

Comparison of Social Adjustment, School Satisfaction, and Mental Health in Girls with and Without Precocious Puberty

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ARTICLE INFO	ABSTRACT
<p>Article type: Research Paper</p> <hr/> <p>Article History: Received: Accepted:</p> <hr/> <p>Key words: Mental health, Precocious puberty, Puberty, School satisfaction, Social adjustment</p>	<p>Introduction: This study aimed to compare social adjustment, school satisfaction, and mental health among secondary school female students with and without precocious puberty.</p> <p>Materials and Methods: The statistical population of this study consisted of female high school students in Urmia city, Iran (n=1,225). To achieve our aim, samples of 204 students (102 girls with precocious puberty and 102 girls with normal puberty) were selected by multi-stage cluster sampling method from this statistical population. All participants were asked to complete social adjustment, school satisfaction, and mental health questionnaires. The research method was a causal-comparative type. The data were analyzed using descriptive and inferential statistics such as mean, variance, standard deviation, and multivariate analysis of variance (MANOVA).</p> <p>Results: The result of MANOVA revealed that there was a significant difference between two groups of girls in social adjustment, mental health, and school satisfaction ($P \leq 0.05$).</p> <p>Conclusion: The results of this study revealed that there was a more social adjustment, mental health, and school satisfaction among girls with normal puberty. Therefore, it is necessary that specialists intervene earlier and prevent later problems among such girls.</p>
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Introduction

Puberty is one of the most important indicators in the growth that occurs at certain ages in people (1). Puberty is a time of big changes inside and outside of the body in girls and boys. These changes signaling your child is moving from childhood to adolescence include physical growth and development inside and outside of their bodies, sexual organs changes, brain changes, and social and emotional changes. The major landmark of puberty for females is the onset of menstruation, which occurs on average between ages 12 and 13 (2). Family history, genetics, lifestyle, and nutrition are some of the factors that affect puberty (3).

Premature puberty is a type of puberty that starts earlier than expected (1). Early puberty is called precocious puberty and its prevalence and incidence vary significantly among different populations (4).

According to Bradley et al. (5), precocious puberty refers to puberty that starts before the age of 8 in girls. The prevalence of precocious puberty is estimated to be 1 in 5,000-10,000 in females (6). Puberty may affect the mental health of adolescents. Is this effect greater in adolescents with precocious puberty?

Mental health plays an important role in ensuring the dynamism and efficiency of any society (7). According to the definition provided by the World Health Organization, mental health is "a state of well-being in which the individual realizes his/her abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to contribute to his/her community" (8). Psychoanalysis believes that mental health means adapting to oneself and the demands and pressures of society. According to the humanist view, mental health means the growth, actualization, and realization of human talents and inner forces. Mental health problem is more prevalent among adolescents and raises more serious issues for normal growth during this period and later in life (9). The results of studies conducted by Kaltiala-Heino et al. (10) and Mensah et al. (11) showed that there was an association between early puberty and poor mental

health. Estanislau et al. (12) carried out a study on 40 girls in the US and reported that girls with precocious puberty had less positive experiences and were more distressed.

One of the factors that affects mental health is an adjustment. The present study focused on social adjustment since the lack of social relationships that result from a poor social adjustment can have a negative effect on motivation and mental health (13). Numerous social maladjustments occur during adolescence (14). Therefore, we face the question of whether the adolescent social adjustment is different from precocious puberty.

Social adjustment is a psychological process that enables individuals to understand, anticipate, and control the behavior of themselves and others (15). Sedaghatzadegan and Omidvar (16) examined the effect of social factors and precocious puberty on socialization in Shiraz, Iran, and showed that precocious physical puberty had a significant negative relationship with socialization. The findings of another study performed by Mensah et al. (11) indicated that boys and girls with precocious puberty experienced poorer psychosocial adjustment. Goldbeck et al. (17) studied 1,274 German adolescents and stated that girls were less satisfied with life than boys.

The other variable of the present study was school satisfaction, which is a subset of life satisfaction. Students spend a significant portion of their daily life at school; as a result, their feelings about school are an important factor in adolescent life satisfaction (18).

School satisfaction is an important aspect of students' lives and affects psychological well-being, school engagement, absenteeism rate, drop-out, and behavioral problems (19). Students who are dissatisfied with school show more negative physical and psychological symptoms (20).

In recent years, precocious puberty has increased. Teilmann et al. (21) has shown that the risk of precocious puberty in children is increasing and reported that they have recorded 655 cases of precocious puberty in their study.

Due to the increase in precocious puberty, it is necessary to study its impact on various aspects of adolescents' lives. However, to the best of our knowledge, few studies have examined premature puberty on social adjustment and mental health as a result of school satisfaction.

Therefore, it is necessary to study the mentioned variables, so that specialists can pay more attention to the problems caused by premature puberty. Regarding the above-mentioned studies, this study aimed to examine the effect of precocious puberty on mental health, social adjustment, and school satisfaction among two groups of girls. To achieve these goals, it was assumed that mental health, social adjustment, and school satisfaction were different between girls with and without precocious puberty.

Materials and Methods

This fundamental study was conducted based on the causal-comparative research design. The statistical population included all female students of the second year of high school in the city of Urmia, Iran ($n=12,250$). The sample consisted of 102 precocious puberty girls (whose menstruation has started at the age of ≤ 9 years) and 102 normal puberty girls.

The two groups were matched based on social and economic status. They were selected by multi-stage cluster random sampling method from different schools. The collected data were analyzed in SPSS software (version 24) using multivariate analysis (MANOVA).

General Health Questionnaire-28

The General Health Questionnaire-28, developed by Goldberg and Hiller (1970), consists of 4 sub-scales, namely physical symptoms, anxiety symptoms and sleep disorders, social dysfunction, and depression symptoms. Each scale has 7 items, rendering for a total of 28 items. Scoring is based on 4-point Likert (from 0=never to 3=much higher than usual). The scores higher than 17 indicate severe symptoms. The reliability of this scale was reported from 0.92 to 0.75 (22). Another study reported the reliability of this scale at 0.90 (23). In the present study, Cronbach's

alpha coefficient for the total mental health was obtained at 0.91

Social Adjustment Scale Self-Report

Social Adjustment Scale Self-Report, designed by Pi Kell and Wisman (1999), includes 54 items and 6 areas. This scale evaluates interpersonal relationships in different roles in occupational, social, and leisure activities; relationships with extended family; role as a marital partner; and parental role. In this study, 3 areas of this test were used (occupational, social, and leisure activities and relationships with extended family), and the subjects answered 46 items based on their conditions. Higher scores in each subscale indicate the subject's low social adjustment in the desired area. Homaei et al. reported a reliability coefficient of this scale at 0.89 (24). Cronbach's alpha coefficient for social adjustment was estimated at 0.87 in the present study.

School Satisfaction Scale

The school satisfaction scale is one of the subscales of the Multidimensional Students' Life Satisfaction Scale. The Multidimensional Students' Life Satisfaction Scale was developed by Scott Huebner in 1991 and was revised in 2001.

It measures the life satisfaction of youth in five domains, including family, friends, school, self, and living environment. The school satisfaction subscale consists of 8 items that are scored on a 6-point Likert scale (from strongly agree to strongly disagree).

Higher scores on this scale indicate the subjects' satisfaction with the school. Huebner et al. reported the reliability coefficients of this scale across the 5 domains (from 0.71 to 0.91) (25). In the present study, the school satisfaction subscale was used and its reliability was estimated at 0.52 using Cronbach's alpha coefficient method.

Results

Descriptive analysis of the variables included in the study is presented in Table 1.

Table 1: Summary of descriptive analysis of the variables included in the study

Variables	Groups	Min	Max	Mean	SD
	Precocious puberty	28	89	56.97	11.19
Mental health	Normal puberty	24	82	39.27	4.38
	Precocious puberty	8	28	15.68	3.82
Physical symptoms	Normal puberty	7	27	11.32	1.74
	Precocious puberty	6	20	12.43	3,23
Anxiety symptoms and sleep disorders	Normal puberty	5	20	8.21	1.55
	Precocious puberty	8	27	17.34	3.39
Social function	Normal puberty	7	28	13.42	4.96
	Precocious puberty	7	26	16.75	4.5
Symptoms of depression	Normal puberty	7	19	11.97	1.95
	Precocious puberty	13	40	21.65	5.44
School Satisfaction	Normal puberty	16	45	27.70	2.97
	Precocious puberty	37	94	67.23	12.92
Social adjustment	Normal puberty	32	92	51.30	11.06
	Precocious puberty	25	74	52.92	10.42
Adjustment at work	Normal puberty	24	70	39.95	8.55
	Precocious puberty	12	43	27.90	6.12
Adjustment to social leisure activities	Normal puberty	12	42	18.37	3.39
	Precocious puberty	12	42	23.86	6.19
Adjustment with family relationship	Normal puberty	9	35	14.21	2.92

According to Table 1, the mean scores of school satisfaction, social adjustment, and mental health were obtained at 23.90 ± 4.69 , 67.22 ± 12.92 , and 56.97 ± 11.19 for precocious puberty girls, respectively. Moreover, the mean values of school satisfaction, social adjustment, and mental health were estimated at 27.60 ± 2.53 ,

51.30 ± 11.06 , and 39.27 ± 4.38 for normal puberty girls, respectively.

In order to analyze the data and to test the hypotheses of the study, a MANOVA test was employed. For this purpose, the assumptions of the MANOVA test were examined. Kolmogorov-Smirnov test was used for normal data distribution (Table2).

Table 2: Kolmogorov-Smirnov and Shapiro-Wilk test of variables in this study

Variable	Groups	Statistic	df	KS		SW	
				P	df	Statistic	P
Social adjustment	Normal puberty	0.052	102	0.200	102	0.988	0.507
	Precocious puberty	0.087	102	0.053	102	0.975	0.057
School satisfaction	Normal puberty	0.078	102	0.200	102	0.990	0.644
	Precocious puberty	0.108	102	0.005	102	0.981	0.162
Mental health	Normal puberty	0.050	102	0.200	102	0.987	0.437
	Precocious puberty	0.082	102	0.087	102	0.981	0.152

According to Table2, Kolmogorov-Smirnov and Shapiro-Wilk test suggest the normality of data distribution for variables of this study and allow the use of MANOVA.

Multivariate analysis of variance test was used to test Hypothesis 1. F Leven and M-Box tests were used to examine the

homogeneity of variance and homogeneity of variance/covariance matrices in the two groups.

The results of the F Leven test showed that none of the F values in components of mental health were significant ($F(202)=1.182$, $P=0.278$) and M-Box value was not

significant (M-Box=414.12, F (15, 789/164289)=26.87, P=0.001). The results of Walk's lambda (value=0.486, f (5,198)=41.91, Eta=514, P=0.001) showed there were differences between the means of two

groups of subjects in mental health. The findings allowed the use of MANOVA. The results of the analysis have been summarized in Table 3.

Table 3: Multivariate analysis of variance test for mental health variables and their components in two groups

Variables	SS	DF	MS	F	P
Physical symptoms	910.59	1	910.59	102.78	0.001
Anxiety symptoms and sleep disorders	906.37	1	906.37	140.81	0.001
Social function	1788.31	1	1788.31	154.78	0.001
Symptoms of depression	1167.37	1	1167.37	97.05	0.001
Mental health	14620.24	1	14620.24	199.32	0.001

According to Table 3, F is significant for mental health and its all components in two groups (P<0.01). Therefore, there is a difference in mental health between the two groups of girls with and without precocious puberty.

The results of the F Leven test were not significant (F (202)= 0.713, P=0.399) for social adjustment and its all components in two groups; nevertheless, M-box value was significant (M-Box=201.94, F (10,

195078.88)=19.763, P=0.0001). Consequently, this presupposition was ruled out. According to Tabachnick and Fidell (26), it is required to use Pillai's Trace, which is more resistant. The result of Pillai's Trace (value=0.863, f (4,199)=83.52, Eta=0.627, P=0.0001) showed there were differences between the means of two groups in social adjustment. Therefore, the MNOVA test was used in this study. The results of the analysis are presented in Table 4.

Table 4: Multivariate analysis of variance test for social adjustment variables and their components in two groups

Variables	SS	DF	MS	F	P
Social adjustment	31675.31	1	31675.31	319.12	0.001
Adjustment at work	689.34	1	689.34	78.25	0.001
Adjustment to social leisure activities	9787.10	1	9787.10	516.57	0.001
Adjustment with family relationship	3360.71	1	3360.71	293.64	0.001

According to Table 4, F is significant for social adjustment and it's all components in two groups (P<0.001). Consequently, there was a difference in social adjustment between the two groups of girls with and without precocious puberty. Regarding this, Hypothesis 2 was confirmed.

To test the third hypothesis of this study, the means of the two groups were compared. Based on the result of F Leven (f (1, 154.614) = 19.849, P=0.001) there was no homogeneity between the two variances of the groups, which is reported in the second row of Table T (see Table 5).

Table 5: Comparison of the averages of school satisfaction in two groups

Groups	n	Mean	SD	Mean difference	df	T	P
Girls with precocious puberty	102	21.45	5.44	6.046	154.614	9.806	0.0001
Girls with normal puberty	102	27.70	2.97				

The findings of an independent t-test (DF=154.614, t=9.806) showed that there was a meaningful difference ($P<0.005$) between the mean of school satisfaction in the two groups of girls with and without precocious puberty. According to Table 5, the mean score of students with normal puberty was higher than the mean score of students with precocious puberty. Therefore, students with normal puberty had higher school satisfaction.

Conclusion

According to the result of the MANOVA test, precocious puberty in girls can have a negative effect on their mental health, social adjustment, and school satisfaction. Consequently, parents and educators should adopt the necessary measures to help these adolescents.

Discussion

The results of the first hypothesis revealed that two groups of female students with and without precocious puberty were different in mental health, which was consistent with the findings of the studies conducted by Kaltiala-Heino et al. (10) and Estanislau et al. (12). It was found that students with normal puberty had higher scores in mental health. To explain this finding, it can be said that when a girl has precocious puberty, she is still a child cognitively and psychologically; however, due to the physical changes resulting from precocious puberty, society expects more from her. In other words, although they are still children, society expects them to behave like adults and this expectation endangers their mental health. On the other hand, adolescents become moody due to hormonal changes, and many girls with precocious puberty are not able to fully manage their emotions due to their young age.

The results of testing the second hypothesis showed that the social adjustment of girls with and without precocious puberty was different. This finding was consistent with those of studies carried out by Sedaghatzadegan and Omidvar (16) and Mensah et al. (11). During puberty, social responsibilities are especially important. These responsibilities are determined by the extent to which each person is able to meet social norms. According to the results, girls

with precocious puberty showed less ability to meet these criteria since each person deals with society based on their chronological age. By observing the signs of puberty, society expects girls with precocious puberty to behave like adults. Therefore, their special needs for chronological age are ignored, and as a result, incompatibility is observed in these girls.

Furthermore, as mentioned, girls with precocious puberty have less ability to manage their mood changes and this disability can disrupt their social adjustment.

According to the findings of the third hypothesis test, the mean score of students with normal puberty in school satisfaction was higher than that of students with precocious puberty. This finding was consistent with the results of a study performed by Teilmann et al. (21). Satisfaction with school is a subset of overall life satisfaction because the different aspects of a person's life cannot be completely separated. A person who has problems with social adjustment due to precocious puberty cannot have positive and good relationships with their peers, which can be one of the reasons for these girls' dissatisfaction with the school.

Due to the scarcity of studies conducted on social adjustment, mental health, and school satisfaction of girls with precocious puberty, the possibility of comparing the results of the current study with those of other pieces of research was limited, which was one of the limitations of the present study.

Therefore, it would be beneficial that parents and school officials pay more attention to girls with precocious puberty and treat them according to their chronological age. Given that premature puberty can affect adolescents' mental health and adjustment, it is recommended that specialists intervene earlier and prevent further problems in psychosocial adjustment.

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