

# THE MODERATING ROLE OF INCARCERATED MOTHERS' PSYCHOSOCIAL FUNCTIONING ON THE ASSOCIATION BETWEEN MATERNAL SENSITIVITY AND THEIR CO-RESIDING TODDLERS' ATTACHMENT

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The role of incarcerated mothers' caregiving quality on their co-residing children's development may not be fully understood without considering mothers' psychosocial functioning. The current study aims to investigate the moderating role of incarcerated mothers' psychosocial functioning (i.e., relationship with their outside children's caregivers, psychological symptoms, and social support) on the associations between maternal sensitivity and their co-residing children's attachment. The study sample consisted of 68 mothers and their 12- to 43-month-old co-residing children. Maternal sensitivity and child's attachment were assessed based on a semi-structured mother-child interaction observation. Mothers reported their psychosocial functioning indicators that were determined based on the common distress factors that these mothers experience. Findings suggest that for the mothers who have the lowest relationship quality with their outside children's caregivers, maternal sensitivity negatively predicts children's disorganized attachment. Moreover, maternal sensitivity predicted children's secure attachment positively and anxious attachment negatively only when maternal psychological symptoms were higher.

**Keywords:** parental incarceration; parenting; incarcerated women; protective factors; psychology

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Incarceration of women has increased dramatically over the last few decades in Turkey (Fisher, 2018) as well as in other countries such as the United States (Wakefield & Apel, 2018), with most of the women being the primary or only caregiver of at least one child (Glaze & Maruschak, 2008). Separation from the primary caregiver has been indicated as a deleterious experience for children's later functioning (see Kobak et al., 2016, for a review). Considering that mothers are more likely the primary caregivers of their children, separation from their incarcerated mothers has been shown to be highly detrimental to children's positive development (Dallaire et al., 2015; Dallaire & Wilson, 2010; Poehlmann, 2005b). To avoid separating minor children from their primary caregivers, eligible mothers are

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**AUTHORS' NOTE:** *This research was supported by the Society for Research in Child Development under the Patrice L. Engle Dissertation Grant in Global Early Child Development. There is no known conflict of interest to disclose. Correspondence concerning this article should be addressed to Zülal İşcanoğlu, Faculty of Humanities, Department of Psychology, Cappadocia University, Ürgüp Nevşehir 50420, Turkey; e-mail: zulal.iscanoglu@gmail.com*

CRIMINAL JUSTICE AND BEHAVIOR, 201X, Vol. XX, No. X, Month 2022, 1–19.

DOI: 10.1177/00938548221082655

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allowed to care for their young children in prison facilities in many countries (see Alejos, 2005, for details of policies varying greatly across countries). Turkey is one of those countries where incarcerated mothers are allowed to co-reside with their children younger than 6 years of age in correctional facilities.

In Turkey, incarcerated mothers and their co-residing children share their rooms with other women who do not have co-residing children, instead of staying in special mother-baby units, as is the case in many other countries. In other words, they do not have the opportunity to reside with their young children in a private room located in a special unit where they mostly interact with other mothers with co-residing children. Incarcerated mothers residing with their children stated that they experience some relational problems with other incarcerated women without co-residing children, such as these other women objecting to the noise made by the co-residing children (Anaraki & Boostani, 2014). Therefore, it can be suggested that caring for their co-residing children, while staying with other women in regular facilities instead of a special mother-baby unit, would create additional distress for these Turkish mothers. In addition to this specific relational distress experienced by Turkish incarcerated mothers residing with their children, incarcerated mothers may also experience tense relationships with the caregivers of their children staying outside. Most incarcerated mothers with co-residing children may also have additional young children that they had to be separated from (İşcanoğlu & Uçanok, 2021), and they may perceive that the caregivers are responsible for their lack of communication and weakened relationships with their children residing outside (Mignon & Ransford, 2012). In line with these findings, co-parenting alliance between the incarcerated mothers and their outside children's caregivers seems to have important implications for incarcerated mothers' psychological well-being (McHale et al., 2013; Mignon & Ransford, 2012; Poehlmann, 2005a). In addition to these two distress factors related to their co-residing and outside children, incarcerated women typically experience elevated mental health difficulties along with sadness, hopelessness, irritability, and helplessness (Asberg & Renk, 2013; Fedock, 2017; Glaze & Maruschak, 2008; Poehlmann, 2005a). Therefore, in the current study, these psychological (i.e., mental health difficulties) and social (i.e., social support from other women that they are residing with and their relationships with the caregivers of their children residing outside) distress factors are evaluated as the indicators of these mothers' psychosocial functioning.

Secure attachment to the primary caregiver in early years of development may function as a resilience factor contributing to children's later social and emotional adjustment (Groh et al., 2017). The protective role of attachment security and the detrimental role of attachment insecurity was found to be greater for the developmental outcomes of children at high-risk (Belsky & Fearon, 2002; Graham & Easterbrooks, 2000). Considering that children with incarcerated parents predominantly come from the most disadvantaged families, there is a great need for concern regarding the factors explaining their attachment to their mothers. Although maternal sensitive caregiving has been one of the most investigated determinants of children's attachment security (Ainsworth et al., 2015), there is a dearth of research investigating the parenting quality of incarcerated mothers to their co-residing children. Aforementioned distress factors may also impede the supportive role of their sensitive caregiving on their co-residing children's development. Accordingly, this study aims to investigate the moderating role of maternal psychosocial functioning on the associations between maternal sensitive caregiving and their co-residing children's attachment.

## MATERNAL SENSITIVITY AND CHILDREN'S ATTACHMENT: THE ROLE OF MATERNAL PSYCHOSOCIAL FUNCTIONING

Attachment theory provides a comprehensive conceptual framework to understand the effects of early experiences on individuals' later development (Bowlby, 1982). The theory postulates that the quality of care provided by the primary caregivers during the early years of life shapes children's mental representations for later close relationships and is linked to their socioemotional development (e.g., Fearon et al., 2010; Groh et al., 2017). Numerous studies have generated results compatible with this proposition and pointed out that the secure attachment representations support various aspects of later development including social competence and emotion regulation (see Groh et al., 2017, for a meta-analysis; see Thompson, 2016, for a review). Contrary to secure attachment, insecure attachment has been indicated as a risk factor for various developmental areas such as academic underachievement, conduct problems, and poor social competence (Evans et al., 2013).

Although incarcerated mothers are the only caregivers of their co-residing children, there is a scarcity of research focusing on co-residing children's attachment to their mothers. Considering that the main aim of the prison co-residency programs is to protect the invaluable mother-child bond to support children's development, these children's attachment to their mothers is a crucial inquiry that needs to be addressed. To the best of our knowledge, only two attachment-based intervention studies have directly investigated children's attachment whose mothers were involved in a jail-diversion program (Cassidy et al., 2010) and residing in a prison nursery (Byrne et al., 2010). Both were initiated following childbirth, and the children's attachment was evaluated at 12 months. Although these studies indicated that the implemented programs may be beneficial for these children by increasing their attachment security rate, none of them investigated the factors explaining these children's attachment to their mothers. It is important to examine if maternal caregiving quality supports children's attachment security and most importantly if maternal distress factors minimize the supportive role of maternal care on co-residing children's attachment.

Maternal sensitivity refers to the mothers' capacity to interpret their children's needs accurately and respond to them promptly and appropriately (Ainsworth et al., 2015). The link between maternal sensitive care and children's secure attachment has been shown by many experimental (Klein Velderman et al., 2006), cross-cultural (Posada et al., 2016), and meta-analytical (De Wolff & van IJzendoorn, 1997) studies. Although two previous studies investigated maternal sensitivity of mothers who were involved in the criminal justice system (Cassidy et al., 2010; Sleet et al., 2013), there is a dearth of research exploring the predictive role of incarcerated mothers' parenting quality on their co-residing children's developmental outcomes including attachment security.

Maternal psychological and social stressors are likely to make mothers less able to tune into and be responsive to their young children's attachment signals, in other words, negatively influence their sensitive caregiving capacity (see Booth et al., 2018, for a meta-analysis). Mothers' social and emotional difficulties may divert their attention from the child to their own struggles and may minimize their motivation and ability to support their children's development of secure attachment representations (Dix et al., 2004). Considering that incarcerated mothers face various distress factors in addition to caring for a young child in a strictly controlled prison setting, it is important to investigate the role of their psychosocial difficulties on the associations between their maternal sensitivity and co-residing

children's attachment to them. This study focuses on four aspects of psychosocial functioning that were determined based on some of the most common struggles experienced by incarcerated mothers who reside with their children. These aspects are elaborated below.

#### **SOCIAL SUPPORT PERCEPTION AND SATISFACTION WITH THIS SUPPORT**

Social support has been defined as an available network whom individuals can count on regarding a variety of situations such as emotional and social difficulties (Sarason et al., 1987). Meta-analytical (Atkinson et al., 2000) and experimental (Jacobson & Frye, 1991) evidence indicated that low social support perception may undermine mothers' sensitive caregiving quality and have a negative impact on their children's attachment security. Social support has been referred to as an important aspect of incarcerated women's functioning (Fedock, 2017) and was highlighted as an indicator of psychosocial functioning of mothers who participated in a jail-diversion program with their infants (Cassidy et al., 2010). Moreover, Byrne (2019) emphasized that maternal social support should be involved in intervention studies aiming to support the well-being of incarcerated mothers and their children residing with them. Therefore, it can be suggested that lack of a satisfactory social support network may be one of the most detrimental factors affecting parenting efficiency of incarcerated mothers who solely take care of a young child in a controlled environment. As mentioned above, in Turkey, incarcerated mothers residing with their children share their rooms with other women without co-residing children. This setting may make social support even more critical for mothers with co-residing children in Turkey as well as in other countries with a similar setting such as Iran (Anaraki & Boostani, 2014). Therefore, the present study investigates maternal social support perception from other incarcerated women and their satisfaction with this support as indicators of their psychosocial functioning.

#### **RELATIONSHIPS WITH THE PRIMARY CAREGIVER OF THEIR CHILDREN LIVING OUTSIDE**

Separation from their children is one of the most, if not the most, painful and challenging experience for incarcerated mothers that also adversely impacts their functioning (Poehlmann, 2005a). Although less than half of them (42%) reported that their children have visited them since their admission (Glaze & Maruschak, 2008), most mothers desire to maintain close relationships with their children (Goshin & Byrne, 2009). Internationally, the number of women serving time in prisons is lower than incarcerated men (Loper et al., 2009). Therefore, there are relatively fewer women's prisons, which increases the possibility that the facilities may be farther away from their outside children, and in turn, leads to reduced contact opportunities. Accordingly, caregivers of incarcerated mothers' children may be challenged by the commute to correctional facilities farther away, which may also increase the travel costs (Poehlmann, 2005b). Moreover, constrained and stressful prison contexts as well as the emotional burden of maintaining contact with incarcerated mothers may also prompt the caregivers to limit the frequency of children's visits (Poehlmann-Tynan & Arditti, 2018). Based on these findings, it can be suggested that mother-caregiver relationship quality may be a key factor for their children's visitation, and in turn, the mothers' psychological well-being (McHale et al., 2013; Mignon & Ransford, 2012; Poehlmann, 2005aa). Compatible with this, Poehlmann (2005a) reported that conflicted relationships between incarcerated mothers and their children's caregivers was associated with less contact between mothers and their children. Decreased contact with their outside children may

increase their psychological distress and also limit their sensitive caregiving capacity to co-residing children. Thus, mothers' relationships with the caregivers were evaluated as a psychological functioning indicator in the present study.

#### MATERNAL PSYCHOLOGICAL SYMPTOMS

Children whose mothers have mental health issues tend to insecurely attach to their mothers (see Atkinson et al., 2000, for a meta-analysis). A longitudinal study revealed that parental psychiatric disorder was a significant risk for the change of individuals' attachment security into insecurity (Waters et al., 2000). Moreover, a recent study (Badovinac et al., 2018) also revealed that maternal depression symptoms may confer risk for children's disorganized attachment, which is the attachment pattern that has been found the most strongly related to negative developmental outcomes (Fearon et al., 2010; Groh et al., 2017). It is also known that incarcerated women disproportionately experience mental health problems including depressive symptoms (Borelli et al., 2010; Poehlmann, 2005a). The current study therefore proceeded to investigate several clusters of maternal psychological symptoms to reliably determine each mothers' psychosocial functioning while they were caring for their co-residing children during their incarceration.

#### THE PRESENT STUDY

Considering that maternal psychosocial functioning is an important factor regarding their sensitive caregiving capacity, the main aim of this study was to examine whether maternal psychosocial functioning interacts with the mother's sensitivity to explain their co-residing children's attachment. Studies have revealed that supporting environmental factors, such as sensitive motherhood, may protect children's development significantly more for the ones who experience greater disadvantages (Luthar et al., 2000). For a child experiencing greater environmental risks, a single positive factor may be more crucial to promote their positive development. In line with this, the present study hypothesized that maternal sensitivity would have the most pronounced role on children's attachment (i.e., avoidant, secure, anxious, and disorganized) whose mothers have lower levels of social support perception and satisfaction with this support, lower levels of positive relationships with the caregivers of outside children, and greater psychological symptoms. On the contrary, the predictive role of maternal sensitivity on children's attachment scores would not be significant for mothers with the greatest psychosocial functioning (i.e., higher social support perception and satisfaction with this support, more positive relationship with the outside children's caregivers, and less psychological symptoms).

#### METHOD

##### PARTICIPANTS

The study sample consisted of 68 mothers ( $M_{age} = 30.6$ ,  $SD = 5.3$ , range = 21–43) incarcerated in prisons in Turkey with their 12- to 43-month-old children ( $M = 25.7$ ,  $SD = 8.2$ , 55.9% boys). Mothers and their co-residing children generally entered the prison together and they had spent an average of 10.5 months ( $SD = 10.2$ , range = 1–42) there prior to data collection. Most mothers (69.1%) stated that their children had not left the prison since their entry, however, the remainder indicated that their co-residing children

were transferred to their fathers or to other relatives for short periods and then returned to reside with them in prison. Some mothers (54.5%) reported that other women staying with them provided some help with child care, while the remainder reported that they did not get any help with taking care of their child. In addition to their co-residing child, all participant mothers had at least one minor child ( $M = 2.7$ ,  $SD = 1.5$ , range = 1–9) living outside of the prison. These outside children were cared for by their fathers (25%), paternal (38.3%) and maternal (13.2%) grandmothers, aunts (13.1%), and grandfathers (2.9%). One mother reported that her 16-year-old daughter was caring for her two younger siblings. Children of four of the mothers were being held in custody. Most of the mothers were married (89.7%), and their average marriage duration was 11.6 years ( $SD = 5.3$ , range = 3–24).

A significant portion of the mothers (47.1%) were illiterate. Moreover, 23.5% had not completed primary school having either dropped out of formal education or having been schooled at home. Some mothers did not continue formal education after completing primary school (14.7%), middle school (7.4%), or high school (5.9%). Only one mother was a university graduate. More than half reported that they were stay-home mothers (57.4%) prior to their imprisonment; of those who were employed, most were generally working in temporary and unskilled jobs. Most mothers (83.8%) had been sentenced for an average duration of 7.2 months imprisonment ( $SD = 6.5$ , range = 1–28) while the rest of them were on remand. The majority of mothers (61.8%) were recurring offenders incarcerated for economically motivated crimes such as burglary and larceny (55.9%), followed by those accused of drug-related offenses (35.3%) and violent crimes (8.8%) including homicide and incitement to homicide. All participants were Caucasian with a dominantly Turkish ethnic background.

## PROCEDURE

Ethical and data collection approvals for the study were obtained from the Institutional Review Board of Hacettepe University and the Turkish Ministry of Justice. Data were collected from eight different prison facilities located in seven cities, varying in size, from four distinct geographical regions of Turkey. The prisons were selected from a list obtained from the Ministry of Justice based on the greater number of mothers co-residing with a 1- to -3-year-old child. Mothers incarcerated at one of the eight selected prisons, and who had spent more than 1 month in prison with their 1- to -3-year-old toddlers, were eligible to participate in the study. For the purpose of the current study, the data of the primiparous mothers and their toddlers ( $n = 16$ ) was excluded and only the data of mother–child dyads in which mothers have at least one child living outside of the prison was used. In addition, two eligible mothers declined to participate in the study.

In Turkey, all mothers who arrive in prison with a minor child are screened by a committee that includes civilian prison staff (e.g., psychologists, social workers) in terms of their psychosocial functioning and parenting competency to care for their young children in prison. For this reason, the current study has no exclusion criteria regarding the mothers' psychosocial functioning or crime type. All participants were informed about the purpose of the study and that they could terminate their participation in the study at any point with no consequences. Informed consent was obtained from mothers for theirs and their children's participation. Due to the high prevalence of illiteracy among the participants, all questions were implemented via face-to-face interviews. There was no item non-response.

Due to the limited data collection time afforded by the Ministry, maternal sensitivity and children's attachment security were evaluated during the same semi-structured mother-child interaction observation. Each mother-child pair was observed for 45-min. Mothers were asked to perform some tasks with their children, such as free-play, separation-reunion, and solving a slightly challenging puzzle (see Berument et al., 2018, for the details of the observation procedure). Maternal sensitivity and child's attachment behaviors were observed and coded by the same two raters. The raters were trained extensively for implementing and rating the instruments before data collection using practice videos that were recorded for another study. The training continued until intraclass correlation coefficients (ICC) were above .70 both for the ratings of maternal sensitivity and children's attachment behaviors. As no audio or video recording is permissible in the correctional facilities, the coders were located in different corners of the room, noted their observations, and rated maternal and child's behaviors immediately after the observation.

## MEASURES

### Maternal Sensitivity

Maternal sensitivity was evaluated based on the aforementioned mother-child interaction observation using the Maternal Sensitivity Scale (MSS). MSS was developed to assess parental sensitivity in interactions with 1-to -3-year-old children (Berument et al., 2018). The scale provides an overall summary index of the quality of care primarily based on three domains: maternal support/encouragement, responsiveness, and warmth. MSS was generated using 29 items (e.g., "Even when doing other activities, such as answering the questions of the researcher, responds to all the child's signs with and without stress.") from the Maternal Behavior Q-Sort (MBQS; Pederson & Moran, 1995) that reflect different aspects of sensitivity, that are easily observable, and can be objectively coded. Thirteen of the scale items (e.g., Responds only to frequent, prolonged, or intense distress) are reverse coded. During the adaptation, Berument et al. (2018) added examples to the items for specific maternal behaviors using culturally oriented expressions to make them more specific for the raters. The items were coded by the two raters independently on a 3-point Likert-type scale from *not defining* (0) to *absolutely defining* (2). ICC scores ranged from .70 to .97, and the average ICC obtained was .86. The ratings of the two observers were then averaged to produce a composite score for maternal sensitivity. Factor analysis indicated a one-factor solution and Cronbach's alpha score for the scale was .89, with higher scores indicating higher maternal sensitivity.

### Children's Attachment

Children's attachment was also evaluated based on the same mother-child interactions using the Turkish adaptation of the Toddler Attachment Sort-45 (TAS-45; Kirkland et al., 2004). Although TAS-45 consists of 45 items (e.g., "Enjoys and is comforted by close physical contact with mother"), its Turkish adaptation includes 15 additional items and is titled Turkish Toddler Attachment Sort-60 (TTAS-60; Berument & Sümer, 2017). The 15 additional items aimed to capture more aspects of toddlers' attachment behaviors in additional varying situations. TTAS-60 includes more examples and illustrations embedded in the items (e.g., "The child gets angry with the mother for no reason—the child hits, slaps,

pushes, or bites the mother"). Trained observers first sorted all items based on the target child's behavior into three groups (i.e., applies, undecided/unobserved, does not apply). Then, items in the undecided/unobserved group were eliminated from the coding, and the "applies" and "does not apply" groups were placed into one of two groups again according to the level of applicability to the child. Items were sorted using a website designed for TAS. Voice or video recordings were not allowed and prison authorities provided only one computer to the researchers. Moreover, it was not permitted to bring any technological devices onto the facilities. Therefore, the two coders rated the TTAS-60 items immediately after the observations based on consensus. Four continuous attachment scores (i.e., avoidant, secure, anxious, and disorganized) were generated by the rating website for each child. Higher scores reflected a greater representation of the relevant attachment scale.

### **Maternal Psychosocial Functioning**

*Psychological symptoms.* The Brief Symptom Inventory (BSI; Derogatis, 1992) was used to assess maternal psychological symptoms over the past 7 days. The scale was adapted for use in Turkish by Şahin and Durak (1994). BSI consists of 53 items (e.g., "Idea that others can control thoughts," and "Feeling lonely") yielding a Global Severity Index covering nine symptom clusters, namely Somatization, Obsession-Compulsion, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, and Psychoticism. However, one item (i.e., "Afraid to travel on public transportation") was excluded from the current study because the participants had been incarcerated for longer than 7 days prior to data collection. There are no reverse-coded items. Thus, in the current study, the scale consisted of 52 items. The items were rated on a 5-point Likert-type scale ranging from *never* to *always*. Higher scores indicate greater psychological distress during the last 7 days. Factor analysis confirmed a one-factor global severity index, and the Cronbach's Alpha score was .92.

*Perceived relationships with the outside children's primary caregivers.* Mothers reported their feelings toward the primary caregiver of their outside children using the Inventory of Family Feelings (IFF; Lowman, 1980). IFF was developed to evaluate interpersonal affect between family members tapping patterns of conflicted relationships and alliances. The scale is comprised of 38 items (e.g., "I feel close to this family member") with 22 of the scale items being reverse-coded (e.g., "This family member doesn't show a lot of consideration toward me"). The items were rated on a 3-point Likert-type scale ranging from *disagree* to *agree*. Higher scores indicate greater positive feelings toward the caregiver. The questionnaire was translated into Turkish in the scope of the present study. Factor analysis indicated a one-factor solution. The Cronbach's alpha score for the scale was .96.

*Social support.* Mothers' social support perception was evaluated using the short form of the Social Support Questionnaire (SSQ; Sarason et al., 1987). The scale includes six items (e.g., "Whom can you really count on to help you feel more relaxed when you are under pressure or tense?") with no reverse-coded items. SSQ yields two scores for (a) perceived number of social supports and (b) satisfaction with the perceived social support. The participants were asked to list the individuals in prison who provide the type of support described in each item. Then, they rated their level of satisfaction with the total support received regarding each item on a 6-point Likert-type scale ranging from *very dissatisfied* to *very satisfied*. Higher scores indicate greater perceived social support and satisfaction

with this support. The questionnaire was translated into Turkish in the scope of the present study. Factor analysis revealed a 2-factor solution for the number ( $\alpha = .81$ ) and satisfaction ( $\alpha = .71$ ) sub-scales.

#### DATA ANALYTIC PLAN

The moderation analyses with 5000 bootstrapping were performed using Model 1 of PROCESS macro for SPSS (version 4; Hayes, 2018). Separate regressions were conducted to examine the moderating role of maternal psychosocial functioning in the associations between maternal sensitivity and the children's four attachment scores. Continuous variables were mean-centered to avoid multicollinearity (Aiken & West, 1991).

## RESULTS

#### PRELIMINARY ANALYSES

Descriptive statistics and zero-order bivariate correlations for study variables are presented in Table 1. Results revealed that children's avoidant attachment scores were positively associated with their secure and disorganized attachment scores, and negatively associated with their anxious attachment scores. Children's secure attachment scores were negatively related to their anxious and disorganized attachment scores. Maternal sensitivity was related positively to children's secure and negatively to disorganized attachment scores. Maternal relationships with the outside children's primary caregivers were associated with their co-residing children's avoidant and secure attachment scores positively, and anxious attachment scores negatively. Mothers' social support perception and satisfaction, and their relationships with their outside children's primary caregivers were positively interrelated. In addition, these three variables were negatively related to maternal psychological symptoms. The results also revealed that child's age positively correlates with children's disorganized attachment. Moreover, maternal age relates positively to children's secure attachment, and negatively to children's anxious attachment. Therefore, child's and maternal age were controlled in all regression analyses.

A one-way ANOVA analysis was conducted to investigate group differences in the study variables associated with the maternal crime type. Results indicated a significant group difference in children's anxious attachment scores,  $F(2, 65) = 4.70, p = .012$ , partial  $\eta^2 = .13$ . A Tukey post hoc test revealed that the anxious attachment scores of children with mothers who had committed violent crimes ( $M = 2.03, SD = .76$ ) was significantly lower than that of children whose mothers were incarcerated for economically motivated ( $M = 4.64, SD = 2.13$ ) and drug-related offenses ( $M = 4.72, SD = 2.04$ ). Based on this difference, crime type was controlled in regression analyses predicting children's anxious attachment scores.

#### THE MODERATING ROLE OF MATERNAL PSYCHOSOCIAL FUNCTIONING

##### Mothers' Relationships With The Caregivers of Their Outside Children

Analysis revealed that maternal relationship with the caregivers of their children residing outside was a significant moderator on the relationship between maternal sensitivity and children's disorganized attachment scores,  $F(5, 55) = 4.26, p = .002, R^2 = .28$ . Simple slope analysis showed that maternal sensitivity negatively predicted children's disorganized

TABLE 1: Descriptive Statistics and Zero-Order Bivariate Correlations for Study Variables

Child variables	M (SD)	range	1	2	3	4	5	6	7	8	9	10
1. Avoidant attachment	4.35 (1.81)	.00–7.71										
2. Secure attachment	2.86 (.95)	.07–3.86	<b>.39**</b>									
3. Anxious attachment	4.44 (2.15)	.00–7.87	<b>-.72**</b>	<b>-.69**</b>								
4. Disorganized attachment	.55 (.17)	.05–.87	<b>.58**</b>	<b>-.31*</b>	-.22							
5. Age (months)	25.65 (8.16)	12–43	.19	.11	-.15	<b>.24*</b>						
Maternal variables												
6. Sensitivity	1.53 (.38)	.45–2.00	-.16	<b>.35**</b>	-.19	<b>-.37**</b>	-.03					
7. Number of SS	1.86 (.78)	.50–4.18	.01	.03	.13	-.08	.02	-.01				
8. Satisfaction with SS	5.21 (.91)	2.33–6.00	.01	.08	.06	-.02	.08	-.06	<b>.37**</b>			
9. Relationship with CG	.79 (.26)	.00–1.00	<b>.27*</b>	<b>.46**</b>	<b>-.28*</b>	-.09	.13	.05	<b>.30**</b>	<b>.29**</b>		
10. BSI	1.35 (.74)	.06–3.41	-.03	-.16	-.04	.15	-.13	-.00	<b>-.28**</b>	<b>-.32**</b>	<b>-.37**</b>	
11. Age (years)	30.59 (5.29)	21–43	.15	<b>.30*</b>	<b>-.27*</b>	.06	<b>.26*</b>	-.02	-.12	.22	.14	-.05

Note. SS = Social support; CG = Caregiver; BSI = Brief Symptom Inventory.

\* $p < .05$ . \*\* $p < .01$ .

**TABLE 2: The Moderating Role of Maternal Psychosocial Functioning on the Association Between Maternal Sensitivity and Children's Disorganized Attachment ( $N = 61$ )**

Predictors	<i>B</i>	<i>SE</i>	<i>T</i>	95% CI
Constant	-.66	.12	-5.61***	[-.89, -.42]
Maternal sensitivity	-.11	.05	-2.13*	[-.22, -.01]
Relationship with CG	-.03	.08	-0.42	[-.19, .12]
Interaction <sup>a</sup>	.45	.17	2.60**	[.10, .80]
Child's age (Cov.)	.00	.00	0.11	[-.01, .01]
Maternal age (Cov.)	.00	.00	1.55	[-.00, .01]

Note. CG = Caregiver; CI = Confidence interval; Cov. = Covariate; *B* = Unstandardized coefficient.

<sup>a</sup>Interaction between mothers' relationships with their outside children's caregiver and their sensitivity.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

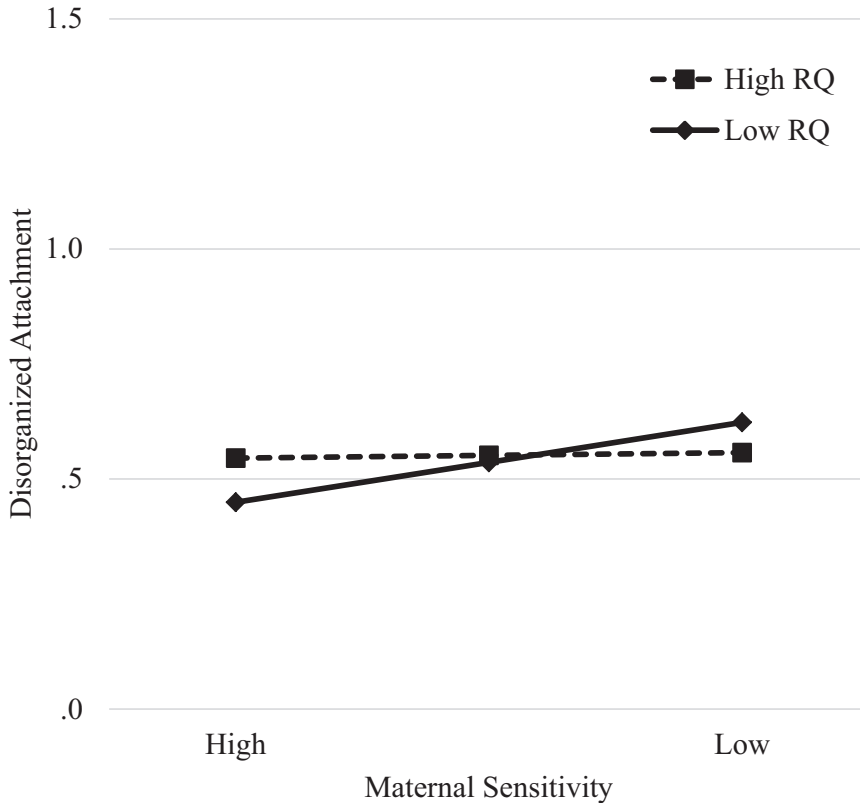
attachment only for mothers who reported low,  $-1SD$  below the mean;  $B = -.23$ ,  $SE = .06$ ,  $t(55) = -3.90$ ,  $p < .001$ , 95% CI = [-.34, -.11], and average,  $B = -.11$ ,  $SE = .05$ ,  $t(55) = -2.14$ ,  $p = .037$ , 95% CI = [-.22, -.01], relationship quality with the outside children's caregivers. In contrast, maternal sensitivity did not significantly predict children's disorganized attachment in dyads where mothers reported more positive relationships with the primary caregivers of their outside children ( $+1SD$  above the mean;  $p > .05$ ). The details are presented in Table 2 and Figure 1.

### Mothers' Psychological Symptoms

In addition, analysis has shown that maternal psychological symptoms were a significant moderator on the relationship between maternal sensitivity and children's secure attachment,  $F(5, 61) = 7.14$ ,  $p < .001$ ,  $R^2 = .37$ . Simple slope analysis indicated that maternal sensitivity positively predicted children's secure attachment only for those dyads that had mothers with average,  $B = .91$ ,  $SE = .26$ ,  $t(61) = 3.57$ ,  $p < .001$ , 95% CI = [.40, 1.42], and higher,  $+1SD$  above the mean;  $B = 1.83$ ,  $SE = .36$ ,  $t(61) = 5.07$ ,  $p < .001$ , 95% CI = [1.11, 2.55], psychological symptoms. Finally, maternal psychological symptoms moderated the association between maternal sensitivity and children's anxious attachment,  $F(6, 60) = 2.79$ ,  $p = .018$ ,  $R^2 = .22$ . Simple slope analysis indicated that maternal sensitivity negatively predicted children's anxious attachment only for those dyads that mothers reported higher ( $+1SD$  above the mean;  $B = -2.80$ ,  $SE = .93$ ,  $t[60] = -3.03$ ,  $p < .001$ , 95% CI = [-4.66, -.95]) levels of psychological symptoms. In contrast, maternal sensitivity significantly predicted neither children's secure nor anxious attachment in dyads where mothers exhibited lowest scores of psychological symptoms ( $-1SD$  below the mean;  $p > .05$ ). The details are presented in Table 3, Figure 2, and Figure 3.

## DISCUSSION

Many incarcerated women suffer from mental health difficulties (Borelli et al., 2010). Maternal distress may disrupt their responsiveness to their children's needs and undermine children's secure attachment (Booth et al., 2018). Therefore, the role of mothers' parenting efficiency on their co-residing children's attachment may be more fully understood by taking into consideration their psychological and social distress factors. Guided by attachment literature and prior work on children of incarcerated mothers, the present study examined



**Figure 1: The Moderating Role of Maternal Relationships With Their Outside Children's Caregivers on The Association Between Maternal Sensitivity and Co-residing Children's Disorganized Attachment**

Note. RQ = The quality of mothers' relationship with their outside children's caregivers; Low = 1SD below the mean; High = 1SD above the mean.

the role of the interaction between incarcerated mothers' psychosocial functioning and their sensitivity on their co-residing children's attachment.

Before discussing the main findings of the present study, an important preliminary finding should be highlighted. The current study showed that children's age was positively related to their disorganized attachment behaviors. There is a lack of consistent evidence regarding the differential impact of residing with their incarcerated mothers on children's development as a means of child's age. For example, Bağ and Bıçakçı (2016) compared children's alignment to the motor developmental norms between 0-to-36 and 37-to-66 months-old Turkish children co-residing with their mothers in correctional facilities. Their results revealed that young children's motor development was consistent with the expectations of their developmental period; however, older children were at risk of falling behind their peers in motor development. Although, Goshin et al. (2014) have shown that children residing with their incarcerated mothers exhibited significantly less emotional disturbance (e.g., anxiety, withdrawal) than children who were separated from their incarcerated mothers during early years of life, the children's age may be an important factor to determine whether staying in correctional institutions is in the best interest of these children, and how long their residing period should be (Byrne, 2019; Goshin & Byrne, 2009). Therefore, the

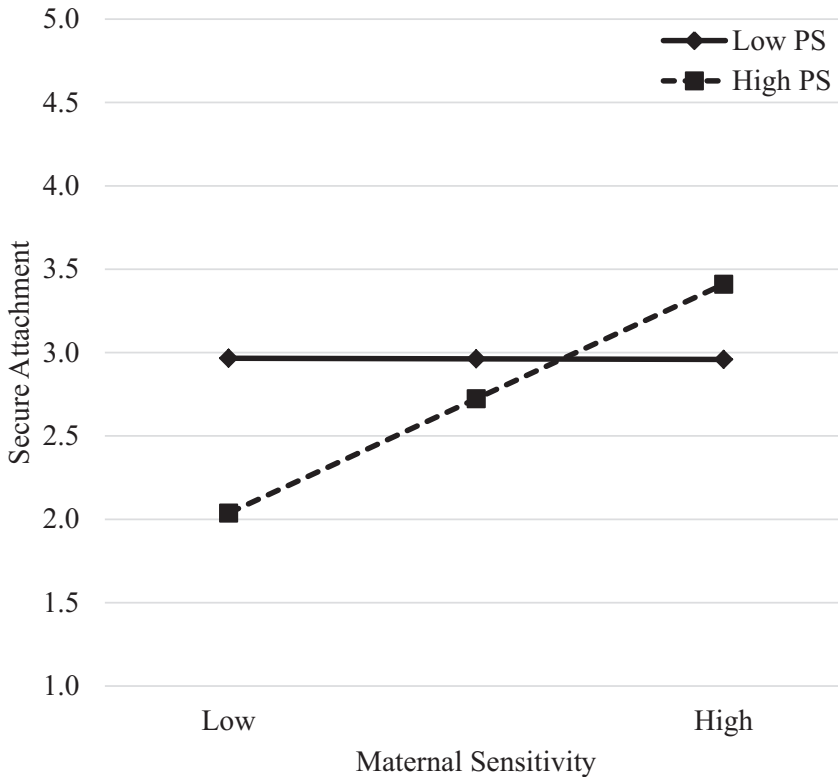
**TABLE 3: The Moderating Role of Maternal Psychological Symptoms on the Association Between Maternal Sensitivity and Child's Attachment ( $N = 67$ ).**

Predictors	Independent variable: Secure attachment				Independent variable: Anxious attachment			
	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI	<i>B</i>	<i>SE</i>	<i>t</i>	95% CI
Constant	1.21	.60	2.06*	[.03, 2.39]	8.14	1.50	5.41***	[5.13, 11.15]
Maternal sensitivity	.91	.26	3.57***	[.40, 1.42]	-1.08	.65	-1.67	[-2.38, .22]
Psychological symptoms	-.16	.13	-1.24	[-.42, .10]	-.23	.33	-.70	[-.89, .43]
Interaction <sup>a</sup>	1.24	.34	3.65***	[.56, 1.92]	-2.32	.87	-2.67**	[-4.06, -.58]
Child's age (Cov.)	.01	.01	.86	[-.01, .04]	-.04	.03	-1.18	[-.10, .03]
Maternal age (Cov.)	.05	.02	2.35*	[.01, .08]	-.08	.05	-1.53	[-.17, .02]
Maternal crime type (Cov.)					-.28	.40	-.68	[-1.08, .53]

Note. CI = Confidence interval; Cov. = Covariate; *B* = Unstandardized coefficient.

<sup>a</sup>Interaction between mothers' sensitivity and their psychological symptoms.

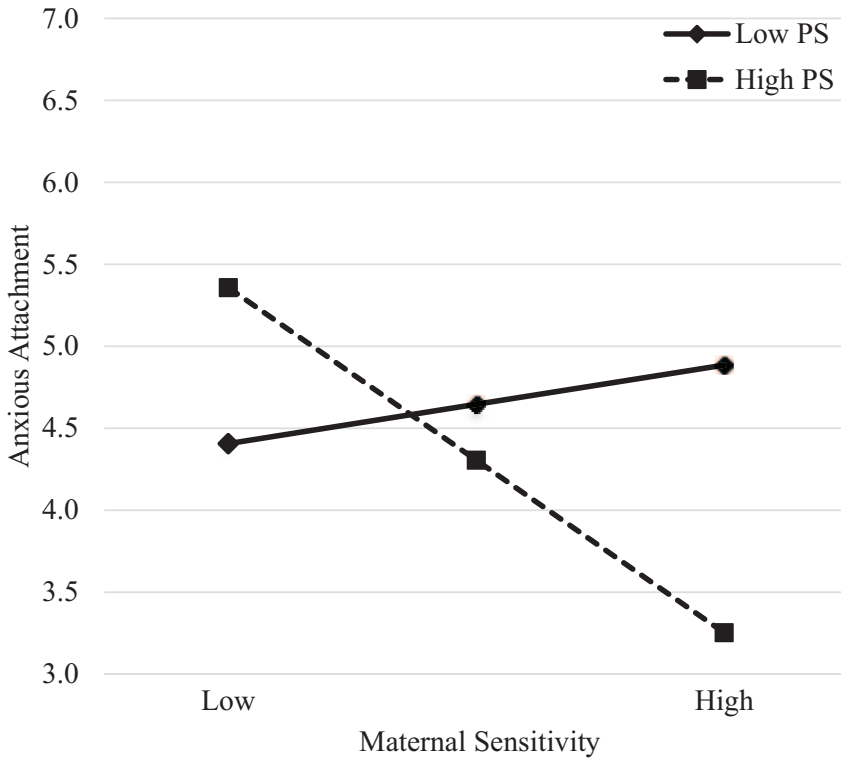
\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .



**Figure 2: The Moderating Role of Maternal Psychological Symptoms on The Association Between Maternal Sensitivity and Children's Secure Attachment**

Note. PS = Maternal psychological symptoms; Low = 1SD below the mean; High = 1SD above the mean.

significant association between children's age and disorganized attachment behaviors found in the present study should be interpreted with this caveat. More research is needed to decipher what the upper limit for children's age is to allow them to stay in prison settings. Most



**Figure 3: The Moderating Role of Maternal Psychological Symptoms on The Association Between Maternal Sensitivity and Children's Anxious Attachment**

Note. PS = Maternal psychological symptoms; Low = 1SD below the mean; High = 1SD above the mean.

importantly, programs aiming to support these children's development should be tailored considering the different needs of children based on their developmental differences.

#### THE MODERATING ROLE OF MATERNAL PSYCHOSOCIAL FUNCTIONING

Consistent with the hypothesis, the current study shows that maternal sensitivity negatively relates to children's disorganized and anxious attachment and positively relates to children's secure attachment only when mothers' psychosocial functioning was low and average. Specifically, maternal sensitivity negatively predicted children's disorganized attachment only for mothers who had less positive relationship qualities with their outside children's caregivers. Similarly, maternal sensitivity positively predicted children's secure attachment and negatively predicted children's anxious attachment only when their level of psychological symptoms was higher. Contrary to these findings, maternal sensitivity and children's attachment was not associated for the mothers with greater psychosocial functioning. When the contextual mechanisms had the same influence across all levels of risk factors, they have been conceptualized as promotive factors (Sameroff, 2000). In contrast, protective factors have been defined as the environmental mechanisms that influence the developmental outcomes only when risk or adversity was high (Masten, 2014). Accordingly, the current study revealed that only the sensitivity of mothers who relatively fail to function well significantly predicted children's secure and disorganized attachment. In contrast, the

predictive role of maternal sensitivity on children's attachment was not significant in mothers who exhibited better functioning during this stressful experience. Based on these findings, maternal sensitivity may be identified as a protective factor contributing to children's secure attachment and minimizing their disorganized attachment. Considering that maternal sensitivity plays a protective role on children's development even for the least well-functioning mothers, there is a need for future intervention studies aiming to support maternal sensitive caregiving capacity to enhance their children's positive development.

Caring for a young child in correctional settings without any help while also dealing with a number of stressors may be easier for mothers who have greater psychological resources as well as more positive social relationships. Less psychological symptoms and more positive social relationships may support incarcerated mothers to promote their co-residing children's development from various aspects in addition to their sensitive caregiving. In other words, mothers with high psychosocial functioning may have supported their children's attachment security not only by sensitive caregiving but also by other parenting aspects such as mothers' capacity to support their toddler's autonomy (Bernier et al., 2014) and to read their psychological signals which can be defined as their mentalization ability (Slade et al., 2005). Therefore, for psychosocially well-functioning mothers, the relationships between their sensitivity and their children's attachment scores may have not been significant.

Mothers' positive relationships with their outside children's caregivers would possibly lead not only more frequent visits from outside children but also would make incarcerated mothers less worried about their outside children's health, education, and general well-being. Although incarcerated mothers tend to see their co-residing children as rescuers or comforters during this difficult experience, they also blame themselves for separating their co-residing children from their outside relatives (e.g., siblings, fathers) and making them live in a deprived environment (Baradon et al., 2008). Therefore, the frequent visits from their children and their caregivers may also contribute to their psychosocial functioning by minimizing their feelings of guilt about depriving their co-residing children from the outside world. From a policy perspective, one of the most important implications of these findings includes the need for professional assistance to strengthen the relationships between incarcerated mothers and their outside children's caregivers. Programs specifically developed to support this highly important relationship implemented by professionals who are equipped for this service would also promote maternal psychosocial functioning, and in turn, their co-residing and outside children's positive development. The findings of the current study indicate that the programs aiming to support the development of incarcerated mothers' co-residing and outside children need to include a component to promote psychological resources of these mothers. Caring for a young child in prison as well as being separated from their other minor children might be very difficult and abrasive for these mothers. Therefore, well-tailored programs to support these mothers' psychosocial functioning are vital to promote not only the various aspects of their parenting quality but also their children's healthy development.

#### LIMITATIONS

To the best of our knowledge, this is the first study conducted with the purpose of documenting the concurrent associations between imprisoned mothers' psychosocial well-being, parenting efficiency, and their co-residing children's attachment behaviors. However, the results of the present study should be considered in light of several limitations. Given the

brevity of contact with the participants and with no opportunity to use recording devices, maternal sensitivity and children's attachment security was rated using the same semi-structured mother-child interaction observation by the same two coders. Moreover, TTAS-60 items were evaluated based on the consensus of the two raters. Although both raters were highly trained and MSS and TTAS-60 items were created on a behavioral level, which facilitates objective ratings, these limitations should be kept in mind when interpreting the findings. However, given the meta-analytical evidence (Fearon et al., 2010) which revealed that attachment studies using direct observation produced greater effect sizes ( $d = .58$ ) compared to studies using parent-report ( $d = .22$ ), evaluating maternal sensitivity and children's attachment security through direct observation, rather than mother-report, despite the highly restrictive nature of carceral institutions may be considered as a key strength of the current study. In future research, stronger results with less error variance may be possible with the use of raters who are unaware of the study aims and sample characteristics. In addition, the sample size of the present study was not large enough to test more advanced statistical models. Nevertheless, despite the labor-intensive nature of attachment measures preventing researchers from including large samples, the current study reached out to one of the largest samples conducted with these extremely disadvantaged mother-child dyads.

## CONCLUSION

In conclusion, the present study indicated that children experiencing sensitive maternal care exhibited more secure attachment behaviors as well as less disorganized and anxious attachment behaviors only when their mothers had low and average levels of psychosocial functioning. In a stark contrast to the well-established protective role of secure attachment representations, disorganized attachment has been found to be the greatest risk for later maladjustment compared to the other three organized attachment representations (for meta-analyses see Fearon et al., 2010; Groh et al., 2017). Thus, future intervention and prevention efforts are imperative to supporting incarcerated mothers' parenting efficiency as well as their psychological and social resources to promote their co-residing children's secure attachment and to minimize their insecure attachment. The intervention programs addressing incarcerated mothers' psychological distress and their co-residing children's developmental needs generate the most persuasive evidence for maternal and child well-being (Byrne, 2019). The current study highlights the need for programs supporting incarcerated mothers' relationships with their outside children's caregivers as well as promoting their psychological functioning. These mothers solely care for their co-residing children while struggling with various stressors including self-blame for causing their children to reside in a strict prison environment as well as many other difficult feelings due to the separation from their other minor children. Therefore, in addition to supporting mothers' and co-residing children's well-being in carceral facilities, alternative caregiving arrangements need to be planned to promote the functioning of incarcerated mothers as well as healthy development of both their co-residing and other minor children who had to be separated from their mothers. Therefore, together with the programs aiming to support these mothers' and their children's well-being, macro-level policies may also be required to ensure they enhance the healthy development of a growing number of children residing with their mothers in correctional institutions as well as minor children separated from their incarcerated mothers.

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