkileşim, Process Macro (Hayes, 2018) ile detaylı olarak incelenmiş ve duygusal duyarlılığı daha yüksek olan kızların içe yönelim problemlerine daha yatkın oldukları görülmüştür. Sonuçlar, ergenlik dönemi ve duygusal duyarlılıkla ilgili son bilimsel çalışmalar doğrultusunda tartışılmış ve gelecek çalışmalar için önerilerde bulunulmuştur.

**Anahtar Kelimeler:** ergenlik, içe yönelim problemleri, ebeveyn reddi, duygusal duyarlılık, cinsiyet

*To my father, for the way you raised me, and to my son, for the way you are raising me...*

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## **CHAPTER 1**

### **INTRODUCTION**

Adolescence is a critical transitional period between childhood and adulthood and is marked by biological, cognitive, and social changes (Blakemore & Mills, 2014; Sawyer et al., 2018). Although the World Health Organization (WHO; 2020) defines this period as ranging between 10-19 years of age, some experts believe that this developmental period is longer and may even extend to 24 years of age (Sawyer et al., 2018; Wise, 2004). Despite the conflicting ideas on the age range of this period, experts agree that adolescence is a sensitive and challenging time and during this period, youngsters may be more prone to develop psychological problems, especially under adverse familial or social conditions (Seiffge-Krenke, 2017). In fact, a report issued by World Health Organization (WHO) conveys that nearly half of all psychological disorders tend to emerge before age 14 and in 2016, self-harm was the top third cause of death for boys aged between 15-19 years and the top second cause of death for girls aged between 15-19 years (WHO, 2020).

Concordantly, empirical studies verify that adolescence period might pose a risk for psychological and behavior problems such as substance use, eating disorders, externalizing behaviors, depression, anxiety, hostility or suicide (e.g. Costello et al., 2011; Kim, 2003; Merikangas et al., 2010) and worldwide prevalence rates of these problems are striking. For instance, a recent meta-analytic study conducted with data from 27 countries reported that, approximately 13.4% of children and adolescents aged between 6-18 years old experience some kind of psychological disorder and among these the prevalence rate for anxiety disorders are 6.5% and depressive disorders are 2.6% (Polanczyk et al., 2015).

It has been long proposed that the psychological problems experienced by children and adolescents can be conceptualized under two broad categories entitled: ‘internalizing’ and ‘externalizing’ problems (Achenbach, 1966; Achenbach et al.,

2016) and scholars convey that adolescence may especially be a risky time in terms of these psychological problems (e.g. Casey et al., 2008; Kim, 2003; Merikangas et al., 2010). For decades, psychology research has been interested in the risk factors for these two categories, and unsurprisingly, one of the widely studied risk factors seems to be non-optimal parenting (for a review please see Rose et al., 2017).

It is discussed that parenting literature is mostly Western-based and generally focuses on mothers, nevertheless, recent literature acknowledges the importance of studying fathers and mothers separately. In addition, it is argued that to date, cross-cultural studies are not sufficient enough to assess these associations effectively in non-Western countries (Weitkamp & Seiffge-Krenke, 2019). In line with Weitkamp and Seiffge-Kranke's propositions, it is thought that in a developing country such as Turkey, fathers' and mothers' roles and behaviors may still differ greatly, and thus it is critical that these associations are examined separately. Therefore, the first aim of this study was to investigate paternal and maternal parenting factors' association with problem behaviors in adolescents.

Although environmental factors like parenting is associated with child and adolescent outcomes, there has also been tremendous interest in studying how individuals' characteristics moderate the effects of environment on child outcomes. Most of the earlier studies focus on one of the temperamental characteristics, negative affect, as an environmental sensitivity marker (e.g. Engle & McElwain, 2010; Lengua, 2008; Morris et al., 2002; Slagt et al., 2018). However, recently, researchers also became interested in studying another temperament characteristic, Sensory Processing Sensitivity (SPS; entitled as 'highly sensitive person' by many; Aron & Aron, 1997; Pluess, 2015; Slagt et al., 2018), which is defined as a "genetically determined trait involving a deeper cognitive processing of stimuli that is driven by higher emotional reactivity" (Aron et al., 2012, p. 262).

As the conceptualization of sensory processing sensitivity implies, it is highly likely that transitions may be extra challenging for such individuals. Even though the studies concerning highly sensitive children and adolescents are yet to be conducted (see Greven et al., 2019 for a review), it is seen from the limited number of studies that high sensitivity during the childhood period may actually pose a risk for several problems (e.g. Boterberg & Warreyn, 2015). Since adolescence is considered to be one of the most important transitional times in an individual's life, this period might be

extra challenging for highly sensitive individuals especially under adverse parenting circumstances. In line with these arguments, the second aim of the present study was to test the interaction effect of sensory processing sensitivity.

Additionally, studies that take child gender into account convey conflicting results concerning adolescence internalizing problems, some of them state that girls experience internalizing problems more (e.g. Carragher et al., 2016; Sentse et al., 2009), while others propose that these associations are moderated by other different mechanisms and thus should not be solely based on gender (e.g. Akse et al., 2004). Considering all these, child gender was also included as another moderator in this study.

In line with the discussions stated above, the present study aimed to examine whether sensory processing sensitivity moderated the relationship between perceived maternal and paternal rejection and internalizing problems in Turkish adolescents and whether this moderated association was further moderated by the adolescent's gender. To clearly convey the proposed research questions, a brief review about the concepts that are used throughout the study is presented in the following sections.

### **1.1. Internalizing Problems During the Adolescence Period and Risk Factors**

As discussed in the general introduction, studies show that adolescence period might be a risk for several problems and especially with the rapid social and technological changes that are taking place during this decade, this period might be especially challenging for youngsters nowadays (Seiffge-Krenke, 2017; Shulman & Scharf, 2018). Presumably because of the elevated risks, psychology research has shown great interest in child and adolescent maladjustment and as early as the 1960s, many studies have adopted the dichotomous classification firstly proposed by Achenbach (1966). Starting with that study, it has been acknowledged that internalizing behaviors are represented by depressive and somatic complaints, and/or anxiety, while externalizing behaviors are represented by conduct and aggression related behaviors or substance use (Achenbach, 1966; Achenbach et al., 2016).

Although the directions and temporal orders are controversial, internalizing problems as a causal factor for other negative consequences has also been studied vastly, and studies have found that internalizing problems is associated with devastating consequences for adolescents such as suicidal attempts or problematic

substance use (e.g. Liu & Tein, 2005; O’Neil et al., 2011). Moreover, a forty-year longitudinal study showed that these consequences may be long lasting; in this study it was found that experiencing repeated internalizing problems during adolescence is associated with eventual adult psychopathology (Colman et al., 2007).

Risk factors of internalizing problems have also been studied thoroughly in the literature, and according to a recent review conducted by Liu, Chen and Lewis (2011), environmental and familial factors as well as temperamental dispositions are among the risk factors studied when examining internalizing symptoms. In line with this, studies show that SES level, child gender, friendship quality and various familial factors are associated with internalizing problems (e.g. Doyle & Markiewicz, 2005; Gaertner et al., 2010; Güzel & Arkar, 2018; Luyckx et al., 2009; Roelofs et al., 2006; Rose et al., 2017; Ulu & Fıfılođlu, 2002; Weitkamp & Seiffge-Kranke, 2019). The literature on parenting factors that are associated with child internalizing problems is vast. Factors such as interparental conflict, maternal and paternal psychopathology, psychological control, parental knowledge, mindful parenting, child-parent attachment styles, attachment anxiety of children, parenting styles, psychological rejection have all been reported to be associated with internalizing problems (e.g. Connell & Goodman, 2002; Crawford, Cohen, Midlarsky, & Brook, 2001; Davies & Lindsay, 2004; Doyle & Markiewicz, 2005; Gaertner et al., 2010; Geurtzen et al., 2015; Güzel & Arkar, 2018; Lansford et al., 2014; Luyckx et al., 2009; McLeod, Weisz et al., 2007; McLeod, Wood et al., 2007; Piquart, 2017; Roelofs et al., 2006; Rose et al., 2017; Ulu & Fıfılođlu, 2002; Weitkamp & Seiffge-Kranke, 2019). The present study also acknowledges the importance of parenting factors, in line with authors who emphasize the critical role of familial factors (e.g. Seiffge-Krenke, 2017; Shulman & Scharf, 2018).

One of the parenting factors studied in this context is parental rejection, which is also the main predictor of the current study. Parental rejection has been found to be associated with internalizing problems in children and adolescents in Western and non-Western studies (e.g. Nishikawa et al., 2010; Nunes et al., 2013). The present study examines parental rejection within the scope of Parental Acceptance – Rejection Theory (PARTheory, contemporarily called IPARTheory). According to this theory, parental rejection is manifested by cold, unaffectionate, hostile, aggressive, indifferent and/or neglectful physical or verbal behavior towards the child (Rohner et al., 2012).

This theory points out the importance of feeling accepted in interpersonal relationships and suggests that children have an emotional desire for positive acknowledgement (i.e. acceptance, warmth) from their ‘significant others’ (defined as an important person whom the child has a lifelong emotional relationship with, by Rohner et al., 2012), and, since a parent is the most influential significant other in a child’s life, when that emotional need is not met from a parent, children are more likely to feel troubled or anxious (Rohner, 2004; Rohner et al., 2012). In line with this, studies all over the world put forth that feeling rejected by a caregiver may be associated with an individual’s maladaptive coping behaviors, and behavioral and psychological maladjustment (e.g. Hale et al., 2005; Putnick et al., 2015; for a review please see Khaleque & Rohner, 2002; Rohner, 2004; Rohner et al., 2005). Further, as Rohner and Britner (2002) point out in their comprehensive review, although not yet adequately proved, longitudinal studies suggest that perceived parental rejection may be an antecedent factor, preceding the onset of childhood depression.

However, the strength of the relationship between parental factors and problem behaviors is still argued, for instance, some meta-analytic studies report that parenting factors explain only 8% of variation in childhood depression and 4% of variance in childhood anxiety (McLeod, Weisz et al., 2007; McLeod, Wood et al., 2007). The authors argue that parenting factors are small to modest and other factors (e.g. genetic dispositions) should also be considered when examining childhood psychopathology. Moreover, some studies report that the associations between perceived parental rejection and behavior/psychological problems and adjustment of young and middle adolescents may be moderated by other mechanisms such as personality type or adolescents’ perceptions of maternal/paternal power and prestige (e.g. Akse et al., 2004; Rohner, 2014). Concordantly, studies that take both parenting factors and temperament are being more acknowledged nowadays, because such studies yield important results in terms of how temperament interact with familial and parenting factors in predicting problem behaviors (e.g. Davis et al., 2015; Leve et al., 2005). For instance, a study conducted in this way about the risk factors of adolescence externalizing and internalizing problem behaviors found that the risk of temperament (i.e. fearfulness) is intensified by parental rejection in adolescents even when parental psychopathology is controlled for (Sentse et al., 2009).

As seen from some of the above examples, studies also show that some children are more susceptible to these adverse environmental factors; and accordingly, recent reviews suggest that individual characteristics may have a role in the relationship between parenting factors and internalizing behaviors, in that some individuals with particular traits may be more at risk for internalizing behaviors (for a discussion please see Scaini et al., 2018). The current research also takes into account parental factors' main effect, but also examines its interaction with temperament in line with the environmental sensitivity framework.

## **1.2. Environmental Sensitivity**

For several decades, developmental science has been trying to find the answer to how some individuals may be more 'susceptible', sensitive or vulnerable to particular environmental influences (Belsky, 1997; Belsky & Pluess, 2009; Pluess, 2015), and in line with this, developmental research regularly showed that environmental effects may differ based on the individuals' characteristics like genetics, physiology (i.e. respiratory sinus arrhythmia) or temperament (e.g. Khurshid et al., 2019; Lengua, 2008; Pluess et al., 2010).

Psychology literature is rich in such studies and there are several theories that aim to formulate this sensitivity and explain it in detail, but recently, Pluess (2015) has proposed a more objective meta-framework (entitled 'environmental sensitivity') for such theories (e.g. differential susceptibility; Belsky & Pluess, 2009; vantage sensitivity, Belsky & Pluess, 2013; sensory processing sensitivity; Aron & Aron, 1997).

Pluess (2015) defines environmental sensitivity as; "how people vary in their response to contextual factors, with some more affected than others", and "how individuals differ in how they perceive and process environmental features" (pp.138-139).

Researchers propose that one of the most plausible theory under the environmental sensitivity framework is the sensory processing sensitivity theory, as it is among those that support the view that sensitive children may be affected by both adverse and optimal environments (Pluess, 2015; Lionetti, Aron et al., 2019), and studies focusing on this association are becoming more popular. For instance, one study found that sensory processing sensitivity moderates parenting factors' effect in

predicting externalizing problems in kindergarten children (Slagt et al., 2018) and upon this result, the authors suggest that sensory processing sensitivity may actually be a more salient susceptibility indicator when compared with negative affect, a much more studied individual characteristic, in the frameworks of environmental sensitivity.

In line with these, the current research was also focused on sensory processing sensitivity and intended to contribute to the sensitivity literature by examining sensory processing sensitivity in a non-optimal parenting environment and thus literature findings on this concept is introduced in the next section.

### **1.2.1. Sensory Processing Sensitivity**

As discussed above, one line of research shows that effects of environmental factors may differ based on an individual's characteristics, and recently, researchers became interested in studying Sensory Processing Sensitivity (SPS, Aron et al., 2012; described as 'highly sensitive person' by many; Aron & Aron, 1997; Pluess, 2015) as a temperamental trait. Sensory processing sensitivity is defined as a genetic, inherited temperamental characteristic which involves "high emotional reactivity" and "deep cognitive processing" (Aron et al., 2012, p.262). It is thought that highly sensitive people may prefer to pause firstly in unfamiliar situations and analyze the environment before taking any action; and further, it is suggested that they have a tendency to detect stimuli in their surroundings more easily (Aron & Aron, 1997; Aron et al., 2012).

Aron (1996) was the first researcher to introduce the concept of 'highly sensitive person' (HSP) to the psychology literature, and suggested that according to a preliminary research, approximately 15 to 20 percent of the population fits to this definition and may be defined as 'highly sensitive'. Accordingly, more recent studies, one conducted with an adult sample, the other with children and adolescents, yielded that approximately 30% of the population may be highly sensitive (Lionetti et al., 2018; Pluess et al., 2018).

Acknowledging the importance of examining this concept further, studies were conducted with both adult (e.g. Smolewska et al., 2006) and child samples (Boterberg & Warreyn, 2016) and upon results, the researchers suggested that although at first this concept was introduced as a unidimensional construct by the original authors, it actually may have multiple dimensions (i.e. for adults; ease of excitation; EOE, low

sensory threshold; LST and aesthetic sensitivity; AES; for children; overreaction to stimuli, OS; depth of processing, DP). Subsequent studies have found a similar multi-factor structure for the self-report sensory processing sensitivity child and adult scale. However, in these studies, it was also found that these sub-factors loaded on a general sensitivity factor (Lionetti et al., 2018; Pluess et al., 2018). Before the current project, only the adult version of the sensory processing sensitivity scale has been used in the Turkish sample, and the analysis supported the multi-factor structure of the scale, yielding a four-factor model (Şengül-İnal & Sümer, 2020). There are also studies which examine how this construct is related to more known and popular personality traits (e.g. Pluess et al., 2018; Lionetti et al., 2018; Lionetti, Pastore et al., 2019; Smolewska et al., 2006). In Lionetti, Pastore et al.'s (2019) meta-analytic study, it was found that sensory processing sensitivity is somewhat strongly correlated to neuroticism and behavioral inhibition, and moderately related to negative affect in adult and child populations. Furthermore, in this same study, it was found that while the aesthetic sensitivity dimension of sensory processing sensitivity is positively correlated with extraversion and positive affect, the ease of excitation and low sensory threshold factors were negatively correlated with extraversion in child populations. Researchers point out that such statistical findings once more show that sensory processing sensitivity is a multi-faceted theory and is a whole different construct which should be considered differently from other personality dimensions as proposed initially by Aron and Aron (1997; Lionetti et al., 2018; Lionetti, Aron et al., 2019; Lionetti, Pastore et al., 2019; Pluess et al., 2018; for a review please see Greven et al., 2019).

As the concept's popularity starts to increase, it is seen that a considerable amount of research is starting to focus on sensory processing sensitivity, but majority of these studies focus on young adult and adult samples rather than child and adolescent ones. Several of these studies showed that some of the sub-factors of sensory processing sensitivity may be associated with depression, anxiety and/or academic stress (e.g. Bakker & Moulding, 2012; Brindle et al., 2015; Gearhart & Bodie, 2012; Liss et al., 2008; Yano & Oishi, 2018). However, it is also discussed that this association may be dependent on environmental circumstances, either negative or positive; in other words, sensory processing sensitivity may interact with several mechanisms in predicting outcomes (see Greven et al., 2019 for a review). One of the

earlier studies, which was conducted with young adults (undergraduate university students) yielded important preliminary information about the environmental effects of sensory processing sensitivity. This study's findings suggested that when highly sensitive people experience a poor parental environment, they report lower on a measure of happiness in childhood when compared to their low sensitive counterparts (Aron & Aron, 1997). Accordingly, another study showed that highly sensitive college students are more likely to be affected by adverse familial factors such as non-optimal parenting (Liss et al., 2005) and another one revealed that sensory processing sensitivity interacts with non-optimal childhood environment in predicting negative affectivity in adults, which also mediates shyness (Aron et al., 2005). Additionally, a more recent study found that highly sensitive people who perceived a negative environment during their childhood turned up to be those that had lower satisfaction in life (Booth et al., 2015).

Even though studies with child and adolescent populations are limited compared to those conducted with adult samples, there are important studies worth mentioning that look at sensory processing sensitivity's main effect and its interaction with environmental factors which are conducted with child samples. For instance, in one study, highly sensitive children were reported to have more sleep and appetite problems (Boterberg & Warreyn, 2016), and a more recent finding showed that sensory processing sensitivity interacts with parenting factors and this interaction predicts externalizing problems (Slagt et al., 2018). As discussed, this study's findings are important as it is suggested that sensory processing sensitivity may be a more notable susceptibility indicator when compared with negative affect, especially for older children. In fact, other findings support this proposition for negative outcomes as well as positive ones; for instance, one study found that highly sensitive girls were more positively affected by a school depression intervention program when compared to less sensitive girls (Pluess & Boniwell, 2015), and another study found that it was actually the highly sensitive children that benefitted more from an anti-bullying school program (Nocentini et al., 2018), and a more recent study by Lionetti, Aron et al. (2019) seems to confirm that sensory processing sensitivity moderates the effect of parenting styles on behavioral problems of preschool children.

Moreover, even though biological studies on sensory processing sensitivity have only just started to develop, recent study findings suggest that sensory processing

sensitivity may have biological foundations as well (e.g. Acevedo et al., 2014; Acevedo et al., 2018). One of these studies that aimed to compare the biological foundations of sensory processing sensitivity and three disorders indicates that sensory processing sensitivity has both distinct and similar biological foundations when compared to autism spectrum disorder, post-traumatic stress disorder and schizophrenia, and based on the results, the authors suggest that highly sensitive individuals may be more likely to experience post-traumatic stress symptoms when faced with an adverse event (Acevedo et al., 2018). Additionally, researchers suggest that sensory processing sensitivity's connection with 5-HTTLPR-s (a suggested biological indicator of differential susceptibility; Belsky & Van IJzendoorn, 2017; for a meta-analytic study, please see van IJzendoorn, Belsky, & Bakermans-Kranenburg, 2012) should be examined thoroughly as they may have similarities and associations (Licht et al., 2011; Greven et al., 2019; Homberg et al., 2016).

As the concept is quite novel, findings about gender differences in terms of sensory processing sensitivity are also scarce. One mention about gender differences can be found in an earlier study conducted with young adults (Aron & Aron, 1997); in this study the authors found that women seemed to score higher on the sensitivity scale and also, the environmental effects were more salient for highly sensitive men; perceiving a non-optimal parental environment was associated with lower happiness in childhood especially for men. Another study found that for adult men, an interaction between being highly sensitive and adverse parental factors were more salient in terms of adult shyness (Aron et al., 2005). The studies analyzing gender differences in child and adolescent samples are also limited, but worth mentioning, for instance one of these studies found that highly sensitive boys benefitted more from a school anti-bullying program in terms of their internalizing behaviors (Nocentini et al., 2018) and another one found that there were no differences in terms of gender (Slagt et al., 2018). Thus, it may be said that studies are limited to convey any convincing results in terms of gender differences of sensory processing sensitivity, but as seen, worth studying further.

In line with the literature findings presented above, this present study suggested that in the presence of undesirable parental factors, sensory processing sensitivity would have a moderating role on internalizing behaviors of adolescents and investigated this association further by taking child gender into account. It is seen that

literature findings mostly state that girls may be more inclined to experience internalizing behaviors (Zahn-Waxler et al., 2006), and as discussed in the introduction, it is thought that mothers' and fathers' effect on their sons and daughters may differ. Thus, the third aim of the current study was to investigate the association between parental factors, sensory processing sensitivity and internalizing problems further by taking child gender into account. To clearly convey how child gender might have acted as a moderator in this model, gender differences in terms of parental factors and internalizing problems will be discussed in the following section.

### **1.3. Gender**

Recent findings suggest that although mothers' and fathers' parenting role may be equally important, the relationships should be examined independently as they may have unique effects on child and adolescent outcomes (e.g. Bolkan et al., 2010; Bosco et al., 2003; Laible & Carlo, 2004; Milevsky et al., 2007; Milevsky et al., 2008; Quach et al., 2015). Further, researchers also propose that gender of the child should be considered as well (e.g. Conrade & Ho, 2001; McKinney & Renk, 2008). Indeed, some of the study findings are consistent with this proposition; mothers and fathers may differ in their parenting styles for their sons and daughters (e.g. McKinney & Renk, 2008).

As discussed above, literature about adolescence internalizing problems is vast and comprehensive, and mostly the studies suggest that girls are more inclined to experience internalizing problems (e.g. Kim, 2003; Rescorla et al., 2007; Sentse et al., 2009; Ulu & Fışiloğlu, 2002; for an extensive review please see Zahn-Waxler et al., 2006). In fact, review articles on this topic put forth that girls may actually be more at risk. For instance, according to a review conducted in 2006, 39 out of 68 studies showed that compared to boys, girls were more inclined to develop internalizing problems when faced with pressure (Grant et al., 2006).

Above all this, even though some study findings suggest that fathers and mothers' parental impact may differ as risk factors for their sons' and daughters' internalizing problems, when recent studies are examined, the results seem to be inconsistent and mixed for both child gender and parent gender. For instance, one study found that while maternal rejection was associated with depression in girls aged between 9-12 years, paternal rejection was associated with depression in boys aged

between 9-12 years (Roelofs et al., 2006), but another one found that, for adolescents aged between 13-18 years old, the association between paternal rejection and anxiety was significant, but maternal rejection's association with anxiety was not (Verhoeven et al., 2012). Another study reported that paternal parenting was more strongly related to their sons' internalizing behavior by its association with marital conflict (Kaczynski et al., 2006) and yet in another study, it was found that mothers' and fathers' control and mothers' anxious-rearing (but not fathers' anxious-rearing) was associated with adolescents' internalizing problems, and further fathers' support (but not mothers' support) served as a protective factor against internalizing problems (Weitkamp & Seiffge-Kranke, 2019). Concordantly, a Turkish study conducted with young female adults has shown that although both are related to psychological maladjustment, perceived maternal rejection was found to be more strongly related to depression than paternal rejection (Avaz, 2011). As seen from these examples, study findings seem to be inconsistent in terms of both parent gender and child gender, but these examples suggest that there may be some kind of difference. However, there are also studies conveying that there might not be any difference after all. For instance, one comprehensive meta-analytic study examining associations between parenting behaviors and child anxiety found that gender of the child and parent as moderators does not yield significant results (McLeod, Wood et al., 2007), and a more recent study's findings yielded that perceived maternal and perceived paternal rejection did not differ in terms of outcomes for early adolescents in 9 countries (Putnick et al., 2015).

Furthermore, cross-cultural studies focusing on the IPARTheory reported that compared to their mothers, adolescents perceived their fathers to be more rejecting compared to female adolescents, male adolescents felt more rejected (Dwairy, 2010). Additionally, another comprehensive and cross-cultural meta-analytic study showed that perceived paternal acceptance had a stronger association with children's psychological adjustment (Khaleque & Rohner, 2012). Rohner (2014), father to the IPARTheory, discussed the differentiating effects of maternal and paternal rejection and proposed that inconsistent results may be due to children's perceptions about their parents (how much power and prestige they attribute to their fathers and mothers). In this cross-cultural study, it was seen that Turkish respondents characterized their nation as 'patriarchic', and Turkish women reported that they perceive their mothers

as more powerful than fathers, while this comparison was not differentiated between mothers and fathers for Turkish men. Furthermore, for women in Turkey, maternal acceptance was related to psychological adjustment and for men, only paternal acceptance was related to psychological adjustment (Rohner, 2014). Study findings such as these once again convey that including the gender factor is highly crucial in subsequent studies.

#### **1.4. Research Purpose and Hypotheses**

In line with the literature reviewed above, in this study the main aim was to investigate whether sensory processing sensitivity moderates the relationship between perceived parental rejection and internalizing behavior in Turkish adolescents and whether this moderated association was moderated by child's gender. For this, the following research questions and hypotheses will be tested:

1. a. Are higher levels of perceived maternal rejection associated with higher levels of internalizing behavior among adolescents? It was expected that higher levels of perceived maternal rejection would be associated with higher levels of internalizing behavior problems in adolescents.

b. Is this association moderated by sensory processing sensitivity; do highly sensitive adolescents experience more internalizing behavior when felt rejected by their mothers? It was expected that highly sensitive adolescents would experience more internalizing behaviors when felt rejected by their mothers.

c. Is this association dependent on the adolescent's gender? An exploratory hypothesis was created, and it was expected that child gender would further moderate the relationship between maternal rejection, sensory processing sensitivity and internalizing problems.

2. a. Are higher levels of perceived paternal rejection associated with higher levels of internalizing behavior among adolescents? It was expected that higher levels of perceived paternal rejection would be associated with higher levels of internalizing behavior problems in adolescents.

b. Is this association moderated by sensory processing sensitivity; do highly sensitive adolescents experience more internalizing behavior when felt rejected by their fathers? It was expected that highly sensitive adolescents would experience more internalizing behaviors when felt rejected by their fathers.

c. Is this association dependent on the adolescent’s gender? An exploratory hypothesis was created, and it was expected that child gender would further moderate the relationship between paternal rejection, sensory processing sensitivity and internalizing problems.

The models for three-way interactions depicted as Model 3 by Hayes (2018) can be seen in Figure 1 and Figure 2.

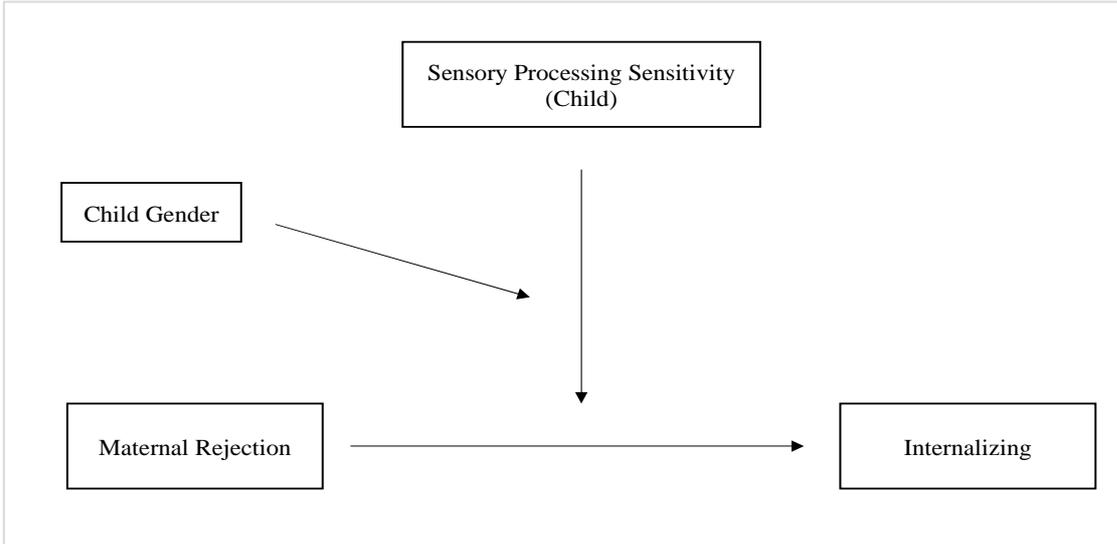
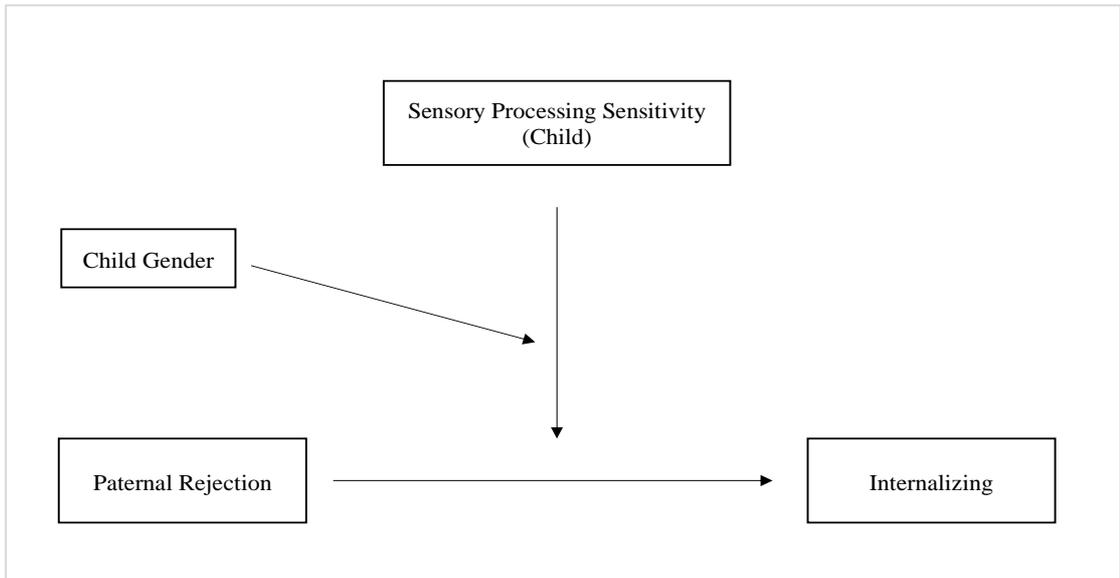


Figure 1. Moderated Moderation Model for the Association Between Perceived Maternal Rejection and Internalizing Behavior



*Figure 2.* Moderated Moderation Model for the Association Between Perceived Paternal Rejection and Internalizing Behavior

## **CHAPTER 2**

### **METHOD**

#### **2.1. General Information about the Project (Family, Child and Adolescent Project of Turkey; TAÇEP)**

The current research was part of a comprehensive nationally representative project (Türkiye Aile Çocuk ve Ergen Projesi; TAÇEP) (Family, Child and Adolescent Project of Turkey) funded by The Scientific and Technological Research Council of Turkey (TÜBİTAK) and carried out by Middle East Technical University, Ege University and Boğaziçi University with the collaboration of Ministry of National Education. The project's aim was to collect an exhaustive set of data from families all around Turkey in two different time points and examine the effects of parenting attitudes and styles on children's and adolescents' development. For this, approximately 6600 students and their parents were planned to be recruited from 180 schools distributed evenly in 12 districts of Turkey. The schools were randomly selected by the Turkish Statistical Institute (TÜİK). However, due to the COVID-19 pandemic precautions, all schools were closed in Turkey on March 16, 2020 and remained closed for the rest of the term, thus, the aimed sample was not reached.

#### **2.2. Sample**

This current study's sample consists of participants that were included in the first data collection time of TAÇEP. In the initial proposal of this thesis, it was calculated that approximately 1099 adolescents and their mothers (with an effect size of 0.02, 95% power at  $\alpha = .05$ , and 7 predictors calculated by G\*Power) would be needed to analyze the proposed associations. This calculation was in line with the aimed sample of the project, as it was proposed that 1500 students from grades 9-12

would be reached. However, because of the COVID-19 pandemic, the intended sample was not reached, and 797 mothers and 758 children from grades 1-12 participated in the study.

As the scope of this current research involves the adolescence period, the recommendation of WHO was adopted and participants aged 10 years and older (in the Turkish school system, this is equivalent to the 5<sup>th</sup> grade) were included in the analysis and it was seen that 452 students (277 females, 175 males) and 365 mothers answered the questionnaires from this age range. As the analysis requires paired mothers and children, only the participants with matched data were included.

After data screening and outlier detection, 351 mother-child pairs were left for the first analysis (maternal rejection) and as some of the children did not answer questions about their father, 338 were left for the second analysis (paternal rejection).

Participated mothers were between the ages of 28-60 years ( $M = 40.02$ ,  $SD = 5.32$ ) and children were between the ages of 9-18 years ( $M = 12.75$ ,  $SD = 2.13$ ). 91.7% of mothers stated that they were currently married to the father of the child. The gender-grade distribution of the students can be seen in Table 1 and the education level of mothers can be seen in Table 2.

**Table 1**  
*Demographic Information about the Students (n=351)*

Gender	Grade							Total N
	5 n (%)	6 n (%)	7 n (%)	8 n (%)	9 n (%)	10 n (%)	11 n (%)	
<b>Female</b>	39 (63.9)	33 (62.3)	33 (64.7)	32 (55.2)	25 (53.2)	29 (80.6)	28 (62.2)	<b>219 (62.4)</b>
<b>Male</b>	22 (36.1)	20 (37.7)	18 (35.3)	26 (44.8)	22 (46.8)	7 (19.4)	17 (37.8)	<b>132 (37.8)</b>
<b>Total</b>	61	53	51	58	47	38	46	<b>351</b>

**Table 2**  
*Education Level of Mothers*

	Education Level						Total N	
	Not Educated and Illiterate n (%)	Not Educated but Literate n (%)	Elementary School n (%)	Middle School n (%)	High School n (%)	University n (%)		Graduate Level n (%)
<b>Total</b>	7 (2.0)	8 (2.3)	157 (44.7)	66 (18.8)	84 (23.9)	26 (7.4)	3 (0.9)	<b>351</b>

### 2.3. Procedure

Prior to data collection, ethic approvals from the Middle East Technical University’s Human Subjects Ethics Committee (Appendix A) and necessary permissions from the Ministry of Education were obtained for the project as a whole. After the schools were selected by the Turkish Statistical Institute, the schools were contacted by the project team and the aim and procedure of the project was explained to the school administration, and the classes were selected randomly. The detailed aim and the procedure of the project was explained to the selected class by the project team and consent forms were sent to the parents of the first 14 student listed in the class list. Mothers who consented to the study were invited to school to answer the questionnaires via tablets. However, for mothers who were not available to come to school, a link to an online platform was provided. In terms of the present study’s sample, out of 351 mothers, 99 of them answered the questionnaires online and 252 of them answered them at school via tablets. Mostly, the assessment for mothers were conducted first, and in the beginning of the assessment, mothers were asked whether their child were in contact with the father and whether they were able to answer questions regarding their relationship with their father. If answered no, the child did not answer those scales.

Data collection of Time-1 started in February and ended in March because of the COVID-19 pandemic precautions in Turkey. For grades 5 and higher, data were collected from 20 schools in 14 cities. Collected data by cities and child grade can be seen in Table 3.

**Table 3**  
*Collected Data by Cities and Child Grade*

City	Grade							Total N
	5 n	6 n	7 n	8 n	9 n	10 n	11 n	
Amasya	-	-	-	-	17	14	15	<b>46</b>
Ankara	-	-	-	-	1	1	2	<b>4</b>
Eskişehir	9	7	8	7	-	-	-	<b>31</b>
İstanbul	5	2	2	-	-	-	-	<b>9</b>
İzmir	7	6	1	5	6	2	9	<b>36</b>
Karaman	-	-	-	-	3	7	6	<b>16</b>
Kastamonu	10	10	9	10	-	-	-	<b>39</b>
Kayseri	6	9	3	10	10	4	8	<b>50</b>
Kırklareli	1	-	-	-	-	-	-	<b>1</b>
Kırşehir	5	3	4	2	3	6	3	<b>26</b>
Konya	8	6	15	11	-	-	-	<b>40</b>
Manisa	-	-	-	7	-	-	-	<b>7</b>
Trabzon	-	-	-	-	7	2	2	<b>11</b>
Yozgat	10	10	9	6	-	-	-	<b>35</b>
<b>Total</b>	<b>61</b>	<b>53</b>	<b>51</b>	<b>58</b>	<b>47</b>	<b>36</b>	<b>45</b>	<b>351</b>

## 2.4. Measures

The project as a whole consisted of 22 scales for children and 23 scales for mothers. Children answered questions about perceived parenting, their school life and peer relationships and social media use. Mothers answered questions about their familial and marriage life, beliefs about parenting and characteristics and behaviors of their child.

### 2.4.1. Demographic Information Form

Children and mothers answered two different versions of demographic information forms. In the child version, 7 questions were asked regarding the child's age, gender, grade, whether s/he has siblings or not and the child's perceptions about the family's economic status. In the mother version, 48 questions were asked regarding the parent's age, profession, and their perceptions about the family's social and economic status.

### **2.4.2. Parental Rejection**

Parental Acceptance/Rejection Scale (Child Report) developed by Rohner and Khaleque (2005) was used to assess perceived parental rejection. The children answered the scale separately for their mothers and fathers. This scale is a 4-point Likert type scale (1=never, 4=always) which consists of 24 items and four factors (warmth/affection, hostility/aggression, indifference/neglect, undifferentiated rejection). The Turkish adaptation of the scale was conducted by Anjel (1993) and Varan (2003). In order to calculate the internal consistency of scales, Cronbach alpha values were conducted for all of the sub-factors. For the Maternal Rejection Scale, the analysis yielded an alpha value of .73 for the hostility subfactor, .86 for the warmth/affection subfactor, .75 for the indifference/neglect subfactor, .79 for the undifferentiated rejection subfactor, and .92 for the scale. In the end, maternal rejection was calculated as a composite score of three rejection factors (hostility/aggression, indifference/neglect and undifferentiated rejection) and the reverse-coded acceptance (warmth) factor. For the Paternal Rejection Scale, the analysis for the hostility subfactor yielded an alpha value of .75, .88 for the warmth/affection subfactor, .76 for the indifference/neglect subfactor, .79 for the undifferentiated rejection subfactor and .92 for the scale. Similar to the maternal rejection scale, the scale was entered into the analyses as a composite sum score of three rejection factors and the reverse-coded acceptance factor.

### **2.4.3. Sensory Processing Sensitivity**

Highly Sensitive Child Scale (Mother Report) developed by Aron (2002) was used to assess sensory processing sensitivity of adolescents. The Turkish adaptation of this scale was conducted by Akkaya, Ertekin and Berument (Manuscript in preparation). The initial version of the scale was a 5-point Likert type scale (1=strongly disagree, 5=strongly agree) which consisted of 38 items. These items were collected from the parent-report scale and the long and short versions of the self-report scales. To investigate the structure of the scale, a preliminary study was conducted with 439 mothers of children aged between 6-17. The initial factor analyses showed that the items derived from the self-report versions of the scale did not load to any of the factors, thus the analysis was continued with the 23-item version of the scale. Further

analyses yielded a 2-factor structure with 19 items. However, in order to examine the structure of the scale with a larger sample, it was decided that those 4 items that did not load to any of the factors should also be included, thus the scale was included into the study with 23 items that were originally in the parent report (Akkaya et al., Manuscript in preparation).

For this current study, the scale was utilized as a composite score (higher scores indicating higher sensitivity) and as the correlation between the 19-item version and 23-item version was very high ( $r = .97$ ), all the items were included when calculating the composite score. Reliability analysis yielded an alpha value of .80 for the 23-item version.

#### **2.4.4. Internalizing Behavior Problems**

The revised version of Child Behavior Checklist developed by Achenbach (1991) and adapted to Turkish by Dümenci et al. (2004) was used to assess internalizing behavior problems. This parent-report scale is a 3-point Likert type scale (1=not true, 3=often/very true) which consists of 33 items and 3 factors. Internalizing behavior problems was taken as a composite score that is created by the sum of three subfactors (anxiety/depression, somatic complaints, withdrawn/depressed). The Cronbach alpha values for this scale in this present study were calculated to be .75 for the anxiety/depression sub-factor, .75 for the withdrawn/depressed sub-factor, and .73 for the somatic complaints sub-factor, and .86 for the scale. The scale was entered into the analyses as a composite sum score.

## CHAPTER 3

### RESULTS

#### 3.1. Data Cleaning and Assumption Testing

As explained in the method section, 452 children from grades 5 and higher and 365 mothers participated in this study. Before analyses were conducted, frequency of all variables was checked, and it was found that all of the answers were within range. However, there were missing values; some of the mothers did not complete one or two of the measures and some of the children did not answer the scales about their father. Thus, the sample size for the maternal rejection model ( $n=351$ ) and the paternal rejection model ( $n=338$ ) differed. As it is suggested that univariate outliers may not be very influential in a multi-predictor model with an adequate sample size (Kutner et al., 2004; Tabachnick & Fidell, 2013), outliers were detected by analyzing standardized and studentized residuals (Kutner et al., 2014) and 3 cases were detected that exceed the amount 3 and those cases were deleted (Blatna, 2006).

Assumptions of regression were examined, and it was found that the sample met the assumptions of linearity, multicollinearity and homoscedasticity (Tabachnick & Fidell, 2013). The assumption of normality was not met, the distribution was positively skewed, but after deleting the outliers the results showed a slightly less positive skewness. As some of the scholars caution against using traditional transformation techniques for non-normal data (Feng et al., 2014) and some of them propose that with higher samples, a significant skewness may not result in an important difference and further, suggest that interpreting the results after transforming variables may be much difficult (Tabachnick & Fidell, 2013), the analysis run without intervening in the normality of the distribution is reported here. However, when transformation was carried out results did not differ. As proposed by scholars, prior to

analyzing interactions, the predictors were centered by subtracting the value from the mean (Hayes, 2018).

Two sets of hierarchical regression analyses were run, the first set of analyses were run by only entering the predictors in question, and the second set of analyses were run by controlling child age and mother's education level. While running the second set, the control variables were entered in the first step for both analyses (maternal and paternal rejection). When the results for all these analyses were examined thoroughly, it was seen that the results did not change neither for maternal rejection nor for paternal rejection. For the sake of brevity and because the sample size is not adequate enough, the results without the control variables are reported here.

In the next section, descriptive statistics and the detailed results for regression analyses are summarized.

### **3.2. Descriptive Statistics**

Prior to analyses, means, standard deviations and correlation coefficients of variables were calculated. The results of the analysis may be seen in Table 4.

**Table 4**  
*Means, Standard Deviations and Pearson Correlation Coefficients of Variables*

Variable	n	Min	Max	M	SD	1	2	3	4	5	6	7
1.Child Age	351	9	18	12.75	2.13	-						
2.Mother Education Level	351	1	7	3.86	1.14	-.045	-					
3.Maternal Rejection	351	24	92	35.76	10.43	.14**	-.09	-				
4.Paternal Rejection	338	24	89	36.70	10.89	.21**	-.16**	.61**	-			
5.SPS	351	40	115	80.98	13.37	-.04	-.12*	-.08	-.04	-		
6.Gender	351	1	2	1.62	.49	.00	-.06	.00	-.08	.08	-	
7.Internalizing	351	33	69	45.26	7.66	.04	-.14*	.20**	.17**	.14*	.15**	-

*Note.* SPS, sensory processing sensitivity, \*  $p < .05$ , \*\*  $p < .01$

### 3.3. Hierarchical Regression Analysis (Maternal Rejection)

A hierarchical multiple linear regression analysis was run in order to analyze whether maternal rejection is associated with internalizing behaviors, and whether this association is moderated by sensory processing sensitivity and, further, by gender. As the first part of the first research question (1a) intended to analyze the association between maternal rejection and internalizing behaviors, only maternal rejection as a predictor was entered into the first step. In the second step, sensory processing sensitivity as the child's temperamental characteristic was entered and in the third step, child gender (coded as 1=boys, 2=girls) was entered into the model. Two-way interaction between maternal rejection and sensory processing sensitivity was entered in the fourth step, as the second part of first research question (1b) focused on analyzing this association. In the fifth step, two-way interactions between maternal rejection and gender, and sensory processing sensitivity and gender were added. And, in the last step, the last part of the first research question (1c) was entered as a three-way interaction between maternal rejection, sensory processing sensitivity and gender.

Model 1 was significant, with an adjusted  $R^2$  value of .037;  $F(1,349) = 14.392$ ,  $p < .001$ ; 3.7% of variance in internalizing behaviors was explained by maternal rejection ( $B = 0.146$ ,  $SE = 0.039$ ,  $t(349) = 3.794$ ,  $p < .001$ , 95%CI [0.070, 0.222]). As expected, higher levels of maternal rejection were associated with higher levels of internalizing behavior in adolescents. Model 2 was also significant with an adjusted  $R^2$  value of .057;  $\Delta R^2 = .023$ ;  $\Delta F(2,348) = 8.496$ ,  $p = .004$ . Adding sensory processing sensitivity ( $B = 0.087$ ,  $SE = 0.030$ ,  $t(348) = 2.915$ ,  $p = .005$ , 95%CI [0.028, 0.146]) into the model explained an additional 2.3% of variance in internalizing behaviors; higher levels of sensory processing sensitivity were associated with higher levels of internalizing behaviors.

Model 3 was also significant with an adjusted  $R^2$  value of .072,  $\Delta R^2 = .018$ ;  $\Delta F(3,347) = 6.705$ ,  $p = .010$ ; adding gender ( $B = 2.112$ ,  $SE = 0.816$ ,  $t(347) = 2.589$ ,  $p = .010$ , 95%CI [0.508, 3.716]) into the model explained an additional 1.8% of variance in internalizing behaviors suggesting that for girls, mothers reported higher internalizing behaviors. Although Model 4 which analyzed the expected interaction between maternal rejection and sensory processing sensitivity did not reach significance ( $\Delta F(4,346) = 1.510$ ,  $p = .220$ ); Model 5, which included all the two-way

interactions, did reveal a significant equation with an adjusted  $R^2$  value of .084,  $\Delta R^2 = .016$ ;  $\Delta F(6,344) = 3.037$ ,  $p = .049$ . In this step, the interaction between sensory processing sensitivity and gender ( $B = 0.143$ ,  $SE = 0.061$ ,  $t(344) = 2.344$ ,  $p = .020$ , 95%CI [0.023, 0.263]) was found to be a significant predictor. For girls, higher levels of sensory processing sensitivity were associated with higher levels of internalizing behaviors. However, maternal rejection and SPS were no longer significant from this step forward.

In the last step, the model with the expected three-way interaction did not reach significance;  $\Delta F(7,343) = 0.012$ ,  $p = .913$ . However, the effect of gender as a predictor ( $B = 2.206$ ,  $SE = 0.814$ ,  $t(343) = 2.712$ ,  $p = .007$ , 95%CI [0.606, 3.807]) and the interaction of sensory processing sensitivity and gender ( $B = 0.143$ ,  $SE = 0.061$ ,  $t(343) = 2.338$ ,  $p = .020$ , 95%CI [0.023, 0.263]) remained significant. As the proposed interaction did not reach significance, the model was not entered into Process Macro (Hayes, 2018). The details of the results can be seen in Table 5.

**Table 5**  
*Results of a Hierarchical Regression Analysis Predicting Internalizing Problems (Maternal Rejection, Sensory Processing Sensitivity and Gender as Predictors)*

	B	SE	$\beta$	t	$R^2$	$\Delta R^2$	F	$\Delta F$
<b>Model 1</b>					.037	.040	14.39***	14.39***
MR	.15	.03	.19***	3.79				
<b>Model 2</b>					.057	.023	11.59***	8.49**
MR	.16	.04	.21***	4.05				
SPS	.09	.03	.15**	2.92				
<b>Model 3</b>					.072	.018	10.09***	6.70*
MR	.15	.04	.21***	4.06				
SPS	.08	.03	.14**	2.71				
Gender	2.11	.81	.13*	2.59				
<b>Model 4</b>					.074	.004	7.96***	1.51
MR	.16	.04	.22***	4.18				
SPS	.08	.03	.14**	2.75				
Gender	2.12	.82	.13*	2.60				
SPS x MR	.00	.00	.06	1.22				

**Table 5 (cont'd)**

	B	SE	$\beta$	<i>t</i>	$R^2$	$\Delta R^2$	<i>F</i>	$\Delta F$
<b>Model 5</b>					.084	.016	6.38***	3.03*
MR	.03	.14	.05	.23				
SPS	-.15	.10	-.26	-1.45				
Gender	2.20	.81	.14**	2.71				
SPS x MR	.00	.00	.08	1.54				
MR x G	.08	.08	.18	.95				
SPS x G	.14	.06	.42*	2.34				
<b>Model 6</b>					.082	.000	5.45***	.012
MR	.03	.14	.04	.22				
SPS	-.15	.10	-.26	-1.44				
Gender	2.20	.82	.14**	2.71				
SPS x MR	.00	.01	.06	.36				
MR x G	.08	.08	.19	.95				
SPS x G	.14	.06	.42*	2.34				
MRxSPSxG	.00	.00	.02	.11				

Note. MR, maternal rejection; SPS, sensory processing sensitivity; G, gender; \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

### 3.4. Hierarchical Regression Analysis (Paternal Rejection)

A hierarchical multiple linear regression analysis was run in order to test whether paternal rejection is associated with internalizing behaviors, and whether this association is moderated by sensory processing sensitivity and, further, by gender. As the first part of the first research question (1a) intended to analyze the association between paternal rejection and internalizing behaviors, only paternal rejection as a predictor was entered into the first step. In the second step, sensory processing sensitivity as the child's temperamental trait was included and in the third step, child gender (coded as 1=boys, 2=girls) was entered into the model. Two-way interaction between paternal rejection and sensory processing sensitivity was entered in the fourth step, as the second part of first research question (1b) focused on this association. In the fifth step, two-way interactions between paternal rejection and gender, and sensory processing sensitivity and gender were added. And, in the last step, the last part of the first research question (1c) was entered as a three-way interaction between paternal rejection, sensory processing sensitivity and gender.

Model 1 was significant, with an adjusted  $R^2$  value of .026;  $F(1,336) = 10.143$ ,  $p = .002$ ; 2.6% of variance in internalizing behaviors was explained by paternal rejection ( $B = 0.119$ ,  $SE = 0.038$ ,  $t(336) = 3.185$ ,  $p = .002$ , 95% CI [0.046, 0.193]). As proposed, higher levels of paternal rejection were associated with higher levels of internalizing behavior in adolescents. Model 2 was also significant with an adjusted  $R^2$  value of .040;  $\Delta R^2 = .016$ ;  $\Delta F(2,335) = 5.695$ ,  $p = .018$ . Adding sensory processing sensitivity ( $B = 0.073$ ,  $SE = 0.030$ ,  $t(335) = 2.386$ ,  $p = .018$ , 95% CI [0.013, 0.132]) into the model explained an additional 1.6% of variance in internalizing behaviors; higher levels of sensory processing sensitivity were associated with higher levels of internalizing behaviors.

Model 3 was also significant with an adjusted  $R^2$  value of .057,  $\Delta R^2 = .020$ ;  $\Delta F(3,334) = 7.039$ ,  $p = .008$ ; adding gender ( $B = 2.204$ ,  $SE = 0.831$ ,  $t(334) = 2.653$ ,  $p = .008$ , 95% CI [0.570, 3.839]) into the model explained an additional 2.0 % of variance in internalizing behaviors. Although Model 4 which analyzed the proposed interaction between maternal rejection and sensory processing sensitivity did not reach significance ( $\Delta F(4,333) = 7.039$ ,  $p = .890$ ); Model 5, which included all the two-way interactions, did reveal a significant equation with an adjusted  $R^2$  value of .067,  $\Delta R^2 = .018$ ;  $\Delta F(6,331) = 3.329$ ,  $p = .037$ . In this step, the interaction between sensory processing sensitivity and gender ( $B = 0.160$ ,  $SE = 0.062$ ,  $t(331) = 2.568$ ,  $p = .011$ , 95% CI [0.037, 0.282]) was found to be a significant predictor. For girls, higher levels of sensory processing sensitivity were associated with higher levels of internalizing behaviors. However, paternal rejection and SPS were no longer significant from this step forward.

In the last step, the model with the hypothesized three-way interaction did not reach significance;  $\Delta F(7,330) = 0.001$ ,  $p = .981$ . However, the effect of gender as a predictor ( $B = 2.278$ ,  $SE = 0.830$ ,  $t(330) = 2.744$ ,  $p = .006$ , 95% CI [0.645, 3.911]) and the interaction of sensory processing sensitivity and gender ( $B = 0.160$ ,  $SE = 0.063$ ,  $t(330) = 2.556$ ,  $p = .011$ , 95% CI [0.037, 0.283]) remained significant. As the proposed interaction did not reach significance, the model was not entered into Process Macro (Hayes, 2018). The details of the results can be seen in Table 6.

**Table 6**

*Results of a Hierarchical Regression Analysis Predicting Internalizing Problems (Paternal Rejection, Sensory Processing Sensitivity and Gender as Predictors)*

	B	SE	$\beta$	<i>t</i>	$R^2$	$\Delta R^2$	<i>F</i>	$\Delta F$
<b>Model 1</b>					.026	.029	10.14**	10.14**
PR	.12	.04	.17**	3.19				
<b>Model 2</b>					.040	.016	7.99***	5.70*
PR	.12	.04	.18***	3.30				
SPS	.07	.03	.13*	2.39				
<b>Model 3</b>					.057	.020	7.77***	7.04**
PR	.13	.04	.19***	3.54				
SPS	.07	.03	.12*	2.22				
Gender	2.20	.83	.14**	2.65				
<b>Model 4</b>					.054	.000	5.81***	.019
PR	.13	.04	.19***	3.51				
SPS	.07	.03	.12*	2.22				
Gender	2.21	.83	.14**	2.65				
SPS x PR	.00	.00	.00	.14				
<b>Model 5</b>					.067	.018	5.04***	3.33*
PR	.09	.14	.14	.716				
SPS	-.19	.10	-.34	-1.82				
Gender	2.27	.83	.15**	2.75				
SPS x PR	.00	.00	.02	.35				
PR X G	.02	.08	.05	.28				
SPS x G	.16	.06	.47*	2.57				
<b>Model 6</b>					.064	.000	4.30***	.001
PR	.01	.14	.14	.71				
SPS	-.19	.10	-.34	-1.81				
Gender	2.28	.83	.15**	2.74				
SPS x PR	.00	.01	.01	.06				
PR x G	.02	.08	.05	.27				
SPS x G	.16	.06	.48*	2.56				
PRxSPSxG	.00	.01	.01	.02				

*Note.* PR, paternal rejection; SPS, sensory processing sensitivity; G, gender; \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

### 3.5. Two-Way Interaction Between SPS and Gender

In order to analyze the significant interaction between SPS and gender, a moderation analyses was run via SPSS Process Macro by selecting Model 1 (simple moderation model; Hayes, 2018).

The model was significant  $F(2,347) = 5.773, p = .007$  with an  $R^2$  value of .04. The equation revealed that the interaction between sensory processing sensitivity and gender was significant ( $B = .123, SE = .06, t(347) = 2.0005, p = .046, 95\%CI [0.0021, 0.245]$ ). For girls, higher levels of sensory processing sensitivity were associated with higher levels of internalizing problems. The plot generated via SPSS Process Macro (Hayes, 2018) showing the interaction can be seen in Figure 3.

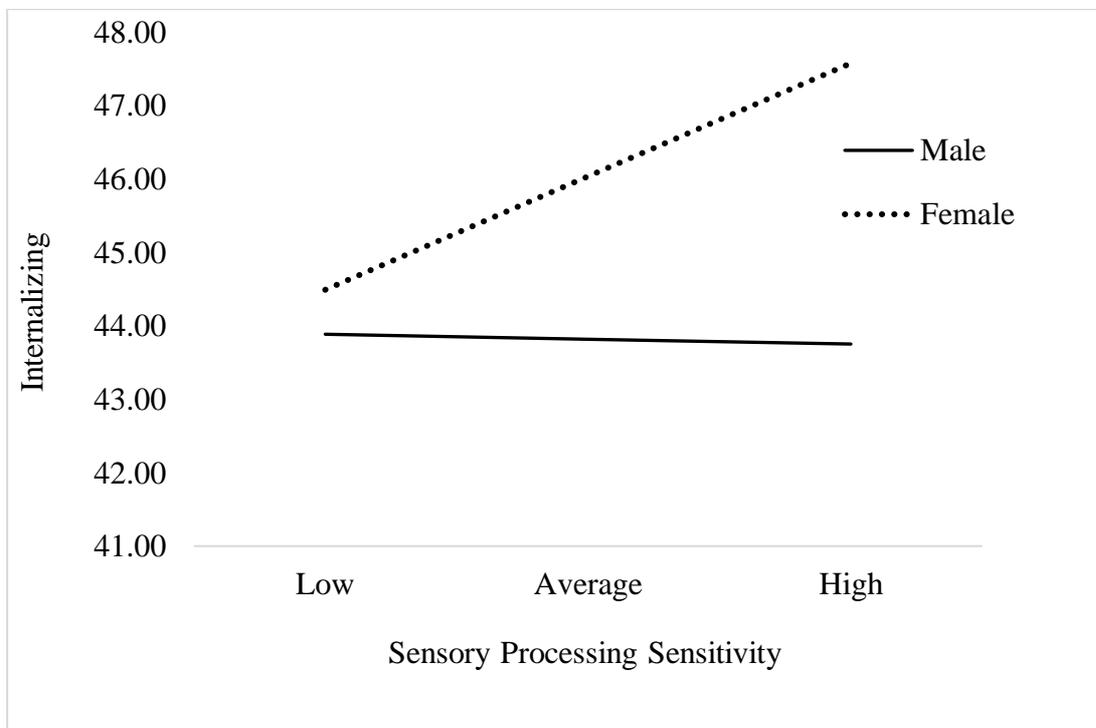


Figure 3. Two-way interaction between sensory processing sensitivity and gender predicting internalizing problems

## **CHAPTER 4**

### **DISCUSSION**

Acknowledging the importance of the adolescence period and the overgrowing challenges adolescents face in the 21<sup>st</sup> century (Call et al., 2002; Shulman & Sharf, 2018), this study intended to contribute to the existing literature by examining internalizing problems in adolescents and its potential predictors. For this, perceived maternal and paternal rejection as poor parenting factors were included in the model and sensory processing sensitivity as the child's individual characteristic was added. As the influence of gender is also emphasized in terms of adolescence psychopathology (Zahn-Waxler et al., 2008), gender was also included as a potential moderator. In the end, the main research questions were focused on the three-way interactions between maternal and paternal rejection, sensory processing sensitivity and child gender on adolescence internalizing problems.

The results revealed the expected association between maternal rejection and internalizing problems, and between paternal rejection and internalizing problems. However, these effects ceased to exist when other variables were entered into the model. The expected interaction between parental rejection and child temperament was not found for neither perceived father rejection nor mother rejection, however an interaction between sensory processing sensitivity and gender was found to be significant. Further, the effect of gender was found to be significant even when all the other variables were controlled for. The main research questions focusing on the three-way interaction between parental rejection, sensory processing sensitivity and gender on internalizing behaviors were not supported. The results are thoroughly discussed below.

#### **4.1. The Association Between Parental Rejection and Internalizing Behaviors**

In line with many studies linking parental factors and internalizing behaviors (e.g. Hale et al., 2005, Nishikawa et al., 2009; Nunes et al., 2013; Putnick et al., 2015) in the first four steps of the both hierarchical regression analyses the association between perceived parental rejection and internalizing behaviors for both fathers and mothers were significant. Furthermore, in the first step, the effect size of the association was %3.7 for mothers and %2.6 for fathers. These results are in line with McLeod, Wood et al.'s meta-analysis on childhood anxiety (2007), in this analysis it was found that parenting factors (rejection and control) explained approximately 4% of variance in anxiety. However, it is worth noting that in another meta-analysis focused on depression, this effect size was found to be 8% (McLeod, Weisz et al., 2007).

The small effect size in this study might be due to various reasons. Firstly, this study only took parental rejection as an indicator of poor parenting. However, some studies show that among other variables, psychological control may be more strongly related to internalizing behaviors during adolescence (e.g. Doyle & Markiewicz, 2005) and others show that rather than parenting styles or behaviors, paternal/maternal psychopathology and parental stress may be more strongly associated with internalizing problems (e.g. Ormel et al., 2015; Weijers et al., 2018). Second of all, in the current study, rather than separately examining anxiety and depression, the scores were analyzed as a composite outcome. However, studies also show that different parenting factors might have differing effects on childhood anxiety and depression. For instance, in McLeod, Weisz et al. and McLeod, Wood et al.'s meta-analyses (2007) it was found that parental control explained 6% of variance in childhood anxiety, while rejection explained 4%; and parental rejection explained 8% of variance in childhood depression, while control explained 5%.

Despite all this, it is seen that when the interaction of sensory processing sensitivity and gender is added to the model, maternal or paternal rejection were no longer significant; suggesting that other variables are more important in terms of adolescence internalizing problems. This finding is especially important for practical implications and will be further discussed in the following sections.

#### **4.2. The Association Between Sensory Processing Sensitivity and Internalizing Behaviors**

Even though not hypothesized, in the second step of the regression analyses, the results showed that higher levels of sensory processing sensitivity predicted higher levels of internalizing problems when parental rejection is controlled for, however this effect ceased to exist when interaction between sensory processing sensitivity and gender was included in the model. As seen in the introduction, there are not many studies focusing on highly sensitive adolescents and the literature is yet to grow in this area. Even though the studies are mostly conducted with young adults, it is seen from the limited number of studies that highly sensitive people may be more prone to experience anxiety, depression or stress (e.g. Bakker & Moulding, 2012; Brindle et al., 2015; Gearhart & Bodie, 2012; Liss et al., 2008; Neal et al, 2002; Yano & Oishi, 2018).

This finding is in line with a specific finding in Liss et al.'s (2005) study, in this study it was found that sensory processing sensitivity was associated with depression and anxiety in young adults even when parental factors are controlled for. This finding once again shows the importance of studying high sensitivity in adolescents in terms of practical implications as well. If being highly sensitive is a risk factor for psychopathology in adolescents and young adults, early interventions during toddlerhood and childhood might prove beneficial in building resilience during this important transition period. However, at the last step of the analyses, it is seen that sensory processing sensitivity does not have a unique effect on internalizing problems, while gender (being a girl) and high sensitivity's interaction with gender has. This interaction effect points out that there may be a more specific group at risk for internalizing problems and will be discussed in the following sections.

#### **4.3. The Association Between Gender and Internalizing Behaviors**

Concordant with many contemporary studies, this study also found that girls are reported to experience more internalizing behaviors when compared to boys (Rescorla et al., 2007; Zahn-Waxler et al., 2008). Gender was found to be a unique effect in the last step of the model, mothers reported that girls experience internalizing problems more. This finding is in line with studies conducted in Western samples (e.g. Carragher et al., 2016; Sentse et al., 2009) as well as Turkish studies conducted with

adolescent populations (e.g. Balat & Akman, 2006; Selçuk, 2019). Study findings have repeatedly shown that girls may be at more risk and scholars believe that many different factors (e.g. cognitive, biological, social and emotional) may be at play in creating this vulnerability (Zahn-Waxler et al., 2008).

However, scholars also caution against several points before reaching to a conclusion (Graber, 2004). For instance, studies show that besides gender, trajectory of internalizing behavior problems may differ according to age as well (e.g. Bongers et al., 2003) and it is said that gender vulnerability may differ across specific depression and anxiety disorders (Graber, 2004), but, in general, it is known that after a certain age, girls may be more at risk (Graber, 2004). This study took child age into account by controlling it in the second set of analyses and found that the results did not differ when age is also considered. However, a study comparing different age groups (i.e. early adolescence vs. late adolescence) might reveal further findings.

#### **4.4. Two-Way Interactions**

Studies on sensory processing sensitivity show that poor parenting factors may interact with high sensitivity in predicting several outcomes (e.g. negative affectivity and shyness in young adults, Aron et al., 2005; externalizing and internalizing problems in preschool children; Lionetti, Patore et al., 2019), suggesting that highly sensitive individuals who have experienced a non-optimal parenting environment may be more prone to maladjustment and behavior problems. As a matter of fact, the first study to conceptualize sensory processing sensitivity proposes an interaction between negative parenting factors and sensory processing sensitivity in predicting an unhappy childhood (Aron & Aron, 1997) and subsequent studies have also shown great interest in similar interaction effects (e.g. Booth, Standage, & Fox, 2015; Lionetti, Patore et al., 2019; Slagt et al., 2018; for a review please see Aron et al., 2012). Thus, in this study, it was also expected that a poor parenting factor would interact with high sensitivity in predicting adolescent behavior problems. However, the results did not reveal the expected interaction between maternal rejection and sensory processing sensitivity, and between paternal rejection and sensory processing sensitivity.

Although not that common, similar to this study's findings, there are studies that have also failed to find a significant interaction between parental care and sensory processing sensitivity. For instance, one study conducted with young adults found that

there was no interaction effect between parenting and sensory processing sensitivity on anxiety (Liss et al., 2005). However, in this study an interaction between parenting and sensory processing sensitivity was found predicting depression, highly sensitive young adults who remembered their parents to be uncaring were significantly more depressed. But it is worth noting that this relationship was found when sensory processing sensitivity was treated as a categorical variable, when the relationships were examined linearly, this interaction also ceased to exist. This holds true for other studies as well, earlier studies mostly treated the sensory processing sensitivity variable as a categorical dichotomous variable (e.g. Aron et al., 2005). However, later studies have treated sensory processing sensitivity as a continuous variable and contemporary findings reflect a 3-class structure rather than a dichotomous one for both adults and children (Lionetti et al., 2018; Pluess et al, 2018). Pluess et al. (2018), the first to analyze clusters of sensory processing sensitivity in a child and adolescent sample propose that it is best to treat this variable as a continuous variable but also take into account its 3-class categorical structure. In the current study, anxiety and depression were parts of a composite sum score for behavior problems and sensory processing sensitivity was considered a continuous variable. Given the methodology of previous studies and the latest propositions of scholars, it is believed that such differences in study designs may also have resulted in contradictory findings across studies.

Additionally, in some of these studies, the operational definition of a non-optimal parenting environment seems to be more generalized than the maternal/paternal rejection construct in this study. For instance, in their first study, Aron and Aron (1997) operationalized parenting environment by asking general questions about father involvement and closeness and in a subsequent study, Aron et al. (2005) assessed parenting environment by items measuring parental mental illness or whether alcoholism was a problem in the family or not and, in a more recent study Lionetti, Patore et al. (2019) used parenting styles as the predictor variable. Given the varied and more generalized definitions of the ‘non-optimal parenting’ variable, it is believed that the conflicted findings might also be due to different conceptualizations of poor family environments.

One important finding of this study is the interaction between sensory processing sensitivity and gender. The interaction between sensory processing

sensitivity and gender in predicting internalizing problems held true even when all the other variables were controlled for; mothers reported their highly sensitive girls to be more inclined to experience internalizing problems. As discussed thoroughly in the introduction, this finding, once again, points out the importance of including gender in the analysis.

It has been proposed that girls may be more inclined to experience internalizing problems because they have been socialized to self-regulate more or to be extra sensitive to relationships and that the social context they live in supports more dependent and emotional behaviors (Leadbeater et al., 1999; Zahn-Waxler et al., 2008). Additionally, the major part of sensory processing sensitivity is its focus on deeper processing so it may be that highly sensitive girls process such reinforcements from their social context much deeper (Pluess & Boniwell, 2015), making them more vulnerable to depression and anxiety.

This finding is important in terms of practical implications as well, if proven repeatedly in future longitudinal studies, it may be said that being a highly sensitive girl is a risk factor for internalizing problems above and beyond parental factors.

Scholars suggest that interventions focusing on specific populations may be more effective in certain cases (e.g. Dodge, 2019), and current studies suggest that highly sensitive people may benefit more from interventions (Lionetti et al., 2018). For instance, one study found that highly sensitive boys benefitted more from an anti-bullying program in terms of their internalizing behavior problems (Nocentini et al., 2018) and another one found that while highly sensitive girls benefitted from a depression intervention, their low-sensitive counterparts did not, and more interestingly, this association was more salient at the one year follow-up (Pluess & Boniwell, 2015). Authors discuss this finding in terms of sensory processing sensitivity's 'depth of processing' factor and propose that highly sensitive girls might have made use the skills they learned from this intervention over time because of their deeper processing traits. Additionally, it is also proposed that when creating an intervention on internalizing behaviors, a gender-specific approach may prove beneficial (Nilsen et al. 2018). All these underlie the importance of interventions aimed at specific populations and also, point out the advantageous side of being highly sensitive as proposed by Pluess (2015). In fact, in their comprehensive review Greven et al. (2019) also suggest that not only highly sensitive people are in need of

intervention, but they also may benefit from them the most; as may be seen in previous examples. The authors propose that educating highly sensitive individuals and teaching them about this trait may be the first step of prevention (Greven et al., 2019). In view of this proposition, if it is known that highly sensitive girls are more at risk for depression and anxiety, educating them about their high sensitivity might be the first step in terms of preventing depression and anxiety.

#### **4.5. Three-Way Interactions**

While developing the construct of sensory processing sensitivity, Aron and Aron (1997) suggested that highly sensitive people may be more affected by non-optimal familial environments and their findings revealed this to be true especially for men; men who perceived their parents to be non-optimal also reported to have an unhappy childhood. Although gender in terms of sensory processing sensitivity has not been studied thoroughly yet, in this study it was also expected that mothers and fathers' effect on their daughters and sons might differ. However, the expected three-way interactions which were the main focus of this study did not reach significance; results failed to reveal an interaction between maternal/paternal rejection, sensory processing sensitivity and gender. One reason this may be due to is the inadequate power of the study. As discussed in the method section, the expected sample size was not reached in this study and thus for a three-way interaction, the power of the analysis was poor.

As discussed in the previous section, another reason for the lack of significance in this study may be due to differing operationalization of the constructs; studies show that the link between parenting factors and internalizing behaviors may differ based on conceptualizations of parenting, and that sometimes the results may vary depending on whether depression and anxiety is considered a composite score or separate constructs. Therefore, it is believed that the findings may have also been affected by the design of the study.

#### **4.6. Strengths and Limitations of the Study**

One of the strengths of this research was analyzing parental rejection of mothers and fathers separately; even though the expected association was not

supported, it is believed that mothers and fathers' effects should be examined differently as they may have differing effects on child outcomes. Furthermore, it is known that developmental research is mostly focused on mothers, thus analyzing perceived paternal parenting is a contribution to an area which is in need of growing (Cabrera et al., 2018; Scaini et al., 2008).

Second strength of this research is utilizing both mother reports and child reports. As explained in detail in the method section, children were asked about their parents' parenting behavior and parents reported on their children's behaviors and characteristics. Although this type of design also has its own shortcomings, integrating both parent reports and child reports may be considered a more reliable way than only relying on self-reports. Moreover, it is believed that this may hold true especially for the current study's sample. Adolescents' reports on parenting behavior may be considered a more reliable way, as it is known that a person's self-report about a sensitive subject such as parenting might not be reliable for various reasons (Morshbach & Prinz, 2006). However, scholars also suggest that adolescents' emotional state at the time of assessment may also have an effect on their objectivity; and it would be more reliable if the emotional state of the adolescent is controlled for (Taber, 2010), a critical point which may be considered in similar future studies.

In addition, to the best of the project team's knowledge, this project is one of the first to examine high sensitivity in a child and adolescent sample in Turkey and findings related to the interaction between sensory processing sensitivity and gender point out the importance of studying this concept thoroughly. In their review, Greven et al. (2019) mention that even though the popularity of sensory processing sensitivity increases in public arenas, the research falls behind; and underlie the need for future comprehensive studies. In view of this, the current research conducted in a non-Western context may be considered a contribution to the literature.

This contribution is also important in terms of practical implications as well. As discussed, practical implications of the interaction effect are critical because it is known that depression and anxiety are one of the major problems of youngsters nowadays (WHO, 2020), and because of this, international organizations are calling out for interventions focused on adolescents, and especially adolescent girls (WHO, 2020, p.10). Interventions that target specific groups at specific timings are thought to be more effective as they allow for tailor-made programs for a specific group that has

similar needs (Dodge, 2019). Thus, knowing that highly sensitive girls may be more inclined to depression and anxiety would allow for a tailor-made intervention for that population.

Furthermore, Dodge (2019) also proposes a ‘tiered approach’; providing the intervention to the general population and then providing a more specific and tailor-made intervention to the particular group that may be in need. This suggestion may be especially useful in this case, it is known that adolescents in general are at more risk for depression and anxiety, thus a generalized intervention is needed, but a tailor-made one for the highly sensitive group may even prove to be more effective.

As scholars propose, risk factors for internalizing problems during adolescence should encompass both environmental factors and individual characteristics (Nilsen et al., 2018). This study may be considered in line with this proposition as it included parenting factors and temperament and gender and thus tried to design a model that covered environmental and individual variables. But, nevertheless, it fell short of including alternative environmental factors that may have a role, such as peer victimization (Reijntjes et al., 2010) or poverty and SES (Comeau & Boyle, 2018; Sentse et al., 2009).

The major limitation of this study is the sample size. As discussed thoroughly in the method, expected sample size was not reached due to COVID-19 precautions that took place in Turkey. Furthermore, it was intended that with a greater sample size a more heterogenous and a nationally representative group would be reached, but in terms of educational status the current sample seems to be more homogeneous than intended (44.7% of mothers were graduated from elementary level school while 8.3% of them were graduated from a higher level education – university or higher).

Additionally, although parent and child reports were both used in this study, other shortcomings of this research might be not utilizing multiple reports and solely utilizing scales. Studies show that there might be a discrepancy between parent’s self-reports and children reporting on parenting behavior and different types of collecting data might predict different outcomes (e.g. Gaylord et al., 2003). This proposition is also in line with McLeod, Wood et al.’s meta-analysis conducted in 2007, the authors found that when observational measures were used to assess parenting, the effects of the associations were larger. In view of these, as some scholars propose, it is thought that gathering data by using multiple methods may be more advantageous (Morshbach

& Prinz, 2006), and with an adolescent sample, it is believed that this may especially be true. For instance, a review article states that parent-report vs. self-report measures' findings about environmental stressors differ according to the age range of the sample; assessments utilizing older children's self-reports reveal stronger associations with environmental stressors (Grant et al., 2006). The authors argue these findings by stating that parents may not be able to capture the internal states of adolescents as easily as they do their younger children's, thus self-report measures in the adolescence period might reveal stronger associations. Other studies have concordant findings, for instance, in another meta-analysis conducted by Pinquart et al. (2017), it was found that studies that relied on multiple reports or child reports on parenting revealed more robust associations between parenting and internalizing problems and yet in another study, a cross-country study focusing also on the effects of study designs have found that when problem behaviors are asked to the adolescents rather than their parents, the amount of reported problems increases (Rescorla et al., 2007).

Additionally, the concept of sensory processing sensitivity also tries to capture a person's inner experience and encompasses deep and rich emotional experiences of a person (Aron et al., 2012), thus a self-report measure might be a more reliable way of assessing this construct especially in the adolescence period. With this age range, one another alternative and more reliable way of assessing sensory processing sensitivity might be to use a semi-structured interview as proposed by Greven et al. (2019).

Finally, scholars also point out the importance of including externalizing problems when analyzing such associations as these two dimensions seem to be correlated (Achenbach et al., 2016). In line with Achenbach et al.'s suggestions, one limitation of this study may be not including and/or controlling externalizing behavior problems of adolescents.

#### **4.7. Future Directions**

As discussed in the introduction, including other variables that may be associated with internalizing problems may also be a promising research area in the future. For instance, integrating other familial factors and temperamental characteristics might help create a much bigger picture of the relationships between environmental and temperamental factors and internalizing behaviors in adolescents.

Moreover, as this study's sample consists of adolescents, including the effect of peer relations may be another future direction as studies find that quality of peer relationships may buffer against poor parenting factors (Gaertner et al., 2015).

Furthermore, it is seen that some studies that examine depression and anxiety have found differing results. For instance, in Liss et al.'s (2005) study, an interaction between parenting behaviors and sensory processing sensitivity was not found for anxiety but a small interaction was found for depression and further when compared to depression; sensory processing sensitivity more strongly predicted anxiety. Thus, analyzing these variables separately might reveal further findings in the future. Moreover, as discussed previously, including externalizing problem behaviors might also reveal further findings (Achenbach et al., 2016); for instance, highly sensitive adolescent boys may be at more risk for externalizing behaviors in the Turkish context.

Also, parents' individual differences may also be taken into account in future studies. For instance, an exploratory study focusing on highly sensitive mothers and fathers examined the subjective parenting experiences of highly sensitive parents and found that highly sensitive parents may be more attuned to their child but may also perceive parenting difficult (Aron et al., 2019). Although exploratory, this study's findings also underlie the importance of taking into account parent's temperamental traits and emphasize the importance of longitudinal study designs that examine reciprocal relationships.

Lastly, studying sensory processing sensitivity in terms of Pluess' (2015; environmental sensitivity) unbiased framework in the Turkish context might also yield further results. Some studies have not found support for this framework, for instance Booth et al.'s (2015) study found that sensory processing sensitivity is a risk factor in terms of lower life satisfaction but the study findings failed to support the proposition that sensitive people are also more susceptible to positive environments. However, other studies have found concordant results with Pluess's (2015) meta-framework; for instance, Slagt et al. (2018) found that effect of poor and good parenting interacted with sensory processing sensitivity in increasing or decreasing problem behaviors in kindergarteners, and Lionetti, Patore et al. (2019) found that parenting interacts with sensory processing sensitivity in predicting both behavioral problems and social competence in preschoolers. These findings validate the proposition that highly sensitive individuals are more affected by their environments, either good or bad, and

once again, emphasize the importance of studying sensory processing sensitivity in that context (Aron et al., 2012; Pluess, 2015). In line with this, a major research question might be studying sensory processing sensitivity in poor and good environments and whether this interaction will hold true for poor and optimal outcomes in a Turkish context.

In conclusion, although the expected models were not supported in this study, it is believed that the results convey the importance and criticality of studying high sensitivity and internalizing behaviors in the Turkish context and point to a direction of a more in-depth examination of these constructs.

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## APPENDICES

### A. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

UYGULAMALI ETİK ARAŞTIRMA MERKEZİ  
APPLIED ETHICS RESEARCH CENTER

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02 OCAK 2018

Konu: Değerlendirme Sonucu

Gönderen: ODTÜ İnsan Araştırmaları Etik Kurulu (İAEK)

İlgi: İnsan Araştırmaları Etik Kurulu Başvurusu

Sayın Prof.Dr. Sibel KAZAK BERUMENT ve Yrd.Doç.Dr. Başak ŞAHİN ACAR;

“Ebeveynlik Tutumlarının ve Ebeveyn-Çocuk İletişim Özelliklerinin Çocuk ve Ergen Gelişimine Etkisi” başlıklı araştırmanız İnsan Araştırmaları Etik Kurulu tarafından uygun görülerek gerekli onay **2017-SOS-213** protokol numarası ile **01.09.2018-01.10.2021** tarihleri arasında geçerli olmak üzere verilmiştir.

Bilgilerinize saygılarımla sunarım.



Prof. Dr. Ayhan SOL  
Üye



Prof. Dr. Ş. Halil TURAN  
Başkan V



Prof. Dr. Ayhan Gürbüz DEMİR  
Üye



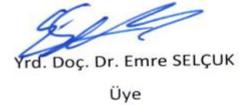
Doç. Dr. Yaşar KONDAKÇI  
Üye



Doç. Dr. Zana ÇITAK  
Üye



Yrd. Doç. Dr. Pınar KAYGAN  
Üye



Yrd. Doç. Dr. Emre SELÇUK  
Üye

## B. TURKISH SUMMARY / TÜRKE ÖZET

### BÖLÜM 1

#### GİRİŞ

Ergenlik dönemi, çocukluk dönemi ve yetişkinlik dönemi arasında önemli bir geçiş dönemidir ve bu dönemde gençler, biyolojik, sosyal ve bilişsel anlamda birçok değişiklik yaşarlar (Blakemore & Mills, 2014; Sawyer vd., 2018). Dünya Sağlık Örgütü'ne göre ergenlik dönemi 10-19 yaş arasını kapsamaktadır. Bilimsel çalışmalar ergenlik döneminin, madde kullanımı, yeme bozuklukları, dışa yönelim problemleri, depresyon, anksiyete, saldırganlık ve intihar gibi psikolojik ve davranışsal birçok problem için bir risk dönemi olabileceğini göstermektedir (e.g. Costello vd., 2011; Kim, 2003; Merikangas vd., 2010).

Alanyazında, çocukluk ve ergenlikte yaşanan psikolojik problemlerin 'içe yönelim problemleri' ve 'dışa yönelim problemleri' olmak üzere iki kategoride incelenebileceği önerilmektedir (Achenbach, 1966; Achenbach vd., 2016). İçe yönelim problemleri, depresif ve somatik şikayetler ve/veya anksiyeteyi kapsamaktadır ve yapılan çalışmalar bu problemlerin gençler için intihar, madde kullanımı vb. ciddi olumsuz sonuçları olduğunu göstermektedir (Liu ve Tein, 2005; O'Neil vd., 2011).

İçe yönelim problemleri için risk oluşturan faktörler bilimsel çalışmalarda etraflıca incelenmiştir ve Liu, Chen ve Lewis'in (2011) derlemesine göre çevresel ve ailevi faktörler ve belli mizaç özellikleri içe yönelim problemleri için risk oluşturabilmektedir. Bu faktörler arasında incelenen kavramlardan biri de ebeveyn reddidir ve mevcut çalışmanın ana değişkeni olarak belirlenmiştir. Yapılan bazı çalışmalar, algılanan ebeveyn reddinin içe yönelim problemleriyle ilişkili olduğunu göstermektedir (Nishikawa vd., 2009; Nunes vd., 2013).

Mevcut çalışma, ebeveyn reddi kavramını ‘Ebeveyn Kabul – Ret Teorisi’ çerçevesinde ele almaktadır. Bu teori, kişilerin ilişkilerde kabul görmelerinin ve bunu hissetmelerinin önemini vurgulamakta ve ebeveyn reddini, ebeveynin çocuğa karşı soğuk, saldırgan, fiziksel veya sözel ihmal davranışları olarak tanımlamaktadır.

Ebeveynlik ile ilgili yürütülen bilimsel çalışmaların genellikle annelere odaklandığı bilinmektedir, ancak günümüzde annelerin ve babalarının etkilerinin ayrı ayrı incelenmesinin önemi de vurgulanmaya başlanmıştır. Ancak, günümüzdeki kültürler arası çalışmaların bu ilişkileri derinlemesine incelemek için yeterli olmadığı da vurgulanmaktadır (Weitkamp ve Seiffge-Kranke, 2019). Bu önerilere paralel olarak, Türkiye’de de annelerin ve babaların çocuklarına karşı davranışlarının farklılaşabileceği düşünülmektedir ve bu sebeplerle, mevcut çalışmada da bu ilişkiler ayrı ayrı incelenmiştir.

Ebeveynlik gibi çevresel faktörlerin çocuk ve ergenler üzerinde etkili olduğu bilinmekle birlikte, bireysel özelliklerin bu ilişkilerde nasıl bir düzenleyici rolü olduğu da alanyazında kapsamlı bir şekilde çalışılmaktadır. Bu yönde kurgulanan çalışmalar, genelde mizaç özelliği olarak ‘tepkisellik’ boyutunun düzenleyici rolünü incelemiştir (Engle ve McElwain, 2010; Lengua, 2008; Morris vd., 2002; Slagt vd., 2018). Ancak, son zamanlarda alanyazında daha yeni bir kavram olan ‘duyusal duyarlılık’ da incelenmeye başlanmıştır (Aron ve Aron, 1997; Pluess, 2015; Slagt vd., 2018).

Duyusal duyarlılık, çevre hassasiyeti teorileri (Pluess, 2015) kapsamında değerlendirilen bir teoridir ve duyusal duyarlılığı yüksek bireylerin hem olumlu hem de olumsuz ortamlardan daha çok etkilenebileceği öne sürülmektedir (Pluess, 2015; Lionetti, Aron vd., 2019). Duyusal duyarlılık, derinlemesine bilişsel işleme ve duygusal tepkisellik gibi öğeler içeren genetik bir mizaç özelliğidir (Aron ve Aron, 1997). Bu bakış açısına göre, duyusal duyarlılığı yüksek bireyler daha önce karşılaşmamış oldukları bir ortama girerken temkinli davranmayı ve çevreyi incelemeyi tercih ederler ve aynı zamanda, çevrelerindeki uyarıcıları daha kolay fark ederler (Aron ve Aron, 1997; Aron vd., 2012). Son dönemde yapılan çalışmalar, toplumun %20’si ile 30’unun duyusal duyarlılığının yüksek olduğunu öne sürmektedir (Aron, 1996; Lionetti vd., 2018, Pluess vd., 2018).

Duyusal duyarlılık ile ilgili yapılan çalışmalar genellikle genç yetişkin ve yetişkinlerle yürütülmektedir ve bu çalışmaların sonuçları duyusal duyarlılığın depresyon, anksiyete ve stresle ilişkili olduğunu ortaya koymaktadır (Bakker ve

Moulding, 2012; Brindle vd., 2015; Gearhart ve Bodie, 2012; Liss vd., 2008; Yano ve Oishi, 2018). Yetişkinlerle yapılan çalışmalar kadar yaygın olmasa da çocuk ve ergen örnekleriyle yürütülen bazı çalışmalara da rastlanmaktadır ve bu çalışmalarda da hem duyuşal duyarlılıđın ana etkisine hem de düzenleyici etkilerine bakılmaktadır. Örneđin, yapılan bir çalışmada duyuşal duyarlılıđın çocuklarda uyku ve yeme problemleri ile ilişekli olduđu gösterilmiştir (Boterberg ve Warreyn, 2016) ve başka bir çalışmada ise duyuşal duyarlılıđın ebeveyn davranışları ve dışa yönelim problemleri arasında düzenleyici bir rolünün olduđu ortaya çıkmıştır (Slagt vd., 2018). Bu sonuçtan yola çıkarak, çalışmayı gerçekleştiren araştırmacılar, tepkisellik mizaç özelliđine kıyasla, duyuşal duyarlılıđın çocuklarda ve özellikle yaşça daha büyük çocuklarda daha güçlü bir düzenleyici rolünün olabileceđini öne sürmüşlerdir (Slagt vd., 2018).

Mevcut çalışmadaki model de duyuşal duyarlılıđın ebeveyn reddi ve içe yönelim problemleri arasında düzenleyici rolünün olabileceđi düşünülerek oluşturulmuştur. Ancak, çocuđun cinsiyetinin de belirleyici bir faktör olabileceđi göz önünde tutularak, cinsiyet de ikinci bir düzenleyici deđişken olarak deđerlendirilmiştir.

Son dönemlerde yapılan çalışmalar annelerin ve babaların ebeveynlik rollerinin aynı derecede önemli olduđunu, ancak bu ilişkilerin ayrı ayrı incelenmesi gerektiđini çünkü çocuklar üzerinde farklı etkileri olabileceđini göstermektedir (Bolkan vd., 2010; Bosco vd., 2003; Laible ve Carlo, 2004; Milevsky vd., 2007; Milevsky vd., 2008; Quach vd., 2015). Bunun yanı sıra, çocuđun cinsiyetinin de etkili olabileceđini öne süren çalışmalar vardır (Conrade ve Ho, 2001; McKinney ve Renk, 2008). Ayrıca, yapılan çalışmalar kızlarda içe yönelim problemlerinin erkeklere kıyasla daha sık görüldüđünü göstermektedir (Kim, 2003; Rescorla vd., 2007; Sentse vd., 2009; Ulu ve Fışılođlu, 2002). Diđer çalışmalar ise anne reddinin ve baba reddinin erkek ve kız çocuklar üzerinde farklı farklı etkileri olabileceđine işaret etmektedir (Roelofs vd., 2006; Verhoeven vd., 2012, Weitkamp ve Seiffge-Kranke, 2019). Bu bulgular ışığında, mevcut çalışmada anne ve babalarının ilişkilerinin ayrı ayrı incelenmesine ve çocuđun cinsiyetinin de düzenleyici etkisine bakılmasına karar verilmiştir.

Yukarıda özetlenen kavramlar ve bilimsel çalışmalar ışığında, mevcut çalışmada, duyuşal duyarlılıđın algılanan ebeveyn reddi ve içe yönelim problemleri

arasında düzenleyici bir rolünün olup olmadığını ve bu ilişkide çocuğun cinsiyetinin düzenleyici bir rolü olup olmadığını araştırmak amaçlanmıştır. Bu amaçlar doğrultusunda aşağıdaki araştırma soruları ve hipotezler oluşturulmuştur:

1. a. Ergenler tarafından algılanan anne reddi, ergenlerin yaşadığı içe yönelim problemleriyle ilişkili midir? Daha fazla anne reddi deneyimleyen ergenlerin daha fazla içe yönelim problemi yaşayacakları beklenmiştir.  
b. Duyusal duyarlılık, algılanan anne reddi ve içe yönelim problemleri arasında düzenleyici bir role sahip midir? Duyusal duyarlılığı yüksek olan ergenlerin, anneleri tarafından algıladıkları ret düzeyi yükseldikçe daha fazla içe yönelim problemleri yaşayacakları beklenmiştir.  
c. Bu ilişki çocuğun cinsiyetine bağlı değişiklik göstermekte midir?
2. a. Ergenler tarafından algılanan baba reddi, ergenlerin yaşadığı içe yönelim problemleriyle ilişkili midir? Daha fazla baba reddi deneyimleyen ergenlerin daha fazla içe yönelim problemi yaşayacakları beklenmiştir.  
b. Duyusal duyarlılık, algılanan baba reddi ve içe yönelim problemleri arasında düzenleyici bir role sahip midir? Duyusal duyarlılığı yüksek olan ergenlerin, babaları tarafından algıladıkları ret düzeyi yükseldikçe daha fazla içe yönelim problemleri yaşayacakları beklenmiştir.  
c. Bu ilişki çocuğun cinsiyetine bağlı değişiklik göstermekte midir?

## **BÖLÜM 2**

### **YÖNTEM**

Mevcut çalışma, TÜBİTAK tarafından desteklenen ve Orta Doğu Teknik Üniversitesi, Boğaziçi Üniversitesi ve Ege Üniversitesi tarafından Millî Eğitim Bakanlığı iş birliği ile yürütülen Türkiye Aile Çocuk ve Ergen Projesi (TAÇEP)'nin bir parçasıdır. TAÇEP'in amacı, Türkiye'deki ebeveynlik tutum ve davranışlarını ve çocuk ve ergen gelişimini incelemektir. Bu doğrultuda, TÜİK tarafından belirlenen 180 okuldan toplam 6600 anne ve çocuktan veri toplanması amaçlanmıştır. Ancak, Türkiye'de Mart 2020 itibariyle gerçekleşen COVID-19 önlemleri kapsamında okullar kapanmıştır ve hedeflenen örnekleme ulaşılamamıştır.

Mevcut çalışmanın örnekleme 5. sınıf ve üstünde kayıtlı olan öğrenci ve annelerinden oluşmaktadır. Analizler, annelerle ilgili olan hipotezleri incelemek için toplam 351 veri, babalarla ilgili olan hipotezleri incelemek için ise toplam 338 veri ile yürütülmüştür. Çalışmaya katılan anneler 28-60 yaşları arasında ( $Ort = 40.02$ ,  $S = 5.32$ ), çocuklar ise 9-18 yaşları arasındadır ( $Ort = 12.75$ ,  $S = 2.13$ ).

Veri toplamaya başlamadan önce, projenin bütünü için Orta Doğu Teknik Üniversitesi İnsan Araştırmaları Etik Kurulu ve Millî Eğitim Bakanlığı'ndan gerekli izinler alınmıştır. Okulların seçimi, Türkiye İstatistik Kurumu tarafından rastlantısal bir şekilde yapılmıştır. Öncelikle, proje ekibi tarafından seçilen okullarla irtibata geçilmiş ve projenin ayrıntıları anlatılmıştır ve akabinde rastlantısal olarak sınıflar seçilmiştir. Seçilen sınıflara gerekli açıklamalar yapılarak, sınıf listesinde bulunan ilk 14 öğrencinin velilerine gönüllü katılım formu gönderilmiştir. Şubat 2020'de başlanan veri toplama süreci COVID-19 önlemleri sebebiyle Mart 2020'de sonlandırılmıştır.

Mevcut çalışmada önerilen ilişkileri incelemek için toplam 4 ölçekten yararlanılmıştır. Demografik Bilgi Formu, anne formu ve çocuk formu olmak üzere iki ayrı formdan oluşmaktadır. Çocuk formunda, çocuğun yaşı, kardeşi olup olmadığı, ailesinin ekonomik düzeyi ile ilgili düşünceleri ile ilgili sorular yer almaktadır. Anne formunda ise, annenin yaşı, mesleği ve ailesinin sosyal ve ekonomik düzeyi ile ilgili düşünceleri ile ilgili sorular yer almaktadır.

Çocuğun algıladığı ebeveyn reddi, Ebeveyn Kabul ve Red Ölçeği tarafından değerlendirilmiştir. Bu ölçek, Rohner (2005) tarafından geliştirilmiş olup, Türkçe'ye adaptasyonu Anjel (1993) ve Varan (2003) tarafından yapılmıştır. Çocuklar, anneleri ve babaları için bu ölçeği ayrı ayrı cevaplandırmışlardır. Ölçek, 4'lü Likert tipi bir ölçektir ve bu çalışmada hem anne hem baba ölçekleri için hesaplanan iç tutarlılık değerleri .92 olarak bulunmuştur.

Çocuğun duyuşsal duyarlılığı Aron (2002) tarafından geliştirilen ve Akkaya, Ertekin ve Berument tarafından Türkçe adaptasyonu yapılan Hassasiyeti Yüksek Birey Ölçeği aracılığıyla değerlendirilmiştir. Anneler tarafından cevaplandırılan bu ölçek 5'li Likert tipi bir ölçektir. Ölçeğin bu çalışmadaki iç tutarlılık değeri .80 olarak hesaplanmıştır.

İçe yönelim problemleri ise Achenbach (1991) tarafından geliştirilen ve Türkçe'ye adaptasyonu Dümenci vd. (2004) tarafından yapılan Çocuk Davranış

Kontrol Listesi aracılığıyla ölçülmüştür. Anneler tarafından cevaplandırılan bu ölçeğin iç tutarlılık değeri .86 olarak bulunmuştur.

### BÖLÜM 3

#### SONUÇLAR

Veri temizleme ve artık veri değerlendirme işlemleri tamamlandıktan sonra, regresyon analizinin varsayımları incelenmiştir. Hipotezleri değerlendirmek için önce sadece ana değişkenler (anne/baba reddi, duyuşal duyarlılık ve cinsiyet) ile analizler yapılmış sonrasında ise kontrol değişkenleri olarak çocuğun yaşı ve annenin eğitim düzeyi eklenerek analizler tekrarlanmıştır. Sonuçların herhangi bir aşamada değişmediği görüldüğü için, kontrol değişkeni olmadan yapılan analizler raporlanmıştır. Hipotezleri değerlendirmek amacıyla, anneler için ayrı, babalar için ayrı olmak üzere iki ayrı hiyerarşik regresyon analizi yürütülmüştür.

Anne reddi için yürütölen hiyerarşik regresyon analizinin ilk modeline, ilk hipotezin ilk sorusunu araştırmak amacıyla sadece anne reddi değişkeni eklenmiştir. Bu modelde, beklendiği üzere, anne reddi ve ergenlerin içe yönelim problemleri arasında anlamlı bir ilişki bulunmuştur. Ergenlerin algıladığı anne reddi yükseldikçe, içe yönelim problemleri de yükselmektedir. İkinci adımda ise, çocuğun bireysel özelliği olarak duyuşal duyarlılık değişkeni eklenmiştir. Bu adımda da duyuşal duyarlılık ve içe yönelim problemleri arasında anlamlı bir ilişki olduğu görölmüştür. Çocuğun duyuşal duyarlılığı yükseldikçe, yaşadığı içe yönelim problemleri de yükselmektedir. Üçüncü adımda cinsiyet değişkeni eklenmiş ve cinsiyet değişkeninin de anlamlı bir şekilde içe yönelim problemleriyle ilişkili olduğu görölmüştür. Bu sonuç incelendiğinde, erkeklere kıyasla, kızların daha fazla içe yönelim problemi yaşadığı görölmektedir. Dördüncü adımda, hipotezin ikinci amacı olan anne reddi ve duyuşal duyarlılık etkileşimi bir değişken olarak eklenmiştir ve bu adımın anlamlı olmadığı görölmüştür. Beşinci adımda, tüm diğeri iki yönlü etkileşim değişkenleri (duyuşal duyarlılık ve cinsiyetin etkileşimi ve cinsiyet ve anne reddinin etkileşimi) modele eklenmiştir ve bu adımdan itibaren cinsiyet değişkeninin anlamlı olduğu ve etkileşim değişkeni olarak cinsiyet ve duyuşal duyarlılığın etkileşiminin anlamlı olduğu, diğeri değişkenlerin bu adımdan itibaren anlamlı olmadığı görölmüştür. Son

modelde ise, hipotezin son aşamasında beklenen anne reddi, duygusal duyarlılık ve cinsiyetin üç yönlü etkileşiminin içe yönelim problemleriyle ilişkili olmadığı görülmüştür.

Baba reddi için yürütülen analizin ilk modeline sadece baba reddi değişkeni eklenmiştir. Bu modelde, baba reddi ve ergenlerin içe yönelim problemleri arasında anlamlı bir ilişki bulunmuştur. Ergenlerin algıladığı baba reddi arttıkça, içe yönelim problemleri de artmaktadır. İkinci adımda ise, çocuğun bireysel özelliği olarak duygusal duyarlılık değişkeni eklenmiştir. Bu adımda da duygusal duyarlılık ve içe yönelim problemleri arasında anlamlı bir ilişki olduğu görülmüştür; duygusal duyarlılık arttıkça yaşanan içe yönelim problemleri de artmaktadır. Üçüncü adımda cinsiyet değişkeni eklenmiş ve cinsiyet değişkeninin de anlamlı bir şekilde içe yönelim problemleriyle ilişkili olduğu görülmüştür. Bu ilişki incelendiğinde kızların, erkeklere kıyasla, daha fazla içe yönelim problemleri yaşadıkları görülmektedir. Dördüncü adımda, hipotezin ikinci amacı olan baba reddi ve duygusal duyarlılık etkileşimi eklenmiştir ve bu adımın anlamlı olmadığı görülmüştür. Beşinci adımda, tüm diğer iki yönlü etkileşim değişkenleri modele eklenmiştir (duygusal duyarlılık ve cinsiyetin etkileşimi ve cinsiyet ve anne reddinin etkileşimi) ve bu adımdan itibaren cinsiyetin anlamlı olduğu ve etkileşim olarak cinsiyet ve duygusal duyarlılığın etkileşiminin anlamlı olduğu, ancak diğer değişkenlerin artık anlamlı olmadığı görülmüştür. Son modelde ise, hipotezin son aşamasında beklenen baba reddi, duygusal duyarlılık ve cinsiyetin üç yönlü etkileşiminin içe yönelim problemleriyle ilişkili olmadığı görülmüştür.

Duyusal duyarlılık ve cinsiyet etkileşiminin içe yönelim problemleriyle ilişkili olduğu gözlemlendiği için, bu ilişki daha detaylı incelenmiş ve SPSS Process Macro (Hayes, 2018) tarafından yürütülen analizde, erkeklere kıyasla, duygusal duyarlılığı yüksek olan kızların içe yönelim problemlerini daha çok yaşadıkları görülmüştür.

## **BÖLÜM 4**

### **TARTIŞMA**

Ergenlik döneminin önemli bir geçiş dönemi olduğundan yola çıkarak, mevcut çalışma ergenlerin yaşadığı içe yönelim problemleri ve bu problemlerin olası yordayıcıları incelemeyi amaçlamıştır. Bu doğrultuda, ergenler tarafından algılanan

anne ve baba reddini çevresel faktörler olarak ele almış, duyuşal duyarlılık kavramını ise çocuğun bireysel özelliđi olarak alıřmaya katmıřtır. Aynı zamanda, çocuğun cinsiyetinin önemi de alıřmalarda vurgulandıđı için (Zahn-Waxler vd., 2008) çocuğun cinsiyeti ayrı bir düzenleyici faktör olarak ele alınmıřtır.

Her iki analizin ilk dört modelinde de hipotezlerde beklendiđi yönde, anne reddi ve baba reddinin ergenlerin ie yönelim problemlerini anlamlı bir şekilde yordadıđı görölmüřtür. Ancak, modele iki yönlü etkileřim deđiřkenleri (cinsiyet ve duyuşal duyarlılıđın etkileřimi) eklendiđinde bu iliřkilerin artık anlamlı olmadığı görölmüřtür. Arařtırma sorularının ikinci basamaklarında beklenen, duyuşal duyarlılıđın ebeveyn reddi ve ie yönelim problemleri arasında düzenleyici bir rolünün olacađı yönündeki hipotezler ne anne reddi için ne de baba reddi için desteklenmemiřtir. Benzer şekilde, ebeveyn reddi, duyuşal duyarlılık, cinsiyetin üç yönlü etkileřiminin de ie yönelim problemleri üzerinde yordayıcı bir etkisi olmadığı görölmüřtür.

Ebeveynlik ile ie yönelim problemleri arasında iliřki olduđunu gösteren birçok alıřmaya benzer bir şekilde (Hale vd., 2005, Nishikawa vd., 2009; Nunes vd., 2013; Putnick vd., 2015), bu alıřmada da anne ve baba reddinin ie yönelim problemleri ile iliřkili olduđu ortaya konulmuřtur. Ancak, ilk modeldeki etki büyüklüklerinin anne reddi için %3,7, baba reddi için ise %2,6 olduđu görölmüřtür. Bu sonuç, McLeod, Wood vd. (2007) ve McLeod, Weisz vd. (2007) tarafından yapılan meta-analiz alıřmalarının sonuçlarına paraleldir. Bu sonuç eřitli yönlerden tartıřılabilir, öncelikle bu alıřma ebeveynlik faktörü olarak sadece ebeveyn reddini ele almıřtır, ancak yapılan diđer alıřmalar bařka faktörlerin (psikolojik kontrol, ebeveynlik stilleri, anne ya da babanın psikolojik durumu vb.) de etkisi olabileceđini göstermektedir (Doyle ve Markiewicz, 2005, Ormel vd., 2015; Weijers vd., 2018). Ayrıca, bu alıřma anksiyete ve depresyonu ayrı ayrı incelemek yerine, toplam puan olarak ele almıřtır ancak bařka alıřmalara bakıldıđında bazı ebeveynlik faktörlerinin daha ok anksiyete ile bazılarının ise daha ok depresyon ile iliřkili olduđu görölmektedir. Örneđin, , McLeod, Wood vd. (2007) ve McLeod, Weisz vd. (2007) tarafından yapılan meta-analiz alıřmalarında, çocuğun kayđı düzeyi incelendiđinde, ebeveyn kontrolünün %6'lık bir varyans açıkladıđı ancak ebeveyn reddinin %4'lük bir varyans açıkladıđı, çocuğun depresyon düzeyi incelendiđinde ise ebeveyn kontrolünün %5'lik bir varyans açıkladıđı ama ebeveyn reddinin %8'lik bir varyans açıkladıđı

görülmektedir. Dolayısıyla, çalışmalarda bu tür farklılıkların sonuçlar üzerinde de etkili olabileceği düşünülmektedir.

Her iki analizin de ikinci modelinde duyuşal duyarlılıđın ergenlerin ie ynelim problemleri ile ilişekli olduđu gözlemlenmiştir. Ancak ebeveyn reddinde olduđu gibi, duyuşal duyarlılık ve cinsiyetin etkileşimi modele eklendiğinde bu deđişkenin artık anlamlı olmadığı görülmüştür. Alanyazında, duyuşal duyarlılıđı yüksek olan çocuk ve ergenlerle yapılan çalışmalar kısıtlıdır. Ancak, daha çok genç yetişkinlerle yapılan çalışmalar, duyuşal duyarlılıđın anksiyete, depresyon ve stresle ilişekli olduğunu ortaya koymaktadır. Bu çalışmada da benzer bir bulguya rastlanmıştır ve ebeveynlik kontrolü kontrol edildiđi modelde de duyuşal duyarlılıđın ie ynelim problemleriyle ilişekli olduđu görülmüştür. Bu bulgunun özellikle müdahale çalışmaları için önemli olduđu düşünülmektedir. Eđer miza özelliđi olarak duyuşal duyarlılık depresyon ve anksiyete ile ilişekliyse, erken çocukluk ve ergenlik dönemindeki müdahale çalışmaları bu geiş dönemlerinde etkili olabilir. Bunların yanı sıra, yapılan her iki analizde de duyuşal duyarlılık ve cinsiyetin etkileşimi modele eklendiğinde ebeveyn reddi ve ie ynelim problemleri arasındaki ilişkinin ve duyuşal duyarlılık ve ie ynelim problemleri arasındaki ilişkinin anlamlı olmadığı görülmüştür.

Benzer şekilde, her iki analizde de cinsiyetin ie ynelim problemleri ile anlamlı bir ilişkisi olduđu görülmüştür. Anneler, kızlarının daha çok ie ynelim problemi yaşadığını bildirmişlerdir. Bu bulgu, yapılan birçok çalışmanın sonucuyla paralel bir bulgudur (Rescorla vd., 2007; Zahn-Waxler vd., 2008). Yapılan çalışmalar, sosyal, biyolojik ve bilişsel birçok sebepten ötürü ergenlik döneminde kızların ie ynelim problemleri yaşamaya daha yatkın olduğunu göstermektedir (Balat & Akman, 2006; Seluk, 2019; Zahn-Waxler vd., 2008). Ancak, çalışmalar ayrıca bu cinsiyet farklılıđının hem farklı depresyon ve anksiyete semptomlarıyla farklı şekillerde ilişekli olabileceğini hem de yaşı bađlı olarak deđişebileceğini göstermektedir (Bongers vd., 2003; Graber, 2004).

Alanyazında, duyuşal duyarlılıđın ebeveynlik faktörleri ve olumlu/olumsuz çeşitli sonuçlar arasında düzenleyici bir rolü olduđu üzerinde durulmaktadır (Aron ve Aron, 1997; Booth vd., 2015; Lionetti, Pastore vd., 2019; Slagt vd., 2018; Aron vd., 2012). Bu sebeple, mevcut çalışmada da böyle bir ilişki bulunacağı düşünülmüştür. Ancak, iki yönlü etkileşimler incelendiğinde, duyuşal duyarlılıđın beklendiđi şekilde,

anne veya baba reddi ve içe yönelim problemleri arasında düzenleyici bir rolü olmadığı görülmüştür. Çok yaygın olmamakla birlikte, bu etkileşim etkisini bulamayan başka çalışmalara da rastlanmaktadır. Örneğin, Liss ve diğerleri (2005) tarafından yapılan bir çalışmada, duyuşsal duyarlılığın ebeveynlik ve anksiyete arasında düzenleyici bir etkisi olmadığı, ama ebeveynlik ve depresyon arasında düzenleyici bir etkisi olduğu görülmüştür. Ancak, bu ilişki duyuşsal duyarlılık değişkeni kategorik bir değişken olarak analiz edildiğinde ortaya çıkmıştır, bu ilişki lineer bir şekilde incelendiğinde yine duyuşsal duyarlılık değişkeninin düzenleyici bir etkisi olmadığı ortaya çıkmıştır. Aynı şekilde, başka çalışmalarda da duyuşsal duyarlılık değişkeninin kategorik bir değişken olarak ele alındığı görülmektedir (örneğin; Aron vd., 2005). Ancak, son zamanlarda araştırmacılar, mevcut çalışmada da olduğu gibi, duyuşsal duyarlılığın sürekli bir değişken olarak ele alınmasının daha doğru olacağını ifade etmektedir (Lionetti vd., 2018; Pluess vd., 2018).

Aynı şekilde, mevcut çalışma ve önceki çalışmalar karşılaştırıldığında, ebeveynlik faktörleri olarak ele alınan faktörlerin ve tanımlarının da değişiklik gösterdiği görülmüştür. Örneğin, Aron ve Aron (1997) tarafından yapılan ilk çalışmaların birinde, ebeveynlik faktörleri, babanın aile ortamındaki katılımı ve ailede alkolizm vb. problemlerin olup olmadığını içeren maddelerle incelenmiştir ve mevcut çalışmayla kıyaslandığında, aile ortamını tanımlamak için daha farklı ve genel tanımlamalar kullanıldığı görülmüştür. Çalışmalar arasındaki farklı sonuçların bir sebebin de faktörlerin bu şekilde tanımlanmasından kaynaklanabileceği düşünülmektedir.

Ana hipotezlerde bulunmasa bile, duyuşsal duyarlılık ve cinsiyet etkileşimi ile içe yönelim problemlerinin arasındaki ilişkinin anlamlı olması mevcut çalışmanın önemli bir bulgusudur. Diğer tüm değişkenler kontrol edildiğinde dahi, iki analizin son modellerinde bu etkileşimin anlamlı olduğu görülmüştür. Sosyalleşme süreçleri içerisinde, kız çocuklarının daha ilişki odaklı olma yönünde motive edildikleri ve bu sebeple daha bağımlı ve duyuşsal davranışlara yöneldikleri alanyazında tartışılan bir konudur (Leadbeater vd., 1999; Zahn-Waxler vd., 2008). Aynı zamanda, duyuşsal duyarlılığın bir parçası da uyarıcıları derin işlemeyle ilgilidir, bu şekilde düşünüldüğünde duyuşsal duyarlılığı yüksek olan kızların çevrelerinden gelen bu mesajları daha fazla içselleştirdikleri ve bu durumun da onları depresyon ve anksiyeteye daha yatkın hale getirdikleri düşünülebilir.

Bu bulgu, aynı zamanda müdahale uygulamaları açısından da önem teşkil etmektedir. Gelecekte yapılabilecek boylamsal çalışmalarla da tekrarlandığı takdirde, ergenlik döneminde duyuşal duyarlılığı yüksek kız çocuklarının depresyon ve anksiyete açısından daha yüksek risk taşıdığı söylenebilir ve çeşitli önleyici programların geliştirilmesi için önemli bir bulgu olarak değerlendirilebilir.

Hipotezlerin son aşamasında beklenen, ebeveyn reddi, duyuşal duyarlılık ve cinsiyet üç yönlü etkileşiminin içe yönelim problemleri ile ilişkili olduğu yönündeki araştırma sorusu desteklenmemiştir. Bu sonucun bir sebebi çalışmanın örneklem büyüklüğünün üç yönlü bir etkileşimi inceleyecek güçlülükte olmaması olabilir. Bir diğer sebebi ise daha önce de tartışıldığı üzere, ebeveynlik ile ilgili faktörlerin çalışmalar tarafından farklı bir şekilde tanımlanması olabilir.

Genellikle ebeveynlik ile ilgili çalışmalar annelere odaklandığından (Cabrera, Volling ve Barr, 2018; Scaini, Palmieri ve Caputi, 2008), mevcut çalışmada anne ve babalara ayrı ayrı bakılmasının alanyazına önemli bir katkı sağladığı düşünülmektedir. Ayrıca, mevcut çalışmada ebeveynlik faktörleri çocuklar tarafından cevaplandırılmış, çocuk mizaç ve davranış özellikleri ise anneler tarafından cevaplandırılmıştır. Bu tür bir ölçek uygulamasının daha güvenilir olduğu düşünülmektedir. Bunların yanı sıra, bilindiği kadarıyla bu proje, duyuşal duyarlılık kavramını Türkiye örneklemiyle inceleyen ilk projelerden biridir. Duyusal duyarlılığı yüksek olan kız çocukların daha fazla içe yönelim problemleri yaşadıklarına dair bulgu da Türkiye örneklemi ve bağlamı açısından önemli bir bulgu sayılabilir. Duyusal duyarlılık ile ilgili çalışmaların sadece Batı odaklı değil, farklı kültürlerde de incelenmesinin ilgili alanyazına önemli bir katkı olduğu söylenebilir.

Mevcut çalışmanın en önemli sınırlılıklarından biri örneklem büyüklüğüdür. Gelecek çalışmalarda daha büyük ve heterojen bir örneklemele daha farklı ve kapsamlı sonuçlar elde edilebileceği düşünülmektedir. Çalışmanın bir diğer sınırlılığı ise sadece ölçekler üzerinden değerlendirme yapılmış olmasıdır. Son olarak, bilimsel çalışmalar dışa yönelim problemlerinin de içe yönelim problemleriyle ilişkili olduğunu göstermektedir (Achenbach vd., 2016), dolayısıyla dışa yönelim problemlerinin çalışmaya katılmamış olmaması da bir sınırlılık olarak sayılabilir.

Gelecekteki araştırmalarda, ergenlerin içe yönelim problemleriyle ilgili olabilecek diğer değişkenlerin de modele eklenmesiyle daha açıklayıcı bir modelin oluşacağı düşünülmektedir. Ayrıca, örnek verilen diğer çalışmalarda olduğu gibi,

depresyon ve anksiyetenin ayrı ayrı incelenmesinin de farklı sonuçlar doğuracağı ve farklı ilişkilerin irdelenmesini sağlayabileceği düşünülmektedir. Bunların yanı sıra, gelecek araştırmalarda ebeveynin mizaç özelliklerinin de incelenmesinin ve ebeveyn mizacı ve çocuk mizacı / çıktıları arasında karşılıklı ilişkilere de bakılmasının önemli olduğu düşünülmektedir. Örneğin yapılan bir çalışmada, duygusal duyarlılığı yüksek olan ebeveynlerin çocuklarıyla daha uyumlanmış oldukları ama ebeveynliği de daha zor buldukları görülmüştür (Aron vd., 2019). Bu tür çalışmalar, ebeveynin mizacının da çalışmaya katılmasının önemini vurgulamaktadır. Son olarak, Pluess'un (2015) da önerdiği üzere, duygusal duyarlılık kavramını çevresel hassasiyet teorileri çerçevesinde hem olumlu hem de olumsuz çevresel faktörler ışığında incelemenin de Türkiye'de yapılabilecek önemli bir araştırma olacağı düşünülmektedir.

## C. THESIS PERMISSION FORM / TEZ İZİN FORMU

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**Soyadı / Surname** : Onursal Özer  
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**Bölümü / Department** : Psikoloji / Psychology

### TEZİN ADI / TITLE OF THE THESIS (İngilizce / English):

The Relationship Between Perceived Parental Rejection and Internalizing Behaviors: Moderating Role of Sensory Processing Sensitivity and Gender

**TEZİN TÜRÜ / DEGREE:** **Yüksek Lisans / Master**  **Doktora / PhD**

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