



# The Effect of Roy Adaptation Model-Based Intervention on Self Concept of Teenage Girls

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## Abstract

**Background:** Self-concept is among the most important factors influencing health, particularly during adolescent years. Mental health in adolescents, social adaptation, and healthy behaviors require coordination and adaptation with physical and mental changes resulting from this period.

**Objectives:** The purpose of the present study was to determine the effect of the Roy adaptation model-based intervention on the self-concept of teenage girls.

**Methods:** This quasi-experimental study was conducted in 2016 on 64 teenage girls with the available random sampling method; subjects were randomly assigned into control and intervention groups. For the intervention group, 12 weeks of intervention were performed as instruction and follow-up. Data were collected before and after intervention using personal information form and a researcher-made questionnaire, including 50 questions of self-concept in teenage girls based on the Roy adaptation model. The validity was examined by content validity, and the reliability was examined by internal consistency with the Cronbach's alpha of 0.74. Finally, data were analyzed using SPSS 16, descriptive statistics (mean, standard deviation, frequency), and analytical tests (independent *t*-test, chi-square). The significance level was below 0.05.

**Results:** The average age of participants was  $14.2 \pm 1.21$ . Average self-concept before intervention in the control group was  $171.31 \pm 11.95$  and in the intervention group was  $165.03 \pm 17.82$  where no significant difference existed ( $P = 0.10$ ). Average self-concept after intervention on control group was  $176.62 \pm 12.18$  and in the intervention group was  $197.06 \pm 10.09$ , where a significant difference existed ( $P < 0.001$ ). The results of the independent *t*-test in research groups after intervention showed that the employment of the Roy adaptation model promoted the average self-concept in teenage girls ( $P < 0.001$ ).

**Conclusions:** Employment of the designed program, based on the Roy adaptation model, can promote the self-concept of girls regarding transformations during their adolescent years.

**Keywords:** Adaptation, Adolescents, Psychological Adaptation, Roy Adaptation Model, Self-Concept

## 1. Background

The adolescent period is one of the most sensitive and critical stages of life. Self-concept is among the most important factors influencing especially girls' health in this period. Adolescence, due to the internal and external changes, is one of the most sensitive and critical stages of life (1), which can lead to evolutionary crisis and disturbing individual balance and emergence of new demands (2, 3).

Mental health in adolescents, social adaptation, cognitive performance, and healthy behaviors require coordination and adaptation with physical and mental changes resulting from this period (4). The results of studies show that 39% of students in Iran suffer from emotional and behavioral problems that this problem in girls is more prevalent compared with boys (5, 6). In this regard, a high prevalence of mental disorders among girls can be due to biological factors, gender roles, environmental stresses, and

limited satisfaction as well as limited social participation (7, 8).

Self-concept, as one of the important factors related to individual health (9), emphasizes mental and spiritual dimensions of the individual and is formed by individual perception and others' perception toward self, which can also play a fundamental role in guiding behaviors (10, 11). The relationship between self-concept and mental health during adolescent years is very important. Psychological disturbance among children and adolescents can be the result of deviation in self-concept (12).

Positive self-concept can make the person feel self-confidence and have security as well as survive against social deviations, whereas unstable self-concept causes personal conflicts among adolescents and decreases normal responses and leads to severe disturbances, mental disorders, suicide, and drug abuse in this period (10, 11, 13). Some studies show weakness in self-concept in teenage girls (13, 14) that indicates the need to implement interventions in this context.

In this regard, the employment of nursing interventions to increase the adaptation domain can have an efficient role in their effective agreement and a rational understanding of the self, which undoubtedly, has an increasing effect on the mental health of adolescents, particularly if these interventions are scientific, fundamental, and comprehensive (15, 16). Callista Roy, as one of the nursing theorists considers the role of a nurse to promote the adaptation level of people in all life processes that can have an effective impact on life quality and health (17).

Roy adaptation model considers the major role of nursing interventions to promote adaptation responses in four dimensions of Roy adaptation (physiological, self-concept, dependence-independence, and role-playing). According to this theorist, adaptation is a set of processes in which the person responds to environmental stresses or stressors while the main, contextual, and remaining stimuli are three key concepts of this model that influence adaptation (17, 18).

According to the Roy adaptation model, self-concept is consisted of the physical self-concept, personal self-concept, and interpersonal self-concept in relationships with others. Psychologist has extensively examined his self-concept as one of the human existential dimensions to find mental coordination and cohesion (19).

Many studies have indicated the positive effect of employing this pattern on disease course improvement and adaptation promotion in chronic diseases such as heart failure, diabetes, and kidney failure (20, 21). In the other research, the positive effect of nursing interventions based on the Roy adaptation model on the self-concept of pregnant women was studied (19). However, the use

of supportive-instructional measures in self-concept context related to the promotion of mental health of teenage girls seems necessary. In a study conducted by Basiri Moghadam et al., (13) to investigate self-conception and related factors in teenage girls of Gonabad, results showed that the self-concept of 53.4% of teenage girls was at a moderate level in total. It is notable that in the of majority subdivisions of the self-concept such as physical one, participants gained a low to moderate score.

## 2. Objectives

Therefore, the implementation of an intervention, according to the Roy adaptation pattern to improve self-concept in teenage girls of Gonabad city was considered as necessary. Accordingly, this study was conducted to determine the effect of the Roy adaptation model on the self-concept of teenage girls.

## 3. Methods

This random quasi-experimental study was conducted with pretest and posttest and control group in autumn and winter of 2017. The population of this study consisted of all teenage girls in Gonabad and those who had the inclusion criteria enter the study: willingness to participate, 12-16 years old, no single parenting, lack of physical and mental diseases, and lack of stressful condition during past six months.

The urban population of Gonabad is covered by three medical centers. The primary list of 12 to 16-year-old teenage girls provided from each center ( $n = 987$ ). Then, using a randomized sampling method (table of random numbers) and according to the inclusion criteria, participants were selected. In the next step, using four individual permuted blocks, girls allocated to intervention and control groups. In this study, we had 64 participants, and no one was excluded based on the exclusion criteria. To determine the validity of the self-concept questionnaire according to Roy adaptation pattern, we used content validity method. For this purpose, the designed questionnaire had been given to the 10 faculty members who were experts in the fields of nursing, psychology nursing, and the psychiatrists, and their recommendations were applied. The reliability of the questionnaire was confirmed using Cronbach's alpha ( $\alpha = 0.74$ ). In the control group, no interventions were employed, but instructions and guidelines of medical centers and schools.

Those teenage girls who were absent for more than two sessions or were exposed to stressful conditions were excluded from the study. The objective of the study and

its implementation were explained to the research units precisely, and written and informed consent was obtained from them. The sample, according to a similar study included 58 girls (29 girls in each group). To predict probable exclusions, 32 girls were considered for each group, and 64 girls were considered for both groups. Research units were selected based on the simple random method and were randomly assigned to control and experimental groups. Data collection tools in this study consisted of a personal information questionnaire and researcher-made questionnaire based on the Roy adaptation model. This questionnaire included 50 questions that each question was rated based on a 5-point Likert scale from absolutely agree to absolutely disagree (1 to 5). Scores domain in this questionnaire varied between 50 and 250. High scores in this questionnaire were within three domains of weak (55 - 117), average (118 - 184), and high (185 - 250). Since the questionnaire is designed based on the Roy adaptation model, the questions were prepared so that three or below three are interpreted as incompatible behavior. This researcher-made questionnaire includes three domains of physical self-concept (11 questions), personal self-concept (mental) (27 questions), and the inter-personal self-concept (12 questions). The validity of the questionnaire was examined by the panel of experts also, the reliability was confirmed by internal consistency with Cronbach's alpha ( $r = 0.74$ ).

After identification of the stimuli causing ineffective behaviors, the intervention framework was adjusted based on these incompatible behaviors and mutual stimuli in research units. This program included seven sessions that had been held in the conference hall of Food and Drug Chancellor. Five sessions for adolescents consisted of three sessions presented by the nurse and two sessions presented by the psychiatric nurse. In addition, two sessions were held for mothers, where one session was presented by the nurse and one session presented by the clinical psychologist. Sessions were 90 minutes long (60 minutes for instruction and 30 minutes for answering the questions) during seven weeks based on lecturing, questions and answers, and using learning assistant tools such as data projector and a whiteboard for the intervention group. The content consisted of physical and mental issues of the adolescence period.

The whole intervention period was 12 weeks, including seven weeks for manipulating the stimuli and increasing adaptation domain of people and five weeks' follow-up and support including phone counseling with adolescents and mothers to ensure the observance of recommendations and following the program, and answering the questions. Self-concept before and after the intervention was evaluated using the researcher-made questionnaire based on the Roy adaptation model. At the end of the study, the

content of sessions was prepared for the participant via electronic files and pamphlets.

This study was approved by the Ethics Committee of the region with the number IR.GMU.REC.1394.25. After the intervention and completing the questionnaires in both groups, in order to observe the ethical considerations, all provided instructions were presented to the participants in the control group, too. Data were analyzed by SPSS 20, descriptive statistics (central indicators and dispersion), and analytical statistics (independent *t*-tests, chi-square). Confidence coefficient was 95% and test power was 80% in all tests. The significance level was considered below 0.05.

#### 4. Results

The average age of participants in the experimental group was  $14.1 \pm 32.21$  and the control group was  $14.51 \pm 1.34$ , where no significant difference was observed ( $P = 0.63$ ). The average age of mothers was  $40.61 \pm 5.42$  and average age of fathers was  $44.26 \pm 5.62$ , where no significant difference was observed ( $P > 0.05$ ). No significant difference was observed between other demographic variables in both groups ( $P > 0.05$ ) (Table 1).

The findings of comparing self-concept score and its domains in research groups before and after interventions show that no significant difference exists before intervention ( $P > 0.05$ ). However, the difference became significant after the intervention ( $P > 0.05$ ) (Table 2). The findings of within-group comparison show that a significant difference exists in self-concept and its domains before and after intervention for the experimental group ( $P < 0.001$ ). In the control group, self-concept and its domains showed a significant difference after the intervention ( $P < 0.05$ ). However, after the intervention, a significant difference was observed between research groups ( $P < 0.001$ ). Therefore, self-concept score in the experimental group was higher (Table 2).

The most common incompatible behaviors related to self-concept were bad body image (84.3%), obesity (79.9%), aggressiveness (75.6%), spiritual weakness (75.0%), anxiety (65.6%), and lack of appropriate relationship with parents (64.0%).

#### 5. Discussion

In this study that was based on the Roy adaptation model, incompatible behaviors showed disturbance in self-body image in this period. Therefore, according to these findings, an intervention was designed to promote a mental image for the self and promote physical self-concept.

**Table 1.** Comparing the Characteristics of Parents in Research Groups

Variables/Components	Control Group	Experimental Group	The Result of Chi-Square Test
<b>Mothers' education level</b>			P = 0.88
Below diploma	15 (46.9)	17 (53.1)	
Diploma	11 (34.4)	10 (31.3)	
University	6 (8.18)	5 (15.6)	
<b>Fathers' education level</b>			P = 0.95
Below diploma	8 (25.0)	9 (28.1)	
Diploma	13 (40.6)	13 (40.6)	
University	11 (34.4)	10 (31.4)	
<b>Father's job</b>			P = 0.80
Free job	16 (50.0)	17 (53.1)	
Employee	16 (50.0)	15 (46.9)	
<b>Mother's job</b>			P = 0.61
Housekeeper	19 (59.4)	21 (65.6)	
Employee	13 (40.6)	11 (34.4)	
<b>Economic status</b>			P = 1.00
Good	23 (71.9)	23 (71.9)	
Average	9 (28.1)	9 (28.1)	
Weak			

**Table 2.** Self-Concept in Both Groups Before and After the Study

Self-Concept Components	Study Phase	Groups	Scores, Mean ± SD	P Value (Statistical Test)		
				Between Groups Independent-Samples t	Within Groups	
					Experimental Group	Control Group
Physical self-concept	Before	Experimental	31.41 ± 4.76	0.270	< 0.001	0.14
		Control	33.41 ± 4.76			
	After	Experimental	40.62 ± 4.89	> 0.001		
		Control	32.00 ± 4.52			
Personal self-concept	Before	Experimental	93.47 ± 10.82	0.660	< 0.001	0.006
		Control	94.59 ± 9.46			
	After	Experimental	109.50 ± 5.07	> 0.001		
		Control	100.72 ± 9.38			
Interpersonal self-concept	Before	Experimental	39.72 ± 8.63	0.060	< 0.001	0.90
		Control	43.31 ± 5.57			
	After	Experimental	46.94 ± 6.72	0.020		
		Control	43.41 ± 5.28			
Self-concept	Before	Experimental	165.03 ± 17.82	0.100	< 0.001	0.036
		Control	171.31 ± 11.95			
	After	Experimental	197.06 ± 10.09	0.001		
		Control	176.62 ± 12.18			

About physical self-concept and mental image of the body, different studies are conducted. In a study that aimed to determine the effect of physical preparedness program on physical self-concept and anxiety of female

students in Turkey, the results showed decreased anxiety and increased physical self-concept (22). Although in the present study, physical activity and physical preparedness were not directly pointed out, in training courses,

awareness and positive attitude toward beneficial exercises and fitness were emphasized. In another study, it was indicated that the designed intervention significantly increased body image satisfaction in the experimental group, and even after 12 months, the positive changes were stable (23). In the present study, employing self-esteem, self-concept of participants was promoted, and this is consistent with this study.

In previous studies, although the effects of interventions on mental image was effective, the difference is in employing one of the nursing models and designing an intervention based on a model, so that in addition to forming training courses, supportive measures such as online and in-person counseling were implemented with emphasis on mental and physical domains. Moreover, another difference between this study and other studies is the identification of incompatible behaviors and stimuli, causing these behaviors. Therefore, necessary planning for intervention based on the identified needs has provided more extensive domains that can be effective in effectiveness level. In another study that was conducted on the body image of teenage girls, the results showed that the employment of strategies such as the use of body image posters could cause negative effects, thus, 69% of adolescents feel worse and are not interested in simulations with models (24). The difference on the results can be due to the relationship with the intervention, implementation, and the effects of cultural factors on mental image. Although the effect of media and advertising on fitness is undeniable, the impact size is different in various cultures.

For promoting personal self-concept, a part of the interventions was dedicated to spirituality and anger control regarding incompatible behaviors such as weakness of spirituality, aggression, and anxiety among adolescents and in this regard, many studies are conducted that indicate the positive effect of spirituality on mental well-being and educational performance (25) and anxiety (26-28). In several studies, the positive effect of instruction on anger control and adaptation skills of adolescents was investigated, which is consistent with the present study (29, 30). However, in a study, it was shown that group training of aggression management did not decrease aggression (31), and this is not consistent with the present study. Although in the present study the effect of anger management training as one of the executive interventions was not directly examined on self-concept, decreased incompatible behaviors such as anger and promotion of self-concept can explain the effect of anger management on decreased aggression. One reason for the conflicts in research findings is related to the sample. In that study that was conducted on girls within an institute, factors such as life circumstances, a certain period of life, living far away from the family, hav-

ing no family, and issues related to living in maintenance centers caused more aggressive behaviors.

In the present study, conflict in interpersonal relationships with parents regarding mental-spiritual changes and lack of awareness of communicative skills were identified. Different studies showed the positive effect of communicative skills on components such as self-esteem (32), social anxiety (33), and aggression (34). Although the previous studies did not directly examine the effect of communicative skills on self-concept, since self-concept is acquired through social contacts with other people and components such as self-esteem, anxiety, and anger influence the dimensions of this variable, it can be predicted that instructing communicative skills can be an effective factor in promoting self-concept in communicating with others.

Regarding self-concept before and after intervention in the research group, the intervention based on the Roy adaptation model could promote the self-concept of participants. About promoting self-concept in the control group, the passage of time and its impact on self-concept, particularly during adolescence that is full of transformations and evolutions, can be pointed out. Moreover, the existence of intervention factors such as extended intervention, pretest, and posttest can be emphasized, because while administering the pretest, participants have been on summer holidays while after the intervention, they had spent more than half of the school year; this can influence the relationships with peers, teachers, participation in group and individual activities, increased social interactions, and self-concept while these factors were beyond the control domain of the researcher.

In a study on pregnant women to determine the effect of the Roy adaptation model on their self-concept, the results showed that the employment of the Roy adaptation model leads to the promotion of self-concept and its components in these women and the results are consistent with the present study. In a study by Maghsoudi et al. (35), on elderlies in nursing homes, the results indicated the positive effect of implementing the caring program according to the Roy adaptation model on the self-esteem of elderlies. In another study, it was indicated that the designed caring program based on Roy adaptation model after 10 weeks implementation and six-week follow-up could decrease incompatible behaviors (36). In another study, using the Roy adaptation pattern caused progression in the physiologic dimension of Cerebrovascular Accident patients' life (18). Maghsoudi et al. (35), indicated that application of a care program based on the Roy Adaptation Model could enhance the quality of life among nurses. All these studies are consistent with our result, which demonstrate that adherence to the Roy adaptation pattern can increase adaptation in different aspect of life.



Although the left stimuli were examined in this study, the interventions were concentrating on the main and contextual stimuli. To moderate other variables that are a change in beliefs and attitudes, implementation and follow-ups for longer periods of time are required, and due to the time constraints, it was not achieved in the present study. The employment of wider age domain is recommended for future studies to give the opportunity for comparison at the beginning stages. Also, it is recommended to concentrate on other dimensions to examine the effect of model on all aspects.

According to the results of this study on the promotion of self-concept and the importance of this variable over this period of life, the beneficial effects of this model can be used as a guide to advance caring-training programs in this period of life in, which adolescents are faced by more challenges regarding adaptation.

### Supplementary Material

Supplementary material(s) is available [here](#) [To read supplementary materials, please refer to the journal website and open PDF/HTML].

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### Footnotes

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