Chronic Diseases Journal

DOI: 10.22122/cdj.v9i2.600 Published by Vesnu Publications

A cross-sectional study on the relationship between maternal attachment styles and child cognitive functions

Reyhaneh Esmaili[1], Kambiz Kamkari[2], Shohreh Shokrzadeh[3], Mehdi Davaee[4]

1 Department of Counselling, North Tehran Branch, Islamic Azad University, Tehran, Iran
2 Department of Educational Sciences, School of Education and Psychology, Islamshahr Branch, Islamic Azad University, Islamshahr, Iran
3 Department of Psychology and Education of Exceptional Children, Science and Research Branch, Islamic Azad University, Tehran, Iran
4 Department of Education and Training, Central Tehran Branch, Islamic Azad University, Tehran, Iran

Short Communication

Abstract

BACKGROUND: The concept of attachment refers to how the infant emotionally communicates with the caregiver. Despite the importance of this concept, the relationship between the mother's attachment styles and the child's cognitive functions has not been investigated so far.

METHODS: In a cross-sectional study during October to December 2019, 120 primary school girl students were selected by the convenience sampling method. Participants responded to the two scales of Stanford-Binet Intelligence Scale and Wechsler Intelligence Scale for Children, Fourth Edition (WISC®-IV), as well as the Experience in Close Relationship Scale (ECR-S). Data were analyzed using multivariate regression statistical model in SPSS software

RESULTS: The results showed that five indices of verbal intelligence, knowledge intelligence, active memory intelligence, working memory (WM), and processing speed were predicted by parent's anxiety attachment style ($P < 0.050$ for all). However, the relationship between the indices of total intelligence, non-verbal intelligence, fluid reasoning intelligence, quantitative reasoning intelligence, visual-spatial processing intelligence, verbal inteligence, perceptual reasoning, general ability, cognitive domination, and total scale of students with parent attachment styles were not significant ($P > 0.050$).

CONCLUSION: The findings of this study highlighted the role of maternal attachment styles in predicting child's psychological structures, which can be accompanied by clinical implications in planning interventions based on the intelligence quotient (IQ) promotion for the child.

KEYWORDS: Attachment; Cognition; Parent-Child interactions; Maternal

Date of submission: 17 Sep. 2020, ***Date of acceptance:*** 15 Jan. 2021

Citation: Esmaili R, Kamkari K, Shokrzadeh S, Davaee M. **A cross-sectional study on the relationship between maternal attachment styles and child cognitive functions.** Chron Dis J 2021; 9(2): 85-9.

Introduction

Attachment is one of the most prominent and influential concepts in contemporary psychology. This concept refers to the process of forming or breaking emotional bonds.[1] Attachment is a deep and enduring emotional bond that connects one person to another across time and space. Using the achievements of cybernetic studies, psychoanalysis, and empirical psychology and learning theory, Bowlby invented the theoretical concept of attachment. In fact, parenting is based on presenting the parent as a parent, and attachment can serve as a useful framework for promoting useful representations of parenting to the child, rooted in the mother-fetal

Corresponding Author:
Reyhaneh Esmaili; Department of Counselling, North Tehran Branch, Islamic Azad University, Tehran, Iran
Email: reyhanehesmaeili0@gmail.com

relationship.[2] This theory has had profound impacts on transformational studies in children.[3,4]

On the other hand, the attachment theory shows that a child's experiences influence his or her future parenting style and can predict a particular style of parenting.[5] In this regard, it is clear today that the language of mothers' mental states influences the language of children's mental states and forms their sociological understanding (for example, theory of mind) and that attachment index plays a mediating role in this regard.[6] Studies show that unstructured attachment in mothers is significantly associated with the Autism spectrum disorder (ASD) in children.[7] A significant relationship between the parental attachment and social and emotional perception of the child has also been reported.[8]

Cognitive actions comprise specific functions that encompass a wide range of important life functions and achievements such as intelligence, fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and working memory (WM).[9]

An intelligence profile is defined as a general talent for understanding one's own world and fulfilling expectations, including their ability to think reasonably, act purposefully, and deal effectively with the environment, including fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and WM.[10] Verbal understanding also deals with memory retrieval, which is performed by expressing the meaning of words, communicating common concepts, singular and multiple general conceptualization, coding processes, identifying defects in acquisition, learning, and memory retrieval.[10] In WM processing, information is first acquired for a short period of time and then manipulated and is then provided as a basis for thinking and performing complex cognitive tasks.[11]

One's experiences can predict a particular style of parenting in the context of attachment theory and the caregiver mental states influence children's psychological status.[5,6] In addition, there is a significant relationship between parental attachment and the child's social and emotional perception.[8] Therefore, the present study is conducted for the first time aiming to examine the relationship between parent's attachment styles and child's cognitive practices.

Materials and Methods

The present study was a cross-sectional study conducted during October to December 2019 on 120 primary school girl students who were selected by the convenience sampling method. The study inclusion criteria were age range of 7-11 years and education in public girls' school. Besides, the exclusion criteria were withdrawal from the study at any time, failure to complete the study instrument, and lack of presenting an informed consent form. The participants responded to the questionnaires and then the data obtained were analyzed using multivariate regression statistical model in SPSS software (version 21, IBM Corporation, Armonk, NY, USA).

Demographic Checklist: This checklist was developed and used by the researcher to collect demographic information such as age of child and mother, marital history, and number of children.[12]

Experience in Close Relationship Scale (ECR-S): This questionnaire consists of 36 items. The psychometric properties including validity and reliability of this tool have been confirmed in a sample of clinical patients.[4]

New version of Tehran- Stanford-Binet Intelligence Scales: This scale has wide applications in the education of exceptional children and in assessing learning disabilities, comparing verbal and non-verbal performance, and clinical diagnoses with emphasis on behavioral disorders, verbal and non-verbal reasoning, and WM, providing

thorough information. This tool consists of five main tests of fluid reasoning, knowledge, quantitative reasoning, visual-spatial processing, and WM. The validity coefficient of this test was reported as 0.98, 0.95, and 0.96 respectively for the total scale scores, non-verbal part, and verbal part, and it was reported to be 0.91 for the sum of the summarized tests.

Wechsler Intelligence Scale for Children, Fourth Edition (WISC®-IV): The WISC®-IV includes sub-tests of image concepts, letter-number sequencing, matrix reasoning, deletion, and word reasoning. Moreover, ten main or core sub-tests are cube design, similarities, number capacity, image concepts, coding, vocabulary, letter-digit-sequence, matrix reasoning, understanding, and symbolization. The internal consistency of this tool has been reported to be favorable using three Cronbach's alpha, split-half reliability, and test-retest methods.

Results

Before using regression test, its hypotheses were examined. The assumption of normality of distribution was evaluated by the Kolmogorov-Smirnov (KS) test ($P > 0.050$). Additionally, the results of the Leven's test showed equality of variances ($P > 0.050$). Furthermore, the criterion of linearity of relationship of variables and normality of distribution as well as independence of error values were obtained ($P > 0.050$). The distribution of participants' scores in the study is presented in table 1.

The results of multivariate regression test to predict the studied variables through parent attachment styles are presented in table 2.

As can be seen in table 2, the anxiety attachment style significantly predicted five indices of verbal intelligence, knowledge intelligence, WM intelligence, WM, and processing speed ($P < 0.050$). However, the results show that the ability to predict total intelligence, nonverbal intelligence, fluid reasoning intelligence, quantitative reasoning intelligence, visual-spatial processing intelligence, verbal understanding, perceptual reasoning, general ability, cognitive domination, and total scale in students were not observed through the parental attachment styles ($P > 0.050$).

Table 1. Distribution of participants' scores in attachment styles, triple, quintet, and seven intelligences of Wechsler

Sub-scale	Central tendency indices			Dispersion indices			Distribution indices		
	Mode	Median	Mean	Source of change	Variance	SD	Criterion error	Kurtosis	Skewness
Avoidance style	28	30.00	33.05	64	170.55	3.05	1.19	0.63	0.39
Anxious style	74	64.00	61.09	59	235.59	15.34	1.40	-0.01	-0.66
Non-verbal	84	103.00	101.83	73	197.11	14.09	0.90	0.04	-0.52
Verbal	100	95.50	95.67	55	112.62	10.61	0.69	0.67	0.89
Total	98	105.00	103.63	75	229.93	15.16	0.97	-0.26	-0.79
Fluid reasoning	76	106.00	105.45	103	427.73	20.68	1.33	-0.21	-0.76
Knowledge	89	84.00	83.38	35	81.09	9.01	0.82	-0.03	-0.95
Quantitative reasoning	119	105.00	108.19	75	241.12	15.52	1.01	-0.04	-0.88
Visual-spatial processing	117	111.00	109.21	73	285.22	16.88	1.09	-0.33	-0.92
WM	70	76.00	77.34	35	58.61	7.65	0.69	0.40	-0.77
Verbal understanding	77	77.00	75.95	47	116.24	10.78	0.98	-0.35	-0.30
Perceptual reasoning	100	90.00	88.45	33	80.95	8.99	0.82	-0.67	-0.36
WM	65	69.00	67.56	12	7.25	2.69	0.24	-0.21	-0.86
Processing speed	69	68.00	67.82	19	15.72	3.96	0.36	0.63	0.82
General ability	83	83.00	83.80	36	66.46	8.15	0.74	-0.60	0.18
Cognitive domination	73	76.50	77.81	15	19.57	4.42	0.40	0.58	-0.63
Total	75	75.00	77.69	21	36.93	6.07	0.55	0.33	-0.73

SD: Standard deviation; WM: Working memory

Table 2. Results of multivariate regression coefficients for predicting studied variables through parental attachment styles

Criterion variable	Predicting variables	Beta coefficient	t-value	P
Verbal intelligence	Avoidance attachment style	0.10	1.11	0.268
	Anxiety attachment style	-0.26	-2.95	0.004
Knowledge intelligence	Avoidance attachment style	0.01	0.05	0.954
	Anxiety attachment style	-0.25	-2.86	0.005
WM intelligence	Avoidance attachment style	0.10	1.12	0.263
	Anxiety attachment style	-0.23	-2.59	0.011
WM	Avoidance attachment style	-0.04	-0.49	0.620
	Anxiety attachment style	-0.28	-3.24	0.002
Processing speed	Avoidance attachment style	-0.03	-0.39	0.695
	Anxiety attachment style	0.24	2.67	0.008

WM: Working memory

Discussion

This study was conducted aiming to investigate the relationship between parent's attachment styles and children's cognitive practices. The results showed that the anxiety attachment style significantly predicted the five indices of verbal intelligence, knowledge intelligence, WM intelligence, WM, and processing speed. In relation to the present study, the results of the study by Tanaka[5] indicated that a child's experiences in the form of a meaningful cycle influence his or her future parenting style and can predict a particular style of parenting. Moreover, the results of the study by Becker Razuri et al.[6] suggested that the language of mothers' mental state influences the language of children's mental states and forms the child's sociological understanding (for example, theory of mind), and the attachment index plays the mediating role. In this regard, Levy et al.[7] in a study showed that unorganized attachment in mothers has a significant relationship with the ASD in children. Furthermore, in the study by Psychogiou et al.[8], a significant relationship between parental attachment and social and emotional perception of the child was reported.

This study had some limitations in the implementation process. Interviews and questionnaires were emphasized in the data collection and biomarker evaluation was not used; these limitations can be considered in future studies. Conducting a clinical trial aimed at assessing the effectiveness of attachment-based interventions on cognitive enhancement can be a good route for future studies.

Conclusion

Maternal attachment styles can predicting child's psychological structures and can accompany clinical implications in planning interventions.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The authors gratefully acknowledge all those people who participated in this study and helped to facilitate the research process.

This study has been derived from a dissertation approved by Islamic Azad University, Tehran,

References

1. Haj Sadeghi Z, Yazdi-Ravandi S, Pirnia B. Compassion-focused therapy on levels of anxiety and depression among women with breast cancer: A randomized pilot trial. Int J Cancer Manag 2018; 11(11): e67019.
2. Pirnia B, Mohamadi M, Abbasi I, Kord-Ahmadi T, Foroughi F. Is parent-child interaction therapy effective on aggression and biological indices in pre-school children with parents who use high-potency cannabis? A double-blind randomized controlled trial study in an Iranian sample. Chron Dis J 2020; 8(3): 152-5.

3. Pirnia B, Pirnia K, Ershad Sarabi R, Malekanmehr P, Soltani L, Zahiroddin A, et al. A Double-Blind Randomized Controlled Trial in Effectiveness of Parent-Child Interaction Therapy on Psychological Indicator and Cortisol Level in Children of Caregiver with Cancer. Int J Cancer Manag 2019; 12(7): e85572.
4. Veisi S, Mohaghegh H, Yaghoobi A, Shams SS, Pirnia B. Comparison of the effectiveness of two mindfulness and logotherapy methods on anxiety index in chronic daily headache of women with marital conflict: A clinical trial study. Chron Dis J 2020; 8(2): 78-84.
5. Tanaka Y. The development of a parental attachment recognition scale for mothers nurturing preschool children. Public Health Nurs 2019; 37: 310-20.
6. Becker Razuri E., Hiles Howard AR, Purvis KB, Cross DR. Mental state language development: the longitudinal roles of attachment and maternal language. Infant Ment Health J 2017; 38(3): 329-42.
7. Levy G, Oppenheim D, Koren-Karie N, Ariav-Paraira I, Gal N, Yirmiya N. Disrupted maternal communication and attachment disorganization in children with autism spectrum disorder. Attach Hum Dev 2020; 22(5): 568-81.
8. Psychogiou L, Nath S, Kallitsoglou A, Dimatis K, Parry E, Russell AE, et al. Children's emotion understanding in relation to attachment to mother and father. Br J Dev Psychol 2018; 36(4): 557-72.
9. Fu C, Li Z, Mao Z. Association between Social Activities and Cognitive Function among the Elderly in China: A Cross-Sectional Study. Int J Environ Res Public Health 2018; 15(2): 231.
10. Katrushova L, Yalanska S, Rudenko L, Katrushov O. Peculiarities of the process of psychological adaptation of foreign students of ukrainian higher education institutions of medical profile, role of emotional intelligence in the socialization process. Wiad Lek 2019; 72(10): 1930-4.
11. Kimura T, Matsuura R. Effect of auditory or visual working memory training on dual-task interference. Motor Control 2020; 24(2): 304-17.
12. Pirnia B, Homayounfar N, Hosseini N, Ebrahimi F, Haj Sadeghi Z, Malekanmehr P. The predictive role of body image and sexual function in quality of life after modified radical mastectomy regarding the mediating role of emotion; A cross sectional study. Int J Cancer Manag 2020; 13(11): e101371.