



Recognizing the causal model of psychological well-being of students with hearing impairment based on attachment styles, family emotional atmosphere, social support and the mediating role of hope

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ARTICLE INFORMATION

Article type

Original research

Pages: 145-157

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Email: P_tajalli@yahoo.com

Article history:

Received: 2022/12/23

Revised: 2023/04/01

Accepted: 2023/04/17

Published online: 2023/04/22

Keywords:

Psychological well-being, Attachment styles, Family emotional atmosphere, Social support, Hope, Children with hearing impairment.

ABSTRACT

Background and Aim: In our world, most of the information, data and knowledge is received and stored through the sense of hearing. The current research aimed to know the causal model of psychological well-being of students with hearing impairment based on attachment styles, family emotional atmosphere, social support and the mediating role of hope. **Methods:** The current research is a descriptive research, of the structural equation modeling type. The statistical population of the current research included children with hearing impairment in secondary schools in Tehran in the academic year 2021. With the help of multi-stage cluster sampling method, 204 students with hearing impairment were selected as the research sample. The data collection tools in this research include: Ryff psychological well-being questionnaire (1989), Hazen and Shaver attachment styles questionnaire (1987), Hillburn's emotional atmosphere questionnaire (1964), Tos Ziman's friend support questionnaire (1988), and Schneider, Harris Anderson's hope questionnaire (1991). **Results:** The research results showed that secure, avoidant and ambivalent (anxious) attachment styles directly affect psychological well-being. But indirectly and influenced by the mediating role of hope, they do not affect students' psychological well-being. Also, the emotional atmosphere of the family has a direct and indirect effect on psychological well-being through the hope variable. Friends' social support also, directly and indirectly, affects psychological well-being through the hope variable. **Conclusion:** Therefore, it can be concluded that avoidant, secure and ambivalent attachment styles directly affect psychological well-being scores. But they do not play a role in explaining psychological well-being scores through hope. In other words, the hope variable has not been able to play a role in the influence of lifestyles on psychological well-being. Attachment style represents the essential innate needs for social communication among people.



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How to Cite This Article:

Jafari, N., Tajalli, P., Ghanbari Panah, A., & Shariari Ahmadi, M. (2023). Recognizing the causal model of psychological well-being of students with hearing impairment based on attachment styles, family emotional atmosphere, social support and the mediating role of hope. *Jayps*, 4(1): 145-157.

Introduction

Adolescence is a unique and challenging growth period in which a young person must experience rapid changes in physical, cognitive, psychological and social fields. These dramatic changes affect other areas of life (Zeydman-Zit & Dutan, 2017). In our world, most of the information, data and knowledge is received and stored through the sense of hearing. Due to the ever-increasing development of technologies and audio means of information transmission, such as radio, voice recorder, telephone, mobile phone, etc., the importance of the sense of hearing has increased more than ever, and the need to have its health is felt very much. The health of the sense of hearing is very important, especially in the context of verbal and voice exchanges between humans, which form a large part of their daily interactions. Therefore, the presence of any defect or deficiency in a person's sense of hearing not only overshadows the quantity and quality of his relationships, but also can cause irreparable damage to his cognitive, social, emotional and personality development. Finally, it can seriously threaten his psychological health and well-being. Children with hearing impairment experience unique physical, social and emotional effects that affect their health and psychological well-being (Green, 2022).

Hearing impairment is associated with a range of mental health problems. Problems such as depression, aggression, oppositional defiant disorder and conduct disorder, and anxiety, somatization and delinquency are common among people with hearing impairment (Stevenson et al., 2010). According to Flinger, Holzing and Pollar (2012), children with hearing impairments show significant problems even in the field of communication with their family members. Deafness is a common global problem that seriously threatens the quality of life of the affected person. Children with hearing impairment are delayed in development and have communication and social problems, and are often unable to establish mutual social relationships with peers and adults, and their emotional adjustment and social skills are difficult. Among the major challenges that deaf people face include emotional, intellectual, social, academic, speech, thinking, difficulties in learning mental issues (Kaptanovic & Sekog, 2021). According to the obtained evidence, these problems have great effects on the development of cognitive, emotional and social functioning.

For this reason, the amount of behavioral and emotional problems in deaf children is twice as high as that of hearing children (Ashuri et al., 2013). Similarly, deaf people report lower levels of physical well-being and use the health care system less than hearing people (Alexander, Ladd, & Powell, 2012). The importance of having a healthy sense of hearing, especially during the teenage period, which is considered the period of social skills development, expansion of relationships and identity formation, is very prominent, and any defect or deficiency in it can face teenagers with very serious problems. Considering the problems and challenges raised, it is expected that deaf people (especially deaf teenagers) have lower levels of psychological well-being.

Psychological well-being is considered as the absence of disturbance and distress and includes various emotional aspects of daily experience (Catna et al., 2022). Psychological well-being is defined as a personal level of positive functioning (Ryff, 1989). Psychological well-being is about living well. It is a combination of good feeling and effective performance. Sustainable well-being does not require that people feel good all the time. Experiencing painful emotions (such as disappointment, failure, sadness) is a natural part of life, and the ability to manage these negative or painful emotions is essential for long-term well-being. However, psychological well-being is compromised when negative emotions are intense or long-lasting, and interfere with a person's ability to function in his daily life (Hoppert, 2009). Psychological well-being refers to the levels of positive and interpersonal functioning that can include a person's relationship with others and self-referential attitudes that include a sense of mastery and personal growth (Bar-on, 1988). Some authors believe that children and adolescents with hearing impairment show a higher rate of mental health problems compared to hearing peers in terms of internalizing and externalizing symptoms (Eichgren et al., 2022; Nguajio et al., 2017).

Attachment style means an emotional bond between two people that connects them physically and psychologically and continues (Willis, 2022). In other words, attachment is a stable emotional bond between two people; So that each party tries to maintain its closeness and proximity to the subject of attachment and act in

such a way as to make sure that the relationship continues. Attachment style represents the essential innate needs for social communication among individuals and is an important antecedent in social media research (Lin, 2016). It is an understood pattern of a person's response to intimate relationships that is thought to reflect previous experiences of intimate relationships and is relatively stable over time (Lin, 2016). Ainsworth, Belicher, Waters and Wall (1978) introduced three types of attachment styles including secure, avoidant and ambivalent (anxious) attachment styles.

Studies have shown that attachment style determines a person's readiness to solve problems and his actions and reactions to social problems and failures.

People with a secure attachment style benefit from strategies that minimize tension and activate positive emotions to regulate their emotions. Research results show that there is a significant relationship between attachment styles and psychological well-being (Lin, 2016; Monaco et al., 2019; Marrero-Cudo et al., 2019). One of the factors that, based on research and theoretical evidence, is likely to have a significant effect on the psychological well-being of people, is the emotional atmosphere of the family. Deaf and hard-of-hearing individuals are at risk of reduced emotional socialization and mental health development (Eichgren et al., 2022; Lowe, Lui, Thompson, & McMahon, 2022). Sharing an emotional state—a capacity known as empathy—helps build social bonding. Empathy allows people to feel what others are feeling, understand other people's emotions, and respond to the emotion with appropriate effects and actions such as soothing and helping (Tso et al., 2021). As a result, people with higher levels of empathy have more friends and show more acceptance of peers (Isenberg et al., 2010) and cause less harm to other people (Reiffe et al., 2018). Parents guide their children to achieve socialization goals. These strategies work in the emotional context of the family. and increase the psychological well-being of children in society (Kaptanovic and Sekog, 2021). Disability brings with it various psychological effects and reactions that impose tensions on the family fabric (Rothenberg et al., 2022). The socialization of emotion by parents, peers, and other social agents occurs directly, by responding to or guiding the child's emotional expressions, or indirectly by modeling the attitudes and skills

that the child observes or hears (Gross, 2013). Excessive protection of parents and educators and reduction of discourse about mental states may also lead to insufficient social-emotional education of children and adolescents with hearing impairment (Eichgren et al., 2022; Ensafdarani et al., 2022).

Social support is defined as the presence of others or resources provided by them before, during and after a stressful event (Ganster & Victor, 1988). Social support is an exchange of resources between at least two people that is intended by either the provider or the recipient to enhance the well-being of the recipient. Much of the literature distinguishes between two important dimensions of social support: "perceived" and "received" social support. "Perceived social support" refers to an individual's perception of potential access to social support, while "received social support" refers to the reported receipt of supportive resources over a period (Tajor et al., 2018). Social support is increasingly considered as an important resource for promoting psychological well-being (Kettelol and Lam, 2022). Parental support is positively related to children's psychological well-being (Alaviya, 2022). Social support is the most important predictor of psychological well-being. Social support has important main effects, which are most important in stressful situations, and these relationships differ across social class groups (Turner, 1981). Turner (1983) believes that lack of social support and changes in support over time are stressors in themselves. As such, they should directly affect psychological symptoms, whether or not other stressful conditions occur (Turner, 1983). Duncan, Kolivas, and Punch (2021) believe that peer social support can protect against adverse life outcomes.

Hope is one of the basic resources in life that increases strength in enduring difficult moments, the results of hope in life are having a good life, good wishes and enjoying life (Kay et al., 2020). The hope of children with hearing impairment has increased recently (Anundsen, 2022). Also, the results of previous studies have reported a lower level of hope for children and adolescents with hearing impairment compared to children without hearing impairment (Kaptanovic & Sekog, 2021; Hockdal et al., 2020; Hockdal, Vaughn, Lixel, and Wai, 2018). While some did not present a significant difference in this field (Anundsen, Hildig, Novich and Josephia, 2018;

Kay et al., 2020). Research evidence indicates that hope is closely related to social support, attachment styles and emotional atmosphere of the family. For example, in the research of Cheng, McDermott, and Lopez (2015), a significant relationship was observed between attachment styles and emotional atmosphere of the family with hope.

In this regard, Bilan, Tompkins and Kruger (2022) have shown that hope can facilitate change and increase a person's physical and psychological health. On the other hand, the lack of hope can deeply affect a person's well-being and cause various diseases. According to these explanations, it can be expected that hope plays an important role in explaining the relationship between social support, attachment styles and the emotional atmosphere of the family with the psychological well-being of adolescents with hearing impairment. Therefore, according to the background of the research, it can be said that the relationship between social support, attachment styles and emotional atmosphere of the family with psychological well-being in teenagers with hearing impairment is not just a simple linear relationship and other variables can influence this relationship as a mediator. Considering the high importance of psychological well-being in deaf teenagers, trying to identify factors affecting it is an inevitable necessity. Based on this, the present study, while investigating the relationship between attachment styles, family emotional atmosphere, social support and psychological well-being in teenagers with hearing impairment, has addressed the mediating role of hope in this relationship.

Method

The current research is a descriptive research, of the type of structural equation modeling or causal modeling. The statistical population of this research is the second high school students of Tehran in the academic year 2021. Sampling has been done as a multi-stage cluster. First, four districts 4, 2, 9, and 15 were randomly selected from among the 22 districts of Tehran. Then, 1 school was randomly selected in each region. A total of 204 hearing impaired students answered the questionnaires. The data collection tool is a questionnaire including: Ryff psychological well-being questionnaire (1989), Hazen and Shaver attachment style questionnaire (1987), Hillburn emotional atmosphere questionnaire (1964), Tos-Zimno et al.'s friend support questionnaire (1988), and Schneider, Harris Anderson's hope questionnaire (1991). In addition to the descriptive statistics tests, in order to analyze the research findings, structural

equation modeling was used with the help of SPSS and Imus software.

Tools

1. Psychological well-being questionnaire. The original form of the psychological well-being scale is 120 questions created by Ryff (1989). In the subsequent reviews, shorter forms of 84, 54 and 18 questions were also suggested. In the 18-question form of the psychological well-being scale, three questions are assigned to each of the six components as follows: self-acceptance (questions 2, 8 and 10); positive relationships with others (questions 3, 11 and 13); autonomy or independence (questions 9, 12 and 18); mastering the environment (questions 1, 4 and 6); purposeful life (questions 5, 14 and 16); Personal growth (Sefidi & Farzad, 2012). This 18-item scale is scored on a six-point Likert scale from 1 (completely disagree) to 6 (completely agree). The total score of six subscales is calculated as a total psychological well-being score. The minimum total score that can be obtained in this scale is 18 and the maximum score is 108. A higher score indicates better psychological well-being. In this scale, questions 3, 4, 5, 9, 10, 13, 16, 17 are scored inversely and the rest of the questions are scored directly (Safidi & Farzad, 2012). The correlation of this questionnaire with its original form fluctuated from 0.70 to 0.89 (Reif, 1995). After adapting this questionnaire to Iranian culture, Mohammad Kochchi and Bayani (2008) showed good validity and reliability for this scale. They have reported the reliability coefficient of this questionnaire as 0.82, Kadampour, Radmehr and Heydariyani (2017) and its reliability coefficient as 0.69. Khanjani et al. (2014) found the internal consistency of the short form of the psychological well-being scale to be 0.78 using Cronbach's alpha coefficient. The internal consistency of this scale using Cronbach's alpha in 6 factors of self-acceptance, environmental mastery, positive relationship with others, having a purpose in life, personal growth and independence was equal to: 0.51, 0.76, 0.75, 0.52, 0.73, 0.72. The alpha coefficient for the whole scale was 0.71. Overall, the results show that the 18-question form of the RIF psychological well-being scale is a useful and practical tool for measuring the psychological well-being of girls and boys in the Iranian sample (Khanjani et al., 2014).

2. Attachment styles questionnaire. This questionnaire was created by Hazen and Shaver (1987). This scale measures three attachment

styles (secure, avoidant and ambivalent) with 21 items. The scoring of this scale is based on a five-point Likert scale from 1 (for completely disagree) to 5 (for completely agree). 5 items are considered for each attachment style. The minimum and maximum score for each style is from 5 to 25. In this scale, the higher a person scores, the higher the intensity of attachment in each style. Khaninzadeh (2004) reported Cronbach's alpha of this test as 0.64 and its retest coefficient as 0.70. In Valikhani et al.'s research (2016), Cronbach's alpha of secure attachment style scale was 0.52, avoidant attachment style was 0.52, and ambivalent attachment style was 0.69.

3. Family emotional atmosphere questionnaire. This questionnaire was created by Hillburn (1964). B. Hillburn's emotional atmosphere questionnaire (1964) has 2 subscales and 8 dimensions: father-child relationship subscale, mother-child relationship subscale; 8 dimensions include: affection, caressing, validation, shared experiences, gift-giving, encouragement, trust, feeling safe. This questionnaire is designed and developed to measure the level of parent-child emotional relationships and measures variables such as affection, caressing, confirming, shared experiences, giving gifts, encouraging, trusting and feeling safe. The questions of this questionnaire are in the form of a 5-point Likert scale (very low, low, medium, high and very high) and the subject marks one of the options according to his feelings. The scoring of the questions of this questionnaire varies from 1 to 5, so that the very low option is given a score of 1, a low score of 2, an average score of 3, a high score of 4, and a very high score of 5. The minimum and maximum score that can be obtained in this questionnaire is 16 and 80, respectively. Individual questions measure father-child emotional climate or father-child relationship and couple questions measure mother-child emotional climate or mother-child relationship. The total score of father-child is 40 and mother-child is also 40. Higher than average scores indicate the existence of a favorable emotional atmosphere among family members and lower than average scores indicate an unfavorable emotional atmosphere among family members (Nahidi, 2011). Rahmani and Moheb (2012) calculated the reliability coefficient of the family emotional atmosphere test through Cronbach's alpha and 0.17 retest. In

Javadan's research (2015), Cronbach's alpha methods were used to determine the reliability of this list and it was 0.11. To determine the content validity of this questionnaire, the confirmatory factor analysis method was used, and all items had appropriate factor loading on the entire questionnaire, and this indicates the appropriate validity of this questionnaire.

4. Friend support questionnaire. This questionnaire was created by Tos Ziman et al. (1988). In this scale, perceived social support is focused on a person's cognitive evaluation of his environment and the person's level of confidence that help and support will be available if necessary. This questionnaire was prepared with 12 items in order to measure perceived social support from family, friends and important people in a person's life. This scale has three sub-components of support received from family (questions 3, 4, 8 and 11), friends (6, 7, 9 and 12) and colleagues (1, 2, 5 and 10). The respondent specifies his opinion on a 7-point scale from one for completely disagree to seven for completely agree. The scores obtained from the 12 items are added together. The minimum possible score will be 12 and the maximum will be 60. A score between 12 and 24: the perceived social support of the individual is low. A score between 24 and 36: perceived social support is average. A score higher than 36: the perceived social support of the individual is high. Breuer et al. (2008) have reported the internal reliability of this tool in a sample of 788 high school youth using Cronbach's alpha, 9-086% for the subscales of this tool and 86% for the whole tool. Salimi et al. (2009) have mentioned Cronbach's alpha coefficient of three dimensions of social support received from family, friends and important people of life as 89%, 86% and 82% respectively.

5. Hope. The hope questionnaire was prepared by Schneider, Harris, Anderson, Holleran, Ironik et al. (1991). This self-report questionnaire has 12 questions and two subscales, factor and passage. 4 questions are related to the factor subscale, 4 questions are related to the passage subscale, and 4 questions are deviations and are not scored. The sum of the factor and passage subscale scores determines the total hope score. Schneider and colleagues provided preliminary evidence on the validity and reliability of this test. Its Cronbach's alpha is between 0.74 and 0.84 and its retest reliability is 0.80 in a 1-0week period. Exploratory factor analysis and

confirmation of the two-factor model (factor and transit) have confirmed the scale.

Results

Almost 62% of the respondents are men and 38% are women. From the point of view of educational level, almost 30% are 10th grade, 38% are 11th grade and 32% are 12th grade. In terms of the number of siblings, the highest percentage (almost 52%) is related to deaf people

who have a sibling. Mothers between 21 and 30 years old have the highest percentage (almost 69%) of the age category of mothers. In terms of the type of guardian, the children who have both parents (almost 79 percent) are assigned to them. In terms of parents' occupation, most of the students have parents with freelance jobs (almost 47%). Employed and unemployed parents are next. The descriptive findings of the current research are reported in the table below.

Table 1. Descriptive characteristics of research variables

Variable	Min	Max	Mean	Standard deviation	Skewness	Kurtosis	TF	VIF
The emotional atmosphere of the family	16	80	52/882	11/500	-0/176	-0/184	0/521	1/546
Social support of friends	4	20	13/160	3/190	-0/225	-0/368	0/397	1/975
Secure attachment style	10	30	18/890	3/078	0/668	1/636	0/645	1/413
Avoidant attachment style	8	30	18/830	3/042	1/245	1/245	0/682	1/461
Bilateral attachment style	10	30	18/236	2/534	1/165	0/342	0/701	1/432
hope	5	20	13/630	3/529	0/518	-0/556		
Psychological well-being	43	87	68/960	9/649	-0/294	-0/599		

According to the results of Table 1, the kurtosis and skewness of none of the variables are out of the range between -2 and +2. This means that there is no significant deviation from the assumption of a normal curve. Also, the results of the collinearity problem among the research's predictor variables did not occur. The tolerance coefficient, equal to $R^2 - 1$, means the ratio of the overall standardized variance that is not explained by other variables. A tolerance factor of 0.1 or less indicates collinearity. Variance inflation factor is another method of detecting collinearity. If the value of the overall standardized variance factor to the single variance of variance inflation is higher than 10, it

indicates collinearity. In the current research, the values obtained from the calculation of variance inflation factor and tolerance coefficient showed that collinearity did not occur in the research variables.

Before analyzing the results, the data has been screened and the assumption of not violating the existence of outlier data of the variables has been investigated and ensured. The results of the above table show that it is important that there are no outliers that affect the results. Also, before performing the modeling analysis, the correlation coefficients between the variables studied in this research were reported.

Table 2. Correlation coefficient between research variables

Variable	1	2	3	4	5	6	7
The emotional atmosphere of the family	1						
Social support of friends	0/**534	1					

Secure attachment style	0/038	0/137	1			
Avoidant attachment style	-0/053	-0/112	-0/038	1		
Bilateral attachment style	-0/**209	-0/**324	0/**210	0/035	1	
hope	0/**587	-0/**512	-0/098	0/043	-0/**189	1
Psychological well-being	0/**672	0/**620	-0/042	-0/**190	-0/**358	0/**638

*p<.05, **p<.01

The findings in Table 2 show: There is a significant correlation between social support variable, emotional atmosphere, secure attachment style, ambivalent attachment style

and hope with psychological well-being. However, there is no significant relationship between avoidant attachment style and psychological well-being (P < 0.01, r = -0.042).

Table 3. Fit indices of the researched measurement models

Model	RMSEA	IFI	CFI	GFI	NFI	df/χ2	p	df	χ2
The emotional atmosphere of the family	0/061	0/905	0/903	0/897	0/902	1/744	0/001	103	179/582
	0</08	0>/90	0>/90	0>/90	0>/90	< 5			
Social support of friends	0/059	0/967	0/966	0/937	0/918	1/639	0/003	51	83/603
	0</08	0>/90	0>/90	0>/90	0>/90	5<			
attachment style	0/105	0/446	0/423	0/812	0/357	3/213	0/001	132	424/103
	0/073	0/930	0/932	0/905	0/912	2/066	0/001	74	152/886
	0</08	0>/90	0>/90	0>/90	0>/90	< 5			
hope	0/079	0/934	0/932	0/949	0/887	2/241	0/001	19	42/581
	0/074	0/894	0/890	0/951	0/843	2/758	0/001	13	35/853
	0</08	0>/90	0>/90	0>/90	0>/90	< 5			
Psychological well-being	0/123	0/612	0/597	0/761	0/542	4/011	0/001	120	481/341
	0/076	0/915	0/906	0/934	0/902	2/471	0/001	115	284/192
	0</08	0>/90	0>/90	0>/90	0>/90	< 5			

Based on the information in Table 3, the model for measuring the emotional atmosphere of the family and social support has a favorable fit. The measurement model of attachment styles has been fitted after removing questions 2 and 9. The

hope measurement model has been modified and fitted after removing 7 questions from the questionnaire. Also, the psychological well-being measurement model has reached a good fit after modification.

Table 4. Regression weights of the investigated variables

Exogenous variable		Endogenous variable	Path	β	t	p
Avoidant attachment style	>	Psychological wellbeing	Direct	0/141	0/030	0/923
Secure attachment style	>	Psychological wellbeing	Direct	0/152	0/257	0/797
Bidirectional attachment style	>	Psychological wellbeing	Direct	-0/280	0/087	0/931

The emotional atmosphere of the family	>	Psychological wellbeing	Direct	0/312	0/013	0/990
Social support	>	Psychological wellbeing	Direct	0/279	0/686	0/493
Avoidant attachment style	>	Psychological wellbeing	Indirect	0/054	1/615	0/107
Secure attachment style	>	Psychological wellbeing	Indirect	0/016	0/062	0/951
Bidirectional attachment style	>	Psychological wellbeing	Indirect	0/054	0/106	0/915
The emotional atmosphere of the family	>	Psychological wellbeing	Indirect	0/175	0/045	0/964
Social support of friends	>	Psychological wellbeing	Indirect	0/289	0/345	0/731

Table 5. Direct, indirect and complete effects of the studied variables

Exogenous variable		Mediator		Endogenous variable	Direct effect (P)	Indirect effect (P)	Total effect (P)
Avoidant attachment style	>	Hope	>	Psychological wellbeing	.139(.037)	-.006(.925)	.133(.051)
Secure attachment style	>	Hope	>	Psychological wellbeing	.150(.005)	.016(.652)	.164(.027)
Bilateral attachment style	>	Hope	>	Psychological wellbeing	-.279(.019)	-.054(.240)	-.332(.015)
The emotional atmosphere of the family	>	Hope	>	Psychological wellbeing	.354(.023)	.165(.007)	.519(.006)
Social support	>	Hope	>	Psychological wellbeing	.282(.180)	.261(.009)	.543(.007)

The information in Tables 4 and 5 shows that the direct standard path coefficient of avoidant attachment style affects psychological well-being ($\beta = 0.139$, $P < 0.01$). The effect of direct standard path coefficient of secure attachment style on psychological well-being ($\beta = 0.150$, $P < 0.01$) and bidirectional attachment style on psychological well-being ($\beta = 0.279$, $P < 0.01$) is significant. These findings indicate that all three attachment styles play a role in explaining psychological well-being scores. The effect of the direct standard path coefficient of family emotional atmosphere on psychological well-being is significant ($\beta = 0.354$, $P < 0.01$). This finding indicates that with an increase of one standard deviation on the scores of the emotional atmosphere of the family, 354 standard deviations of the psychological well-being scores increase. Therefore, the family emotional atmosphere variable has the power to explain the psychological well-being standard scores. The effect of the direct standard path coefficient of friends' social support on psychological well-being is not significant ($\beta = 0.282$, $P < 0.01$). This

finding indicates that the social support variable does not have the power to explain standard psychological well-being scores.

In order to investigate the mediating effect between the variables studied in this research, the bootstrap method was used in the structural model. The standard effect of the indirect path of avoidant attachment style on academic psychological well-being ($\beta = -0.006$, $P < 0.05$) with the mediation of hope is insignificant. The indirect effect of secure attachment style on psychological well-being ($\beta = 0.016$, $P < 0.05$) and two-sided attachment style on psychological well-being are not significant with the mediating role of hope ($\beta = 0.054$, $P < 0.05$). The findings showed that none of the three attachment styles could predict psychological well-being by mediating hope. The standard effect of the indirect path of family emotional atmosphere on psychological well-being is significant with the mediation of hope ($\beta = 0.165$, $P < 0.05$). This finding indicates that with an increase of one standard deviation on the scores of emotional atmosphere of the family, the standard deviation

of psychological well-being scores increases by 0.165. The standard effect of the indirect path of friends' social support on psychological well-being is significant with the mediation of hope ($\beta = 0.261, P < 0.05$). This finding indicates that

with an increase of one standard deviation on social support scores, the standard deviation of psychological well-being scores increase by 0.261.

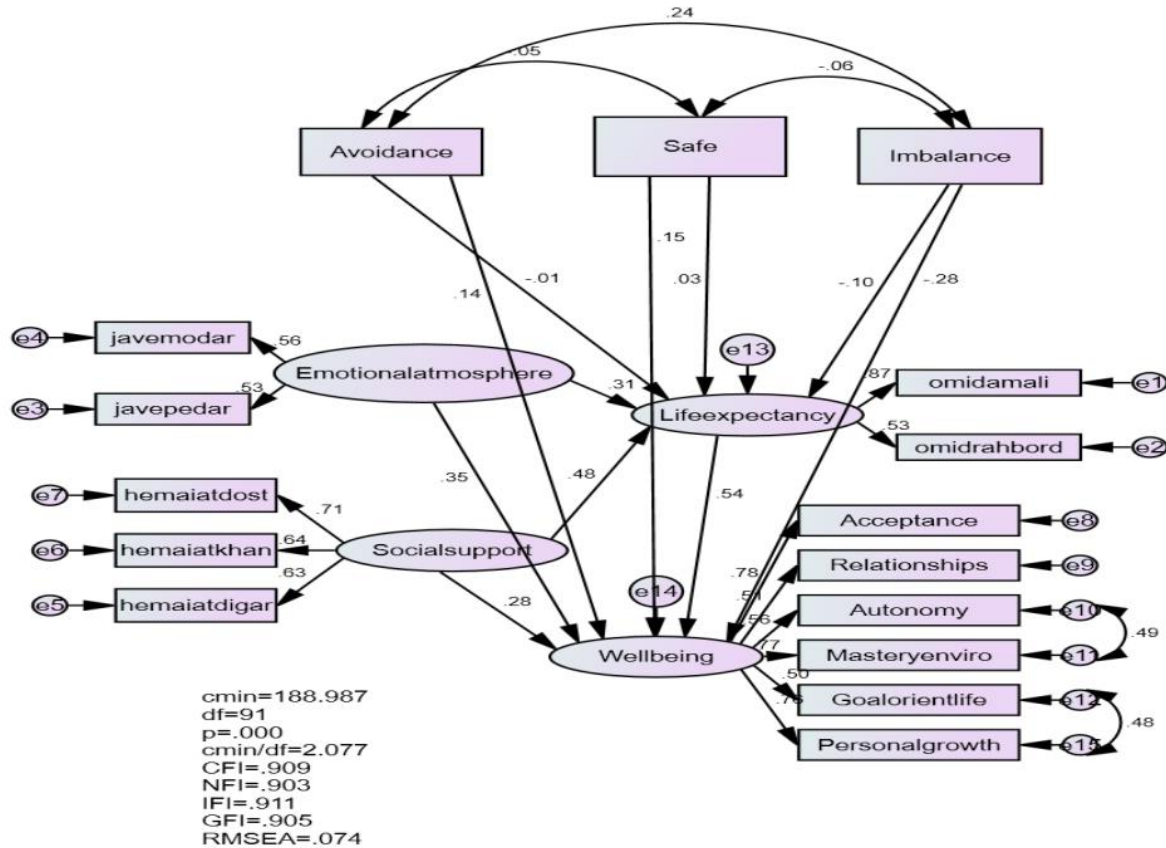


Figure 1. The final research model

Conclusion

The current research has investigated the causal model of psychological well-being based on attachment styles, family emotional atmosphere, social support and the mediating role of hope among students with hearing impairment in the second secondary schools of Tehran in the academic year of 2021. The results of this research show that avoidant, secure and ambivalent attachment styles have a direct effect in explaining psychological well-being scores. But they do not play a role in explaining psychological well-being scores through hope. In other words, the hope variable has not been able to play a role in the influence of lifestyles on psychological well-being. Attachment style represents the essential innate needs for social communication among people. Research results show that attachment styles significantly impact

psychological well-being (Lin, 2016; Marrero-Cudo et al., 2019; Monaco et al., 2019; Worsley, Mansfield, & Corcoran, 2018). For this reason, the results obtained in the present research are in line with the aforementioned research. However, the research results show that secure style affects psychological well-being among the attachment styles. But insecure styles (avoidance and anxiety) do not affect psychological well-being (Narimani et al., 2014; Nourialagha et al., 2020). A normal person with a secure attachment style has low avoidance and no concern about rejection by others. Therefore, it is expected that a person with a secure attachment style can have a high psychological well-being. People with hearing impairment under the influence of environmental factors and the lack of useful and effective communication with others do not have a high hope, and this factor has made the mediating role of hope unable to strengthen the relationship between attachment styles and

psychological well-being. Based on this, the results of this research show that the role of hope in the relationship between lifestyles and psychological well-being is ineffective. Therefore, the obtained results are in conflict with the research results of Cheng et al. (2015) and Bilan et al. (2022); Because the aforementioned studies have examined the role of hope in the relationship between attachment styles and psychological well-being.

Based on the results of this research, the emotional atmosphere of the family directly explains the psychological well-being standard scores. In other words, the family's emotional atmosphere directly affects the psychological well-being of students with hearing impairment. The emotional atmosphere of the family is one of the influencing factors on the psychological well-being of people. Adolescents with hearing impairment are at risk of reduced emotional socialization and mental health development (Eichgren et al., 2022; Lu et al., 2022). Therefore, the family atmosphere and the relationship between teenagers and their parents can play an important role in their social development. The results of Mitchell and Karchemer's (2004) research show that people with hearing impairment are often (9-095%) born to hearing parents with little prior knowledge or experience on effectively communicating with their deaf child. This group of parents has often presented effective communication with their deaf child as frustrating and full of ambiguity (Mitchell & Karchemer, 2004). The lack of effective communication between parents and children with hearing impairment prevents the formation of a positive emotional atmosphere (Mitchell & Karchmer, 2004). The lack of emotional atmosphere between parents and children is an important factor in the formation of psychological well-being (Zidman-Zit & Dotan, 2017). Based on the research results, the interactions between parents and children are in the framework of the emotional atmosphere of the family. Family atmosphere is an important protective factor in the communication between parents and adolescents in psycho-social development. Accordingly, families with deaf and hard-of-hearing children must provide the appropriate emotional environment for these people so that they can have an acceptable level of psychological well-being (Kaptanovic & Sekog, 2021; Sannes et al., 2019). Also, in the research of Haque et al. (2008), the indirect effect

of the emotional atmosphere of the family on psychological well-being is confirmed through the mediation of hope. A positive emotional atmosphere increases the hope and psychological well-being of children with hearing impairment. In contrast, in the context of a poor emotional family climate, these same actions may be perceived as disruptive (Huck et al., 2008). Therefore, they have adverse effects on the psychological performance of adolescents.

Social support is usually defined as a measure of connections between individuals and the groups they belong to, and includes mutual norms, trust, and other related outcomes resulting from these connections (Byatt, Daly, & Duncan, 2019). Based on the obtained results, the social support variable of friends does not have the power to explain the psychological well-being standard scores. In other words, friends' social support does not directly affect psychological well-being. Stevenson et al. (2015) believe that children and adolescents with hearing impairment have fewer emotional and behavioral problems compared to hearing children. These people need special support from their peers to improve their social relationships. Duncano colleagues (2021) have introduced communication barriers and other issues related to hearing loss as factors that lead to problems in friendships in friendship networks compared to their normal hearing peers. These factors lead to reduced access to the benefits of social capital (Duncan et al., 2021). The research results of Zeidman-Zit and Dotan (2017) also confirm that hearing problems cause a lack of social relations in peer networks, affecting the psychological well-being of people with hearing impairment. However, social support indirectly and significantly affects psychological well-being through hope. The results of this section confirm the role of hope in explaining the relationship between social support and psychological well-being of students with hearing impairments. Therefore, despite the absence of a direct relationship between social support and psychological well-being of students with hearing impairment, the hope variable has been able to explain the indirect effect of social support on psychological well-being. The results of Alavia (2022), Metad et al. (2022), Pasinringhi, Vansa and Gerstin (2022) also consider social support as an important factor for predicting the psychological well-being of children with hearing impairment.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

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