

Chronological Age and Puberty Coping Strategy Among Iranian Adolescent Females

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Abstract

Background: The speed and magnitude of physical, mental, social, and emotional changes during adolescence result in stress. Improper coping strategies toward stress have a negative impact on the mental health of adolescents that may continue to their adulthood.

Objectives: The present study aimed at investigating puberty coping strategies, puberty knowledge, and attitude of early and late adolescent females living in Karaj, Iran.

Methods: This was an analytical cross-sectional study conducted on 513 female high school students using the multi-stage random sampling method. The Persian form of Endler and Parker coping inventory for stressful situations, the scale for the assessment of knowledge and attitudes of adolescent females towards puberty, and socio-demographic questionnaire were used to gather data. The SPSS v21 and Chi-square, Kruskal Wallis, and Spearman were used to analyze data at a significance level of 0.05.

Results: The average age of participants was 15.40 (± 1.52). Results showed that avoidance was the dominant puberty coping strategy and the least frequent was related to the problem-focused strategy. A significant difference was observed between the frequency of coping strategies ($P = 0.001$), knowledge status ($P \leq 0.001$) and attitude ($P = 0.005$) towards puberty, and source of information for puberty ($P \leq 0.001$) was shown between two age groups of 15 years and under and above 15.

Conclusions: The findings of this study showed the significance of educating teen females about physical and psychological changes during puberty. It seems that health educators and health practitioners could help young females cope with puberty through training proper coping strategies. Parents should also be educated to be supportive and should be able to consider puberty as a stressful situation and help adolescents with proper coping.

Keywords: Coping Strategies, Adolescence, Puberty

1. Background

Overall, the population of 1.2 million adolescents aged 10 to 19 years old make up about 18% of the world population. More than half of these adolescents live in Asia (1). Adolescence is the most important and most problematic stage of life (1, 2). Adolescence includes the onset of sexual maturity to full physical growth. Adolescence is a critical period with rapid physical, cognitive, social, and psychological growth that prepares teens for adulthood. It is difficult to define the exact boundary of adolescence, yet under normal circumstances, the gradual emergence of secondary sexual characteristics start from the age of 11 to 12 years old and ends at almost 18 to 20 years of age by slowing body growth (3, 4). Adolescence in teenage females is a time that includes events, such as menarche, that are hallmarks of puberty in girls, which for some young females could be stressful (5, 6). It is hoped that female adolescents react positively to their menstrual cycle (6),

yet often due to cultural and social barriers, they have insufficient information about reproductive health, including knowledge about their menstrual cycle (5). As a result, negative responses such as embarrassment, fear, anxiety, and depression are experienced. The approach that a girl adopts against menstruation and menstrual changes influences her response to her menstrual cycle (6). Females need information, education, and a suitable environment so that they can adapt to the consequences of menstruation (5). Since transition from adolescence is inevitable, the speed and magnitude of these changes create pressure on the coping ability of individuals, and consequently lead to stress (7). Stress results from hormonal changes, which occur within sexual and physical maturity (8). People experience stress for different reasons, yet stress is not harmful, and it is inappropriate coping strategies that are harmful, which have a negative impact on mental health of adolescents and the adverse impacts could continue to adulthood (8, 9). Coping means behavioral and cognitive at-

tempts utilized by human beings so that they are able to manage relationships between themselves and their environments (10, 11). Coping means active individual endeavors for eliminating stress or managing stressful conditions. Coping skills include characteristics or methods for coping with difficulties. In other words, it is defined as one's power to cope with different situations. Coping strategy is used when there is perceived difference between stressful demands and existing resources for the demands (10).

Coping strategies are among the main components of mental health. The approach by which the adolescent copes with different changes of maturity is significantly related to his mental health, and academic failure, aggression, social isolation, severe behavioral, and emotional disorders in adolescents are often due to failure to cope with daily problems and positive interaction with them (3). Coping strategies are often classified as emotion-focused, problem-focused, and avoidance coping (10, 12). In emotion-focused coping, it is attempted to reduce one's stress by using techniques, such as relaxation, crying, and screaming (12). Problem-focused coping includes strategies such as planning, active coping, and making use of social support (10, 12). In avoidance coping, individuals attempt to avoid stresses or their consequences. This type of coping includes substance abuse, truce behaviors, blaming oneself, and emotional discharge (10). In any stressful situation, one possesses different coping strategies. These coping strategies are psychological efforts, which people employ for mastering, tolerating or reducing stressful situations. Impacts of coping strategies depend on individual characteristics, features of stressors, and content of one's demand (2). Adequate coping skills and cognitive behavioral methods are critical for the transition from adolescence to adulthood (13).

Most research works have shown that problem-focused coping strategies are associated with less anxiety, while emotion-focused strategies are associated with higher anxiety (10). Studies have shown that about 50% of psychological disorders of adults start before the age of 14. Many psychological disorders are related to improper coping behaviors in adolescence. Inadequate completion of coping skills and lack of social skills make one vulnerable to stress. Teaching appropriate coping skills and behaviors at an early age facilitates and improves performance in various areas of life (7).

Coping strategies used by individuals in early, middle, and late periods of adolescence vary depending on their understanding, life demands, and social support. Younger adolescents are especially more vulnerable to stress, because they are less skilled for evaluating situations and making decisions regarding appropriate coping strate-

gies. The strategies usually applied by older adolescents are those which are directly applied on stressors and reduce them (14). Recently, studies have been conducted on types of coping methods in adolescents; they are mostly related to western countries, and do not provide much knowledge about non-western countries (15). The present study aimed at comparing puberty coping strategies, puberty knowledge, and attitude during early and late adolescence.

2. Methods

2.1. Study Design

This cross-sectional study employed the multi-stage random sampling method. Firstly, simple random sampling was used to select schools in each stratum (region study) and then in each school, a number of classes were selected randomly. Overall, 513 female high school students aged 12 to 18 years old in schools of Karaj, Iran, participated in this study.

2.2. Inclusion Criteria

Inclusion criteria included (1) being female, (2) willing to participate in the study, and (3) age of 12 to 18 years old.

2.3. Variables Assessed in This Study

In this study, demographic variables, the knowledge and attitude of adolescent females about puberty, and coping strategies toward puberty as a stressful situation were assessed.

2.3.1. Socio-Demographic Variables

Socio-demographic variables included age, area of education, education, and employment status of the parents.

2.3.2. Knowledge and Attitude Towards Puberty

In this study, knowledge and attitude of adolescent females about puberty (including physiological changes, personal health, and mental health) were examined using a valid and reliable questionnaire. Majlesi et al. assessed content validity of this questionnaire and reported Cronbach's alpha as 0.78% and 0.76% for questions assessing knowledge and attitude about puberty, respectively (16). The questionnaire included 26 questions related to knowledge of females and 20 questions related to attitude. Accordingly, as knowledge is concerned, a student, who scores more than 70% of the maximum score of the questionnaire is considered as having good knowledge. Score of 50% to 70% is classified as moderate, and score of lower than 50% is classified as having poor knowledge. Regarding attitude, score of higher and equal to 70% of the maximum score is considered as a positive attitude and less than 70% is considered as negative attitude (16).

2.3.3. Strategies to Cope with a Stressful Situation

To determine the dominant strategy used by adolescents, the Endler and Parker's Coping Inventory for stressful situations was used, which is also a multidimensional scale, including 48 items; a total of three problem-focused (16 items), emotion-focused (16 items), and avoidance (16 items) coping strategies. Endler et al. reported the validity and reliability of this scale as high for adolescents. The Persian version of this questionnaire had acceptable reliability and validity with Cronbach's alpha of 0.83 for all 48 items, 0.86 for problem-focused items, 0.81 for emotion-focused items, and 0.79 for avoidance coping strategy items (17). The questions of this scale were scored on a five-point Likert scale. The dominant coping strategy of an individual is determined according to the highest score obtained. The minimum and maximum scores in all 3 coping strategies are 16 and 80, respectively (18-20).

2.3.4. Source of Information on Puberty

Using multiple-choice questions, participants' source of information was examined.

2.4. Ethics

After coordination with education districts and schools, a trained individual was sent to the participating schools to speak with students about the purposes of the study and how to complete the questionnaires. Data were gathered after obtaining the students' consent and providing explanations about the confidentiality of information and the use of information.

2.5. Statistical Analysis and Sample Size

According to the equation of determining sample size, "estimation of a quantitative trait in a society", considering $sd = 2.5$ and $d = 0.25$ (21), a sample size of 385 was considered. Taking into account the design effect of 1.3 and loss, finally, the sample size was set as 513 people. Using multi-stage probability sampling method, questionnaires were collected by a trained individual. The SPSS 21 software, descriptive and distributional statistics, and analysis tests of Chi-square, Kruskal Wallis, and Spearman were used to determine the relationship between variables.

3. Results

A total of 513 young females with an average age of 15.40 (standard deviation of 1.52) participated in this study. The minimum age of participants was 12 and the maximum was 18. Other demographic variables are presented in Table 1. The highest frequency was related to the avoidance

strategy and the lowest to problem-focused strategy. Frequency of strategies and the mean and standard deviation score of each strategy are shown in Table 2.

Comparing the age groups of 15 years old and below, and above 15 years old indicated the domination of emotion-focused strategy in the age group of 15 and below and domination of problem-focused strategy in the age group of over 15 years old (Table 3). Comparing the 2 age groups of 15 and below, and over 15 years, regarding the frequency of problem-focused and avoidance strategies, it was indicated that problem-focused strategy in the age group of above 15 was higher (86% vs. 5.9%), and avoidance coping-strategy was lower (14% vs. 94.1%) than the age group of 15 and below ($P = 0.02$). The frequency of coping strategies was not significantly associated with the mother's employment status ($P = 0.37$), father's employment status ($P = 0.73$), mother's education ($P = 0.49$), and father's education ($P = 0.670$). Chi-square test showed a significant relationship between the 2 age groups of 15 years and below, and above 15 and knowledge and attitude towards maturity (Table 4). In both age groups Spearman test also indicated a significant correlation between the scores of knowledge and attitude of the participants (Spearman correlation coefficient of 0.5, ($P \leq 0.001$)). Using the Kruskal-Wallis test in the age group of 15 and below, knowledge scores ($P = 0.41$) and attitude scores ($P = 0.21$) of participants in the 3 coping strategy groups were not significantly different. In the age group of above 15, participants' knowledge scores in 3 coping strategy groups did not show a significant difference ($P = 0.63$). However, the attitude score of individuals was significantly higher, regarding avoidance and emotion-focused strategies compared to the problem-focus group ($P = 0.038$). Chi-square test also showed a significant relationship between information sources (including mother, friends, Internet, and teachers) and age group; 85.7 % of participants aged 15 years and below stated teachers and 53.6% stated mothers as their source of information regarding puberty. In the above 15 years age group, Internet and friends were the sources of information about puberty in 57.9% and 56.4% of subjects; Pearson coefficient was 8.84, $P = 0.03$ (Table 5).

4. Discussion

The findings showed that the dominant strategy was different between the 2 age groups. In the age group of 15 and below, emotion-focused strategy and, in the age group of above 15, problem-focused strategy was the dominant strategy. Several findings support that type of adolescents' coping strategy varied with age (2, 6, 9, 22-25). Cocorada and Mihalascu (2012) considered the variable of age and grouped participants in 3 age groups: first group:

Table 1. Socio-Demographic Information^a

Variable	Age Group			
	15 years or Lower	Over 15 y	15 Y Or Lower	Over 15 y
	Mother Education		Father Education	
Lower diploma	127 (50.6)	75 (29)	104 (42.3)	76 (29.6)
Diploma and advanced diploma	85 (33.9)	144 (55.6)	84 (33.3)	116 (46.1)
Bachelor's Degree or higher	39 (15)	40 (15.4)	58 (23.5)	65 (25.4)
	Mother Employment		Father Employment	
House wife/jobless	217 (87.5)	220 (85.9)	5 (2.1)	7 (2.7)
worker	5 (2)	2 (0.8)	29 (20.2)	28 (10.9)
Clerk	5 (2)	10 (3.9)	51 (21)	63 (24.5)
Self-employed	9 (3.6)	9 (3.5)	122 (50.2)	135 (52.5)
Retired	12 (4.8)	13 (5.1)	16 (6.6)	6 (9.3)

^aValues are expressed as No. (%).

Table 2. Frequency, Mean and Standard Deviation of Strategies in the Study Population of Strategies in the Study Population^a

Coping Strategies	No. (%)	Mean (SD)
Task-Oriented Coping Strategy	32 (6.2)	38.27 (9.71)
Emotion-Oriented Coping Strategy	206 (40.2)	46.81 (10.29)
Avoidance-Oriented Coping Strategy	275 (53.6)	49.95 (10.79)

^aValues are expressed as No. (%).

Table 3. Relationship between Coping Strategies and Age Group^a

Coping strategies	Age Group		Chi-Square Test
	Over 15 y	15 y or Lower	
Task-Oriented Coping Strategy	8 (25)	24 (75)	0.001
Emotion-Oriented Coping Strategy	117 (56.8)	89 (43.2)	
Avoidance-Oriented Coping Strategy	127 (46.2)	148 (53.8)	

^aValues are expressed as No. (%).

13- to 15-year-old students, second group: 16- to 17-year-old students, and third group: 18- to 19-year old students. For early and middle adolescence periods, emotional discharge and mental disengagement were reported to be significantly higher. Similar to other studies, findings of the current study indicate that coping is less constructive in younger adolescents, while active strategies occur in more advanced stages of development. These findings support

Table 4. Relationship between Knowledge and Attitude of Study Population in Two Age Groups^a

Variable	Age Group		Chi-Square Test
	Over 15 y	15 y or Lower	
Knowledge low	55 (67.1)	27 (32.9)	0.000
Medium	144 (52.2)	132 (47.8)	
High	53 (34.2)	102 (65.8)	
Attitude Poor	115 (65.0)	62 (35.0)	0.005
Good	136 (40.6)	199 (59.4)	

^aValues are expressed as No. (%).

that there are several evolutionary stages for coping mechanisms during transition from adolescence to adulthood (22). This finding is similar to the findings by Liu et al. who reported that a fewer number of participants used problem-focused strategies, and most of them used inappropriate coping strategies (25). The study conducted by Raheel (2014), namely 'coping strategies for stress used by adolescent girls' showed that about 25% of subjects cried, 19% listened to music, 15% started eating a lot, 12% sat alone/isolated themselves, 11% prayed/read the Quran, 10% got into a verbal argument or a fight, 3% exercised and 2% stated that they found someone to discuss their problems. The results highlighted that the majority of the adolescent girls in this study, relied on emotion-related strategies rather than problem solving strategies. They coped in isolation, as they tended to use emotional strategies rather than addressing and trying to resolve their stressors (9). The study conducted by Rawat et al. (2015), namely 'pu-

Table 5. Source of Information about Puberty in the Study Population in Two Age Groups^a

Source of information about puberty	Age Group			Chi-Square Test
	Over 15	15 y and Lower	Total	
Mother	46.4 (83)	53.6 (96)	179 (100)	0.03
Teacher	14.3 (2)	85.7 (12)	14 (100)	
Friend	56.4 (31)	43.6 (24)	55 (100)	
Internet	57.9 (11)	42.1 (8)	19 (100)	

^aValues are expressed as No. (%).

berly: a stressful phase of transition for girls' depicted that the most frequently used coping strategies by adolescent girls were seeking diversions, avoiding problems, developing self-reliance and optimism, ventilating feelings, and developing social support with mean and SD scores of 25.1 ± 6.3 , 20.6 ± 2.6 , 19.7 ± 5.2 , 19.6 ± 2.8 , and 19.4 ± 4.5 , respectively. The least used coping strategies were being humorous, investing in close friends and seeking professional support with a mean score and SD of 6.2 ± 2.4 , 5.5 ± 2.2 , and 3.9 ± 2.0 , respectively (6). The results showed that female teens over 15 years of age changed their sources of information and included the Internet and friends; these results are consistent with Frydenberg (2008), revealing that females are more oriented towards social support, tension reduction, and use of non-productive coping style while ignorance and relaxation are more commonly used by boys (23).

There are many reasons for predicting changes, which occur in type of coping during the transition from early to late stages. One of the recognized reasons is one's cognitive development, including acquiring more skills in perceiving internal states, learning through observation of others, and increased awareness of different strategies. This results from progress in problem solving ability, increasing knowledge and maturation, gaining greater ability, higher meta-cognitive awareness, and increased regulation of emotional and adjusting behaviors. Since cognitive development is one of the alternative sources of strategies in adolescents, education and interventional attempts for improving meta-cognitive activities in adolescents could be useful (14).

The strength of the present study was the selection of Karaj as a metropolitan city. One of the features of this area is adjacency to the capital of Iran, Tehran, encompassing immigrants from all parts of Iran. Such immigration has brought about the inhabitation of different ethnicities (Fars, Turks, Kurds, Lors, and Baluchis). One of the limitations of the current study was trust in self-reporting by participants. It is possible for the participants to have reported

their strategies differently.

4.1. Conclusions

Perception of developmental changes and difference in age of adolescents could be used by parents, teachers, and health care providers to help adolescents adapt effective and appropriate strategies to cope with maturity. In addition to providing knowledge on how development may effect and be affected by coping responses, information concerning normative development of coping strategies during adolescence is necessary for the promotion of healthy adaptation to puberty through appropriate interventions. Such plans should be designed for parents that provide adequate knowledge and information about stressful situations for adolescents, to enable them to develop a supportive role during adolescence. Bolding the communicative role of parents especially mothers in supporting female adolescents is important and crucial for passing adolescents. Talking about their puberty stages, and sharing experiences in ways to handle stress, needs to be emphasized. The role of media cannot be overlooked.

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Footnotes

Authors' Contribution: Study concept and design: Malihe Farid and Mahnaz Akbari Kamrani; statistical analysis of data: Malihe Farid; interpretation of data: Malihe Farid and Mahnaz Akbari Kamrani.

Conflict of Interest: None.

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