



Investigation of Relationship Between Levels of Self-Efficacy and Self-Care in Middle School Adolescents in Turkey

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Abstract

In this research it is aimed to investigate the relationship between the self-efficacy and self-care levels in adolescents which are aged between 11 - 15 years old. For this purpose, the socio-demographic characteristics of the students are utilized including, age, grade, gender, longest residence, family type, current residence location, family structure, academic success status, income-outcome balance, chronic diseases, education level of mother, education level of father, mother profession, father profession of students. Accordingly, the most known scales namely general self-efficacy scale and self-care agency scale were considered to investigate related characteristics of adolescents from Mersin Province of Turkey. It is implied from results that there is a significant relationship between the self-efficacy scale scores with the academic success status, family type and family structure characteristics of these adolescents. As well, there existed a significant relationship between the mean scores of the self-care scale with the age, grade, education level of their mothers, economic status of their families, academic success status and their family types. Based on the results, especially in the case of the single-parent type family structures, conducting a democratic family discipline and academic success status of students lead to increase in the self-efficacy belief of adolescents. In the similar way, the education level of mothers, economic status of the families, achieved high academic success and holding a democratic family discipline resulted in the high self-care agency level of the adolescents. Additionally, as the self-efficacy level of the adolescents increased, the self-care agency level of the adolescents may be increased additionally.

Keywords: Self-Efficacy Scale, Self-Care Agency Scale, Statistical Analysis, Adolescents

1. Background

Efficiency is defined as the degree of the necessary skills and attitudes to accomplish a job. However, self-efficacy represents the self-belief to behavioral ability in establishment of requirements to achieve success in an especial job. Belief, firstly introduced by Albert Bandura, affects the sense, thought, and motivation manner of peoples. Accordingly, self-efficacy includes the cognitive, emotional, selective and motivational components and affects the processes of transforming activities into behavior (1). Self-efficacy belief is effective in situations such as achieving individual health care programs and healthy lifestyle behaviors, as well as releasing bad health habits. Although the self-efficiency belief, as the main indicator of the individual's behaviors and behavioral changes, is not lonely sufficient to achieve desired behaviors, but it determines the effort level and duration which they spend to deal with problems. In such a situation, they can just solve the problems if they have high self-confidence, as it encourage

them to spend more effort to find alternative solutions for that problem (2).

Various researches were conducted to investigate the relation between the self-efficacy belief with health care habits, start/stop smoking behaviors, alcohol consumption and physical activity levels in adolescents. Additionally, there existed studies to evaluate the relationship between the self-care agency and healthy life activities or life quality of individuals with chronic diseases (3). For an instance, the research conducted through (4) can be mentioned. However, there isn't any proper research in concern with the relationship between the self-efficacy and self-care levels. Current research is aimed to clarify the relationship between these two characteristics in adolescences.

Accordingly, General Self-Efficacy Scale and Self-Care Agency Scale were utilized to determine statistically the relationship between the self-efficacy and self-care levels in adolescents attending 5th and 8th graded courses, aged be-

tween 11 - 15.

2. Methods

2.1. Sample

Participants of this research is composed of 32.497 adolescents studying in 107 elementary (aged between 11 - 12) and middle schools (aged between 14 - 15) in Mersin province in Turkey (The dataset is extracted from the official website records of Republic of Turkey Ministry of National Education).

However, data from at least 813 students were considered in analysis based on the Large-Population ($10.000 < x < 150.000$) type and layer-cluster approach (%2.5). However, regards the possible data loss during the study, it could be considered to increase the sample data by 20% at most. Accordingly, data from $813 + (813 \times 16\%) = 945$ students were analyzed as sample data here (5).

2.2. Index Development

The research data, were analyzed based on the socio-demographic information form which includes the descriptive statistics, the General Self-Efficacy Scale (GSE) to determine the self-efficacy levels and the Self-Care Agency Scale to examine the self-care ability and agency of adolescents.

Socio-demographic Information Form, which records descriptive characteristics of participants such as age, gender, education level and job status of parents.

The General Self-Efficacy Scale-GSE, developed firstly based on 20 items in 1979 by Mathias Jerusalem and Ralf Schawazzer in Germany. However, they were revised the scale in 1981 and the number of items was reduced to 10. The scale was translated into so many languages, while examining its validity and reliability analysis. As mentioned by (6), according to the research conducted by Scholz et al. (2002) through the general self-efficiency scale in 25 different language versions, the total correlation of items just with a few exceptions is between 30 - 77. Additionally, based on the results, total alpha internal consistency coefficient was calculated for whole of the 25 language versions as 86 and for each country separately between 75 and 91.

Self-Care Agency Scale, was developed in America by Kearney and Fleischer in 1979 to determine the self-care ability of individuals. However, the validity and reliability analysis of the scale was conducted by (7). The scale is established based on 4 featured items, including, active or passive response against problems, motivation, knowledge on health programs and self-esteem. In the 5-point Likert-type scale, the scores were assigned as follows: 0: "It does not define me at all", 1: "It does not define me very much", 2: "I

have no idea", 3: "It slightly defines me" and 4: "It defines me very well". It consists of 35 items, in which the items 3, 6, 9,13, 19, 22, 25, 26 and 31 are evaluated negatively, and so a reverse scoring is used. The maximum score is 136 and categorized in three classes as less than 82, between 82 - 120 and more than 120 representing low, medium and high degree of self-care agency, respectively. Higher points obtained from the scale indicate that the person is independent and self-sufficient in performing his/her self-care. The reliability analysis of the 35-item scale was calculated based on the Cronbach's Alpha coefficient as 0.654 (7).

2.3. Statistical Analysis

In analysis, the mean, standard deviation, minimum and maximum values were utilized for continuous data and frequency and percentage values for categorical variables. Here, student's *t*-test was used to compare the average values of two groups and One Way ANOVA test to compare the averages of more than two groups. As meaningful differences detected with ANOVA, Post Hoc Tukey test was implemented, and chi-square test was also applied to determine the relationship between categorical variables (8). Cronbach's alpha value was examined to evaluate the reliability of results, and Pearson Correlation coefficient was used to evaluate the relationships between scales. In analysis the statistical significance level was accepted as $P < 0.05$.

3. Results

In this section, the results related to the analysis of the relationship between self-efficacy and self-care agency of adolescents are represented. The average values of General Self-Efficacy Scale and Self-Care Agency Scale Scores were presented in Table 1. As well, comparative results of the descriptive statistics of students and their family status with their average General Self-Efficacy Scale and Self-Care Agency Scale Scores were presented in Tables 2 and 3.

Table 1. The Average Values of General Self-Efficacy Scale and Self-Care Agency Scale Scores (N = 945)

Scale Scores	N	Mean \pm SD	Min - Max
General Self-Efficacy Scale	945	32,01 \pm 5,07	15 - 40
Self-Care Agency Scale	945	99,48 \pm 18,68	26 - 136

As implied from the results, there isn't any significant relation between age, grade, gender, longest period residence, current residence, income-expenditure status, presence of chronic disease, educational status and job of parents with self-efficacy scale scores ($P > 0.05$). However, it

Table 2. Descriptive Characteristics of Students with Respect to Their General Self-Efficacy Scale and Self-Care Agency Scale Scores

Descriptive Characteristics	N	%	General Self-Efficacy Scale				Self-Care Agency Scale			
			Mean	SD	Min - Max	P	Mean	SD	Min - Max	P
Age, y						0.09				<0.001
10 - 12	469	49.6	32.3	5.3	15 - 40		101.9	17.3	29 - 136	
13 - 15	476	50.4	31.7	4.9	15 - 40		97.1	19.7	26 - 135	
Grade						0.09				<0.001
5 level	469	49.6	32.3	5.3	15 - 40		101.9	17.3	29 - 136	
8 level	476	50.4	31.7	4.9	15 - 40		97.1	19.7	26 - 135	
Gender						0.85				0.12
Female	497	52.6	32.0	5.1	15 - 40		100.4	19.5	26 - 136	
Male	448	47.4	32.0	5.0	15 - 40		98.5	17.7	40 - 136	
Longest residence						0.74				0.24
Province	669	70.8	32.0	5.1	15 - 40		100.1	18.9	26 - 136	
District	232	24.6	32.1	5.1	15 - 40		97.8	18.9	37 - 132	
Village	44	4.7	31.5	4.9	18 - 40		98.3	13.7	64 - 133	
Current residence										
Family	938	99.3	32.0	5.1	15 - 40		99.4	18.7	26 - 136	
Relatives	7	0.7	32.3	6.6	20 - 40		105.9	15.4	76 - 118	
Success status						< 0.001				< 0.001
Very good	302	32	33.3	5.0	15 - 40		106.0	17.2	52 - 136	
Good	349	36.9	32.1	4.5	15 - 40		99.7	17.3	26 - 134	
Moderate	273	28.9	30.8	5.3	15 - 40		93.3	19.5	29 - 136	
Weak	21	2.2	27.3	6.0	20 - 40		83.2	16.3	58 - 126	
Chronic diseases						0.59				0.054
Yes	104	11	31.8	4.9	15 - 40		96.2	21.3	29 - 132	
No	841	89	32.0	5.1	15 - 40		99.9	18.3	26 - 136	

was indicated a significant relationship between the students' academic success, their family type and structure with self-efficacy scale mean scores ($P < 0.05$). Self-efficacy scale scores were found to be higher in the case of students with very good academic success, living in a democratic family type, and those with single parent family structure.

Additionally, as indicated in these tables, there isn't any significant relationship between gender, longest period residence, current residence, presence of chronic disease, family structure, parents job and educational status of father with self-care agency scale scores ($P > 0.05$). However, a significant difference was indicated between the students age, grade, education of their mothers, income-expense status of the family, academic success of the students, and family type with their self-care scale scores ($P < 0.05$). Accordingly, the self-care agency scale scores were found to be higher in 10 - 12 age group from 5th graded

courses, those whose mothers with high school education, families with income more than expenses, democratic family structures and those with high academic success.

The relationship between the General Self-Efficacy Scale and Self-Care Agency Scale based on the Pearson correlation is also presented in [Table 4](#). Accordingly, there existed a poor positive correlation between these two parameters ($P < 0.05$). Briefly, as the self-efficacy of students increases, the self-care agency increases as well.

Cronbach's Alpha values are given in [Table 5](#) for the reliability of the Self-Efficacy and Self-Care Scales. As implied from the results, both scales have a high level of reliability.

4. Discussion

This study was conducted to determine the relationship between self-efficacy levels and self-care agency of

Table 3. Relation of Family Characteristics with Respect to the General Self-Efficacy Scale and Self-Care Agency Scale of Students

Descriptive Characteristics	N	%	General Self-Efficacy Scale				Self-Care Agency Scale			
			Mean	SD	Range	P	Mean	SD	Range	P
Family type						< 0.001				< 0.001
Democratic	816	86.3	32.3	5.0	15 - 40		101.5	17.2	26 - 136	
Non-democratic	129	13.7	30.1	5.4	15 - 40		86.5	22.1	33 - 135	
Family structure						0.03				0.42
Limited	697	73.8	32.1	5.0	15 - 40		99.8	18.4	26 - 136	
Extended	82	8.7	30.8	5.2	16 - 40		96.2	20.1	29 - 134	
Single-parent	40	4.2	33.6	4.0	24 - 40		98.9	16.5	60 - 131	
Split	126	13.3	31.8	5.5	15 - 40		99.9	20.1	36 - 132	
Income-outcome balance						0.1				0.001
Equivalent	510	54	32.1	4.9	15 - 40		100.4	18.2	36 - 136	
Income less than expenses	247	26.1	31.5	5.4	15 - 40		95.9	19.5	26 - 129	
Income more than expenses	188	19.9	32.5	5.0	17 - 40		101.8	18.4	39 - 136	
Education level of mother						0.73				0.008
Illiterate	143	15.1	31.9	5.6	15 - 40		95.6	19.0	26 - 134	
Literate	79	8.4	31.2	5.1	17 - 40		101.4	15.5	63 - 132	
Primary school	252	26.7	32.3	4.8	18 - 40		97.8	18.9	37 - 135	
Secondary school	198	21	32.1	5.2	15 - 40		99.8	19.1	36 - 135	
High school	180	19	32.0	5.1	16 - 40		102.3	18.0	29 - 136	
University	93	9.8	32.1	5.0	17.4		102.3	19.4	40 - 136	
Education level of father						0.59				0.5
Illiterate	42	4.4	31.8	5.6	15 - 40		97.2	17.4	39 - 134	
Literate	101	10.7	31.5	5.2	16 - 40		99.0	16.2	51 - 132	
Primary school	218	23.1	32.1	4.8	19 - 40		98.4	19.4	26 - 135	
Secondary school	225	23.8	32.4	5.3	15 - 40		98.7	18.1	33 - 135	
High school	209	22.1	32.2	5.0	15 - 40		101.0	19.8	29 - 136	
University	150	15.9	31.5	5.0	15 - 40		101.1	19.8	36 - 136	
Mother profession						0.88				0.25
Housewife	742	78.5	32.0	5.1	15 - 40		99.0	18.3	26 - 136	
Laborer	10	1.1	33.9	3.1	28 - 38		100.4	25.9	51 - 131	
Officer	65	6.9	32.2	5.0	17 - 40		105.0	18.7	54 - 136	
Self-employed	114	12.1	31.8	5.1	16 - 40		99.1	19.4	37 - 133	
Manager	8	0.8	32.9	5.5	21 - 39		98.6	26.6	40 - 132	
Retired	6	0.6	32.0	5.4	23 - 39		104.8	26.0	69 - 131	
Father profession						0.16				0.15
Unemployed	34	3.6	29.8	6.1	15 - 40		94.1	17.8	51 - 127	
Laborer	134	14.2	32.0	5.0	15 - 40		99.5	18.7	46 - 135	
Officer	138	14.6	31.7	5.0	16 - 40		101.6	20.8	36 - 136	
Self-employed	568	60.1	32.2	5.1	15 - 40		98.9	18.3	26 - 135	
Manager	14	1.5	31.9	4.1	22 - 37		106.2	17.9	70 - 126	
Retired	57	6	32.5	4.2	21 - 39		102.0	16.9	63 - 129	

adolescents aged 11 - 15 years old. Research data is gathered through “Socio-demographic information form”, “General Self-Efficacy Scale” and “Self-Care Agency Scale”. Based on the available researches, the provided data were examined in three categories as “the effect of socio-demographic characteristics on self-efficacy”, “the effect

of socio-demographic characteristics on self-care agency” and “the relationship between self-efficacy and self-care agency”.

In this study, based on the comparison results of the socio-demographic characteristics of the 11 - 15 aged group with the mean score values of “General Self-Efficacy Scale”,

Table 4. Person Correlation Coefficient Between the General Self-Efficacy Scale and Self-Care Agency Scale (N = 945)

	Self-Efficacy Scale	
	r	P
Self-Care Agency Scale	0.49	< 0.001

Table 5. Reliability Analysis of the Self-Efficacy and Self-Care Agency Scales

Scale	Cronbach's Alpha
Self-Efficacy Scale	0.76
Self-Care Agency Scale	0.87

it was declared that there isn't any significant relation between age, grade, gender, longest period residence, current residence, income and expenditure status, presence of chronic disease, education status of parents and their jobs with their self-efficacy scale scores. However, it was found that there is a significant relationship between their academic success, family type and structures with the mean scores of self-efficacy scale.

However, Binay and Yigit (9), demonstrated a statistically significant positive relation between the self-efficacy scores with the monthly income of the families which satisfies the needs of students. It was commented that satisfying the requirements of students resulted in their high confidence and thus more self-efficacy characteristics. In this research, the self-efficacy of adolescents found to be higher, who their economic requirements were satisfied. In the study conducted by Bannink and Broeren (10), it was found that self-efficacy levels of adolescents were directly proportional to satisfying their mental and physical requirements. In other words, it enables students to increase their self-confidence when their psychological and physiological requirements are satisfied. Similarly, in our study, it was indicated that the level of self-confidence was high in individuals who received the family support from the socio-demographic point of view and whose physiological and psychological requirements were satisfied. In terms of socioeconomic status, it was determined that there was no statistical difference in self-efficacy level among students. This could be resulted from the similar socio-economical characteristics of more than half of the students (54%).

Participants of this research almost haven't any chronic disease (89.0%). But there wasn't any statistically significant difference between patients with chronic disease and healthy ones. Similar results were obtained from patients suffered from asthma (11), diabetes (12) and those with dialysis. Self-efficacy levels of individuals with high self-confidence were observed to be high in these studies. However, self-efficacy and self-confidence levels

are low in individuals with chronic disease. Tsay and Healstead (13) in their research named, "self-care, self-efficacy, depression and life quality in hemodialysis patients in Taiwan" confirmed that the people with high self-efficacy are also capable to manage their illness effectively. Thong et al. (14) examined the relationship between life quality of dialysis patients with symptoms and clinical variables. In patients with chronic disease (such as dialysis patients), they are reported that as disability increases, performing daily activities and dependence in performing daily activities increases, while self-efficacy decreases. D'Souza and Karkada (15) were also found that dialysis patients had lower self-efficacy levels. Mollaoglu and Mukadder (16) in his research named "Disability in dialysis patients, daily activities and self-efficacy status" presented that the increment in disability of patients leads to increase in their dependence level and a decrease in self-efficacy characteristics. Accordingly, he emphasized that adoption of preventive approaches to decrease disability, could be effective to increase the independence level of patients and their self-efficacy characteristics. The lack of the similarity between our study results with other works could be explained through the existence of limited adolescents with chronic disease (11%) who participated in this research.

In our study, it was found that there was a statistically significant difference between the academic success and mean value of the self-efficacy scale scores of the students. Pajares (17), reported that individuals with high self-efficacy were more successful than others. In addition, low self-efficacy belief increases the level of anxiety and stress when they encountered with difficulties and thus it decreases their ability in problem solving. Self-efficacy belief appeared in individuals with high self-confidence is an important factor that affects their academic success (17). According to Azar (3), it is reported that students with higher self-efficacy beliefs were more eager in their learning activities and encouraged success by combating difficulties more courageously. Additionally, he demonstrated that students with low self-efficacy have more problems in dealing with difficulties. According to Arseven (18), Bandura (1) reported that the comparison of children with their counterparts, could affect the experiences related to the school environment and the teachers' perceptions about the student, could affect the level of self-efficacy. In our study, we achieved similar results with the research presented by Akturk and Aylaz (19) on self-efficacy levels of students in elementary schools, which demonstrate that increment in the academic success of students is lead to increase in their self-efficacy beliefs. As well, this is obvious that in students which have belief on their success and appreciated by their parents and teachers, the self-efficacy belief is positively af-

ected. Again, Cornella et al. (20) found that students' self-efficacy and their ability to deal with problems and responsibilities are increased with respect to their academic success. Accordingly, the results achieved demonstrate similar aspects with our study.

In our study, there wasn't existed any significant relationship between the gender, longest period residence, current residence, family structure, presence of chronic disease, profession of parents, educational status of fathers and self-care agency scale scores. However, it could be determined that there was a significant relationship between age, grade, education level of mothers, economic balance of family, academic success and family type with mean scores of self-care scale. The results of our study presented similarity with Sims and Skarbek (21) research.

In our study, it was found that the mean scores of self-care agency scale scores of students with democratic family type were higher than others. Considering that the self-esteem increased with parent's support to their child, low self-care agency in oppressive families may be related to their lack of self-esteem. Attitudes that prevent children's independence and development also affect their self-development negatively. Therefore, self-esteem may be low in children of oppressive families. Low self-esteem may adversely affect the child's self-care skills.

In our study, when the mothers' professions and self-care agency mean scores were compared, it was found that the highest score belonged to officer mothers and the lowest score belonged to housewives, but these scores have not presented statistically significant differences between housewives, Laborers, officers, self-employed and manager mothers. In the case of the profession of fathers, it was demonstrated that the highest score belongs to the managers and the lowest score belongs to the unemployed fathers. However, it was found that there were no statistically significant differences between the fathers' profession and self-care agency scores as determined in the case of mothers. The working status of parents is one of the main factors that affects the healthy development of adolescents. Although it is thought that the working status of mothers have significant effects on adolescents' self-care agency, regards more time they spend with their children. But Akduman (22), Nahcivan (7), Nahcivan and Tuncel (23) demonstrated that that self-care agency scores are not affected seriously from this aspect. Akduman Ergun et al. (24) represented that there is a significant statistical relationship between the self-care agency scores of adolescents in vocational education whose mothers did not work than those whose mothers were employed. In the study conducted by Harshida and Sumana (2), it was stated that in adolescents whose parents did not work, the self-care agency scale is higher. However, according to the results of

our study, there isn't demonstrated any statistical relationship between the self-care agency and adolescent's parent profession.

4.1. Conclusion

In current research there isn't confirmed any meaningful relationship between the characteristics of the students such as age, grade, gender, longest period residence, current residence, income-expenditure status, presence of chronic disease, educational status and profession of parents with mean self-efficacy scores. However, there is a significant difference between the students' academic success status and their family type and structure with their mean score of self-efficacy. The students who perceive their success as very good, have a democratic family type or single parent family structure, represented higher self-efficacy levels.

Here, there wasn't demonstrated any significant relationship between students' gender, longest period residence, family structure, presence of chronic illness, profession of their parents, educational status of fathers, and self-care agency scores.

A positive, weak ($r = 0.49$) and statistically significant relationship was found between the Self-Efficacy Scale Total Score and the Self-Care Agency Scale Total Score. Accordingly, as the self-efficacy levels of adolescents increased, their self-care agency will be increased as well.

Footnotes

Authors' Contribution: A.B.C. contributed to conception or design, acquisition, analysis, or interpretation, drafted the manuscript. A.B.C. and R.Y. critically revised the manuscript, gave final approval, agrees to be accountable for all aspects of work ensuring integrity and accuracy.

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