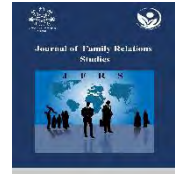




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Research Paper

Modeling Indicator of Father-Child Relationship, Adolescent Academic Achievement and Parenting Dimensions



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Davoud Hajkhodadadi^{1*}, Anvar Dastbaz², Fatemeh Hajkhodadadi³ & Jasem Bahramian⁴

1. Ph.D. in Family Counseling, Faculty of Education and Psychology, University of Isfahan, Isfahan, Iran.
2. Assistant Professor of Counseling Department, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.
3. M.A in Family Counseling, Faculty of Psychology and Educational Sciences, Allameh Tabataba'i University, Tehran, Iran.
4. M.A in Family Counseling, Faculty of Psychology and Educational Sciences, Kharazmi University, Tehran, Iran.



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ABSTRACT

Objective: This research was conducted with the aim of investigating the relationships between parenting dimensions, indicators of father-child relationship, and academic achievement.

Methods: The research method was correlational of type structural equation modeling (SEM). The population of this study included boy students between 13 and 16 years in the city of Isfahan in the academic year 2021-2022. The random sampling method was a multi-stage cluster. The sample included 269 adolescents, who answered the parenting and father-child relationship online questionnaires. Academic achievement was also calculated through the examination of grade average scores. The data were analyzed using Pearson's correlation test and structural equations and by SPSS and AMOS.

Results: The findings showed that the assumed model after the modification has a good fit and parenting in all dimensions (except monitoring and Notification) was able to explain the indicators of the father-child relationship ($P < 0.01$). On the other side, academic achievement could not have a place in the tested model.

Conclusion: The results of the current research confirm the important role of parenting and its dimensions in explaining the father-child relationship, and also focus attention on the role of non-family factors regarding academic achievement.

1. Introduction

Children should have healthy relationships with their parents so that they can indicate compatible behaviors in society and actually have self-reliance and be successful in acquiring the necessary skills and independence (Kostereiloglu, 2018). Researches have shown that children who have positive interactions with their fathers face less conflict in their adolescent years and have the ability to solve problems well, and in coping with difficult situations, they make pointed decisions and choose appropriate solutions. However,

the presence of conflict in the relationship between adolescents and their fathers leads in mental conflicts, irritability, behavioral problems, and finally academic failure, especially among teenage boys (Jodl, 2015). In addition to the mentioned cases, the quality of parent-child relationships during adolescence is a suitable protective factor against psychological disorders, including anxiety and depression, and ensures mental health in adolescents (Withers et al., 2016)

*Corresponding Author:

Davoud Hajkhodadadi

Address: Counseling Department, Faculty of Humanities and Social Sciences, University of Kurdistan, Sanandaj, Iran.

E-mail: dhkhodadadi1366@gmail.com

In the meantime, the relationship between boys and their fathers is of special importance due to identification issues (Ghaderi et al., 2014). Currently, despite the very complex conditions that exist in society and its crises, it is crucial to accompany fathers and have a progressive relationship with their children. Despite this importance, some father-child relationships may not be high quality and constructive. Of course, the father is not always to blame, and sometimes the adolescents also play a role in the quality of this relationship, even other family factors play a role in this relationship. What the father-child relationship is not always limited to the share of two persons in the relationship. According to the systemic approach in family counseling, in the family atmosphere, interactions and communications are very backward and may be multi-layered so that each family member can be influential on each other. These effects may be direct and indirect or even bilateral and complex. In direct effects, one person's reactions may lead to maintaining a type of behavior in other family members, and this action and reaction affects the health of the family and may strengthen or weaken the psychological well-being. In indirect effects, the communication between two family members is affected by other people who may appear on the surface, and in other words this third person is called. The influence of such a person can become a constant supporter of growth and constructiveness among family members, or, on the contrary, can lead in damage and cause conflicts in the family (Bronfenbrenner, 1995). With this introduction, the quality of the father-child relationship is influenced by family system issues, including the concept of parenting. We know that being a parent is an amazing role that brings with it pleasant issues such as joy and pride, and of course difficulties. These challenges have been addressed in a research by Hajkhodadadi et al., (2020). Parenting has many challenges that are difficult to overcome. When the child becomes adolescent, these challenges become more complex and numerous. Regarding parenting styles, many researches have been done, from Baumrind to Sanders have made efforts regarding various parenting styles (Sanders et al., 2010). Today, parenting styles are different and there are many types. But apart from different parenting styles, the nature of parenting and dimensions can also play a prominent role. The dimensions of parenting include components such as monitoring, authority, awareness, and positive parenting (Samani, 2011). Various psychological and socio-economic factors are effective on father-child relationships and related issues. On the other hand, today, most parents are concerned

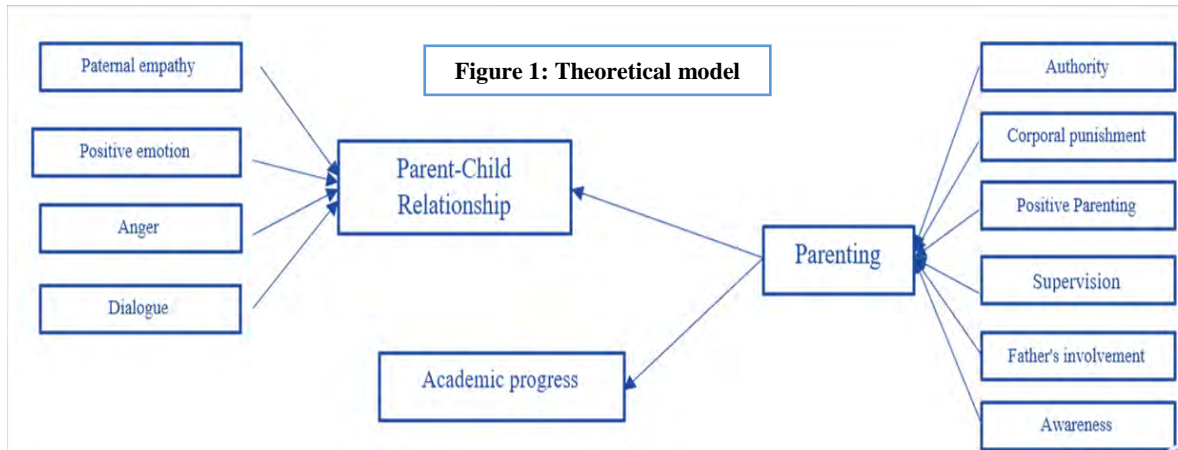
about their children's academic achievement. But academic issues are not separate from family issues. Parenting plays an essential role in the social and academic development of children (Kosterelioglu, 2018). Some dimensions of parenting are in the possession of educational progress and some cause its failure. A low level of monitoring makes the adolescent think that his parents don't care about him and his future, thus causing him to do procrastination on his own school assignments. A high level of monitoring and control has consequences. Parents who are very controlling and constantly emphasize on studying, with this behavior, have adverse effects on the adolescent's mental health as well as academic results. Parenting styles are generally influenced by cultural, ethnic, economic, and social contexts, so they can have different effects on academic achievement (Rivers, 2008). For example, children with an authoritative parenting style have appropriate competence when facing academic problems. Although democratic parenting also has an effect in creating positive results, some studies have also emphasized the effects of authoritarian parenting (Mahasneh, 2014).

Undoubtedly, one factor that determines the well-being and academic achievement of adolescents is parenting styles (Wijayanti et al., 2020). One of the important components related to academic achievement is parenting (Zhu & Chang, 2019). One of the issues affecting family setting is academic achievement or academic failure. Regarding the research background, Kosterelioglu (2018) concluded in his research that there is a significant relationship between parenting styles and academic achievement.

In a review article, Wijayanti et al. (2020) reviewed three studies related to parenting and emphasized the important role of parenting in determining behaviors and outcomes for adolescents as well as improving their psychological well-being. Parenting has effects on self-efficacy, self-esteem, and academic motivation (Kosterelioglu, 2018). In a research Mirzabeigi (2013) investigated the effectiveness of parenting education based on Iranian culture on parents' parenting methods and children's academic achievement. The result indicated the effectiveness of the training. Paying attention to the existing research literature, the Progressive relationship with the father is very crucial regarding the adolescent's health, and also the academic achievement may be influenced by family factors.

Based on the empirical background and the review of related researches, it seems that the dimensions of parenting are capable of predicting father-child relationships and the academic achievement of adolescents, with this description, the following

theoretical model was developed.



2. Materials and Methods

The present study was a correlation of the type of structural equations. The population of this study included all male students between 13 and 16 years old in the educational districts of Isfahan in the academic year 2021-2022. The random sampling method was a multi-stage cluster. Regarding the sample size in structural equation models, the sample size must be large enough and a sample of less than 100 is considered inappropriate (Loehlin, 2004). To select the sample, four high schools were selected from among the first high schools for boys. In the next step, the online questionnaire link was provided to the students of the classes. In total, the questionnaires were completed by 330 teenagers. The inclusion criteria in the present study were: consent to participate in the study, absence of divorce, single-parent in the family, and also absence of obvious mental disorder. Incomplete questionnaires were removed. A total of 269 individuals completed the final sample.

Parent-Child Relationship Questionnaire: This questionnaire contains 24 questions with 5 options based on the Likert scale, which is used to measure the opinion of young people and adolescents about their relationship with their parents, or in other words, to measure the parent-child relationship quality. This questionnaire was developed by Fine, Moreland, and Schwebel in 1983 (Sanaei et al., 2008). The parent-child questionnaire has been designed in two versions, one version was standardized to measure the relationship between the child and the mother, and the other version was standardized to measure the relationship between the child and the father. The subscales of this questionnaire in the father form are: positive affect, paternal empathy, conversation, and anger towards the father. The total score is the sum of the averages of the subscales (Sanaei et al., 2008).

Sanaei et al. (2008) found that this scale has relevant reliability with an alpha coefficient of 0.61 to 0.94 for subscales and overall alpha of 0.96. In this study, the reliability of the scale was obtained 0.91 using Cronbach's alpha.

Alabama Parenting Questionnaire: This questionnaire was designed in 51 items with a 5-point Likert scale (1 = never, 5 = always) with the aim of measuring parenting styles in terms of children and adolescents. This questionnaire has 6 subscales: father's participation factor, positive parenting, awareness, authority, poor monitoring, and physical punishment. The test-retest coefficient for the total score of the questionnaire and its six subscales indicates the relevant reliability of this questionnaire, the range of reliability coefficients is from 0.75 to 0.86, which compared to the study of Martinez and Garcia (2007) and Frick (1991), It is considerable (Samani, 2011). The reliability of the scale using Cronbach's alpha method in the present study was 0.81.

Academic achievement: To check the student's academic status, the last GPA (semester leading to the research) of the adolescents was extracted.

Research implementation process

After obtaining the necessary permits, due to the prevalence of Covid-19, the questionnaires were provided to the participants online. In a message stating the objectives of the research, the participants were assured of confidentiality and the voluntary nature of the research was announced.

3. Results

Regarding demographic information, it can be stated that the lowest GPA of the students present in the research was 12 and the highest GPA was 20 and the average was 18.08.

The minimum number of children in the family was one child and the maximum number of children was 6, and the average number of children in the family of student adolescents was 2.21. Among the participants, 143 people (53.2%) were the first child, 99 people (36.8%) were the second child, and 20 people (7.4%) were the third child, and the rest had a higher birth order. There were 162 two-child families, 56 three-child families, and 36 one-child families in the study.

In the present research, first, the correlation coefficient test was used. Then, structural equation modeling was used to check the assumed model. In this research, to evaluate and examine the model, goodness of fit indices (GFI), chi-square ratio on degrees of freedom (χ^2/df), modified goodness of fit (AGFI), incremental fit index (IFI), root mean square error Approximation (RMSEA) and comparative fit index (CFI) were used

Table 1. Mean, standard deviation, and correlation coefficients between research variables

Variables	Mean	Standard deviation	Monitoring	Authority	Corporal punishment	Positive parenting	Father's involvement	Awareness	Positive emotion	Paternal empathy	Dialogue	Anger
Monitoring	10/54	3/76										
Authority	8/05	3/01	0/08									
Corporal punishment	19/77	6/52	0/1	0/34**								
Positive parenting	61/66	12/41	0/07	-0/34**	-0/23**							
Father's involvement	20/8	6/47	0/06	-0/26**	-0/16**	0/66**						
Awareness	7/52	2/24	0/08	0/18**	-0/07	-0/05	0/3					
Positive emotion	17/48	2/72	-0/05	-0/15**	-0/28**							
Paternal empathy	23/68	4/72	-0/12*	-0/11	-0/26**	0/38**	0/54**	0/11	0/65**			
Dialogue	18/03	5/02	-0/07	-0/11	-0/26**	0/47**	0/59**	0/05	0/62**	0/83**		
Anger	3/69	1/21	0/11	-0/02	-0/16**	0/01	0/1	0/04	0/43**	0/27**	0/19**	
Academic achievement	18/08	1/4	-0/26**	0/3	-0/097	0/33	-0/09	-0/14*	0/12*	0/1	0/08	0/15*

P < 0/05** P < 0/01*

The results of the correlation coefficients in Table 1 show that positive emotion (father-child) had a significant correlation with all aspects of parenting except Monitoring, although these correlations were at most 33% and were opposite regarding authority, punishment, and awareness (P<0.01). There is a (weak) correlation between paternal empathy and most dimensions of parenting except_awareness and authority (P < 0.01), although an inverse correlation was reported with the corporal punishment index. A significant relationship was reported between conversation with the father and all aspects of parenting except monitoring, authority, and awareness (P < 0.01). Regarding anger towards the father, this

index did not have a significant relationship with most aspects of parenting, and the inverse relationship with corporal punishment was not significant either. (P < 0.01).

Now, according to the assumed theoretical model (figure 1), the data were analyzed to verify the model. The results of the structural equation analysis showed that the academic achievement variable has no place in this model, and therefore, in order to help the analysis of the model, this variable was removed. In fact, the conceptual model could not be fully verified. The results of the analysis of structural equations after leaving out educational progress are as follows.

Figure 2. Results of structural equations

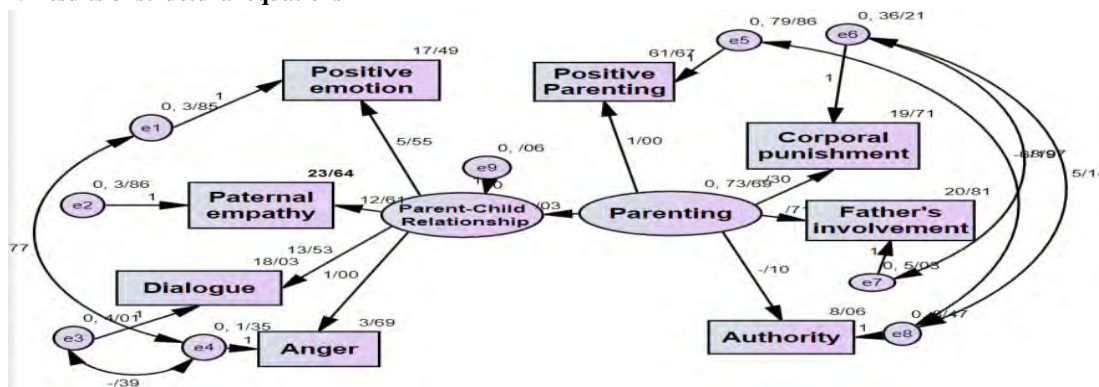


Table 2. General model goodness of fit tests

Indicators	χ^2/df	CFI	IFI	GFI	AGFI	RMSEA
Values	2/51	0/97	0/97	0/96	0/96	0/07
Acceptable Values	< 3	$\geq 0/90$	$\geq 0/90$	$\geq 0/90$	$\geq 0/90$	$\leq 0/07$

Table No. 2 shows indicators for checking the suitability of the overall model, which confirms the appropriateness of the proposed model.

The noteworthy point is that four subscales out of six subscales were allowed to be included in the final model, and in the modification of the model, the two variables of monitoring and awareness were removed due to their insignificant role in the explanation. It can be said further After removing these two variables, the model was checked again and finally, as mentioned in Table 2, the obtained model was reported to have a good fit.

4. Discussion and Conclusion

Regarding the role of academic achievement, it should be noted that although this variable showed correlations with other variables, the correlations were weak and the highest one was related to monitoring and of course the inverse relationship. However, significant relationships with awareness and anger were also obtained. Overall, this finding showed that communication and family variables do not have a significant relationship with academic achievement, and probably other important factors can be important in explaining academic achievement. For this reason, it could not even be included in the modeling. Other factors known to be effective on academic performance include cognitive ability (intelligence), school skills (academic), and amount of resources (socio-economic status)(Matson & Nebel-Schwalm, 2007).

The results of the present research are inconsistent with the researches of Wijayanti et al. (2020) and (Mital, 2011), but they are consistent with the research of Rivers (2008). The results of Rivers' research (2008) showed that there is no significant relationship between academic success and parenting. Of course, according to Kosterlioglou's research (2018), he observed a low-level (weak) but significant relationship between academic success and parenting styles. Ghamari et al. (2015) reported that only 13% of the changes in academic achievement were made by family performance and parent-child conflict, and in fact, it indicated weak explanatory power.

The adjusted model showed that all the components of the conceptual model were not confirmed and those remaining variables obtained suitable indices according to the results of Table (2), i.e. the fit test,

and the modified model had a good fit. Regarding the modification of the model, which removes the monitoring and knowledge of predictor variables of father-child relationship indicators, it should be stated that these two variables apparently require control, however, the presence or absence of these two variables play a large role in the indicators of the parent-father relationship have not been explained. According to the table of correlation coefficients, this issue has been confirmed. overprotecting Parents control the situation, and that is more than needed, as a result, their behaviors are perceived as dangerous and hostile by children (Kosterelioglu, 2018).

Regarding other findings, it seems that high Monitoring and even awareness (of parenting dimensions) do not lead in better academic results, but even reduce academic achievement. Although, the positive paternal emotion variable has a significant correlation, but not very strong with academic achievement. This finding is consistent with the research of Xu et al. (2018). In their research, they investigated that parental psychological control affects the desirable academic performance of adolescents and causes negative results. They found that psychological control in parenting has a definite effect on maladaptive academic behaviors.

In another finding of this research, authority is correlated with corporal punishment (parenting). Apparently, authority-based parenting in our culture leads in physical punishment, so that our parents probably use punishment methods to exercise authority instead of interaction and dialogue methods. According to Results, corporal punishment has an inverse relationship with the father's participation and positive parenting.

As mentioned, the purpose of this research was to test the conceptual model of parenting relationships and dimensions, father-child relationship indicators, and adolescent academic achievement. The hypothesized model was confirmed after being tested in structural and change equations and had a good fit. The final model had some modifications compared to the theoretical model, including that the academic achievement variable did not find a place in the model. This finding explained that the grade point average of courses and academic issues cannot be explained by parenting, and according to the reported correlations, it also cannot be a suitable explanation for father-child

relationships. According to the findings of this research, there was no significant correlation between academic achievement and relationship issues. It should be noted that since this research is a correlational type of research, it is not possible to make causal inferences from its findings. In the end, it is suggested that this research be conducted in two genders and in a comparative manner between boys and girls and in other societies. Also, interventional studies are suggested to determine the effectiveness of relationship enrichment trainings and trainings based on healthy parenting on academic achievement.

The results of the current research confirm the important role of parenting and its dimensions in explaining the father-child relationship, and also focus attention on the role of non-family factors regarding academic achievement. It can be concluded from the results that Counseling professionals and parents should be aware of the close relationship between parenting styles and the quality of the parent-child relationship.

5. Ethical Considerations

Compliance with ethical guidelines

All ethical principles were considered in this article. The participants were informed about the purpose of the research and its implementation stages. They were also assured about the confidentiality of their information and were free to leave the study whenever they wished, and if desired, the research results would be available to them.

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Authors' contributions

All authors have participated in the design, implementation, and writing of all sections of the present study.

Conflicts of interest

The author(s) declared no conflicts of interests.

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