

Original Article

The Relationship Between Attitude Toward Healthy Behavior and Social Support among Adolescents with Type One Diabetes Mellitus

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Abstract

Diabetes Mellitus (DM) type 1 is considered one of the most chronic diseases that affect adolescents and affects various aspects of their lives due to its many complications. The success of managing diabetes in the adolescent age-group depends on their self-care which includes a strict commitment to various healthy behaviors which may be difficult to follow in this group. Here the adolescent needs support and social support to be able to adhere to the healthy behaviors. **Aim of the study** is to assess the relationship between the level of social support and the adolescents' attitude towards healthy behavior. **Material and Methods: Research Design:** A descriptive correlational Design was used in this study. **Setting:** The data was collected in the Diabetes Care Center in Lattakia- Syria. **Sampling:** the study was conducted on a convenient sample of 150 adolescents diagnosed with type 1 diabetes of both sexes. **Tools:** three tools were used in the present study namely, Socio demographic and clinical data, Attitude toward healthy behaviors among diabetic adolescents scale and social support among diabetic adolescents scale. **Results:** 93.3% of the students had positive attitude toward healthy behavior, 98% of the students reported high social support in family domain, 89.3% of them reported high social support in in physician's domain and 74% of the students reported high social support in friends' domain while 74% of the students had high social support in the three domains. 94.6% of the students who reported high social support had a positive attitude toward healthy behavior with a statistical significant relation was found $P=0.028$. **Conclusion:** there is a positive attitude towards healthy behavior among the majority of the students moreover most of the students showed high level of social support while the social support is higher in the family domain than physician and friends domains. The results also showed that there is a positive relation between the presence of social support and diabetic adolescents' attitudes towards healthy behavior. **Recommendations:** The study recommended promoting health education about social support and its importance in enhancing adolescents' attitude towards healthy behavior.

Key words: Type 1 diabetes, Social Support, Attitude toward healthy behavior.

Introduction:

Diabetes Mellitus is the third most common chronic disease among children and adolescents, and it is a group of pathological conditions characterized by a lack of insulin secretion from beta cells in the pancreas, or resistance of cells to receiving insulin, or both together. ⁽¹⁾

In 2017, the World Health Organization estimated that there are 9 million patients with type 1 diabetes, the majority of them are children and adolescents, and most of them live in developed countries. Studies conducted between 2000 and 2019 showed that the number of deaths related to both types of diabetes had tripled. ⁽²⁾ In the Arab world, a survey done by (Zayad et al, 2016) showed that the prevalence of type 1 diabetes in Saudi Arabia is (33.5) children and adolescents per 100,000 children, which is equivalent to (35,000) adolescents and children annually, and in Oman it is 2.5 per 1,000 children, while in Syria it is 2 per 1,000 children, according to the statistics of the Ministry of Health for the year 2012. ⁽⁴⁾

The etiology of type 1 diabetes is not exactly defined, and its symptoms include extreme thirst, frequent albuminuria, blurred vision, unexplained weight loss, and coma, which may be the first symptom that leads to its diagnosis in adolescents. ⁽⁵⁾ Type 1 DM is also accompanied by many complications, the most dangerous of them is diabetic ketoacidosis, in addition to sudden hypoglycemia following an insulin dose. In the chronic phase of the disease, it is accompanied by complications in small and large blood vessels that cause diabetic foot, retinopathy, and diabetic neuropathy. ⁽⁶⁾

The management of type 1 diabetes in children and adolescents aims to control blood glucose levels within normal values, and thus delay or prevent complications associated with it. The management is carried out with the active participation of parents with a health team. The treatment includes multiple dimensions, including insulin injection, adherence to a healthy diet, and appropriate exercise. Moreover, adolescents with type one diabetes must follow healthy behaviors and stay away from dangerous behaviors and participate in health education services about the disease. ⁽⁶⁻⁸⁾

Healthy behaviors are the most important pillar in the treatment of a diabetic teenager because patient is exposed to many factors that affect adherence to treatment, including the developmental changes of this age group, his tendency to be independent and his influence on his peers ⁽⁸⁾. the study of the DM1 adolescents' attitude toward healthy behaviors must be integrated into the routine care plan provided by the health care staff, because they need more guidance, social and psychological support and they need to be educated about the disease itself, and the psychological and emotional aspects associated with the disease, such as fear from low blood sugar, and parents' fear of the uncontrolled health behaviors of a teenager at this age. ⁽⁸⁾

Although self-care for diabetics is generally a personal factor and is affected by the person's attitudes, it is also affected by social support, and studies have shown that the availability of social support improves the patient's ability to adhere to healthy behaviors as well as his ability to deal with his disease effectively and efficiently ⁽⁹⁻¹¹⁾.

Social support is defined as the actual or perceived potential resources available in an individual's social environment that can be used to help in times of distress. The individual is provided with social support through his network of social relations, which includes all persons who have regular social contact in one way or another with the individual, and often includes family, friends and work colleagues, as people who have a good level of social support show a better level of social and psychological competence and lower levels stress. Therefore, social support is a very important issue for patients with chronic diseases, especially adolescents with diabetes. ⁽¹²⁾

A study conducted by (Karimy et al, 2018) ⁽¹³⁾ in Iran aimed to identify the relationship between attitude, self-efficacy, social support, and adherence to self-care behaviors for patients with diabetes and found that social support is an important and influential factor in self-care behaviors of diabetic adolescents. It also showed a correlation between the attitude towards self-care and social support on the one hand, and adherence to health care behaviors among adolescents with diabetes.

The results of a study done by (Hempler et al, 2016) ⁽¹⁴⁾ in Denmark showed that patients with type 1 diabetes are more committed to healthy behaviors, and showed a positive correlation between social support and adherence to these behaviors.

Significance of the study:

The importance of this study comes from the fact that it deals with an important and growing health problem, in which the tendency towards healthy behavior greatly affects adherence to the required behaviors, and the fact that social support is very necessary to help the adolescent adhere to these behaviors with its multiple and different sources. These sources must be studied extensively to determine which of them is more influential therefore medical staff can attempt to strengthen the role of this source in the care of the sick teenager. The researchers also did not find any studies in Syria that dealt with this issue in adolescents with type 1 diabetes. Furthermore, the results of the current study can form a database for subsequent research within the same context and for the same target group.

Aim of the study: This research aims to assess the relationship between the attitude towards healthy behavior and social support among adolescents with type 1 diabetes.

Research question: This study seeks to answer the following questions: Is there a relationship between attitudes toward healthy behavior and social support among adolescents with type 1 diabetes?

Materials and Methods:

Research Design:

The descriptive Correlational design was used in the present study.

Setting: Data were collected from the Diabetes Care Center of the Lattakia Health Directorate during the period between (the ninth month 2022 till February 2023).

Subjects: 150 adolescents of both sexes, aged between 10-19 years old, diagnosed for more than a year and less than 5 with type 1 diabetes and able to read and write.

The sampling technique: a convenient non-random sampling method was used to select the study subjects.

Study Tools: The researchers used three tools to collect data:

Tool I: demographic and health data of the adolescents with type 1 DM structured interview schedule:

This tool was developed by the two researchers and included (4) questions about (age, gender, educational level, number of family members) and (9) questions about health data and diabetes education as years of DM diagnosis and home glucose check

Tool II: Attitude towards healthy behavior questionnaire (40 items):

This tool was developed by (Zatout, 2005)⁽¹⁵⁾ and used to measure the attitudes of adolescents with type 1 diabetes about healthy behavior, treatment, adherence to the diet, follow-up tests and examinations, the attitude towards general healthy behavior, and the attitude towards unhealthy behavior. The researchers modified it to suit the cultural and social characteristics of the research sample.⁽¹⁵⁾ The key to correcting the scale according to the Likert scale [strongly disagree (1) to strongly agree (3), which represents the desired answer. The total response ranges between (40-120). The attitude towards healthy behavior is positive whenever the total number of responses of the adolescent to the questionnaire items increases, and the attitude is negative whenever the total number of responses decreases. The score (75) is considered the threshold separating the negative attitude from the positive attitude of the participant.

Tool III: the social support questionnaire:

It was developed by (Hamrit and Bosnia, 2018)⁽¹⁶⁾ and has been adopted by researchers. It measures the number of people available for social support from the social circle of the individual and the extent of satisfaction with what these people can provide of support. It consists of three main domains that measure the social support of a diabetic adolescent from

the family (24 statements), support from friends (19 statements), and support from the attending physician (25 statements).

The key to correct the scale according to the Quadruple Likert scale [always 4, sometimes 3, rarely 2, never 1]. A higher score on the scale indicates a higher level of social support.

Methods:

- 1- The approvals for conducting this research were obtained related authorities.
- 2- Tool 1 was developed by researchers.
- 3- The second and third research tools were prepared and modified and presented to a Jury to test content validity by three experts from faculty of nursing and their comments and modifications taken into consideration.
- 4- The study sample was selected from diabetic adolescents attending the center using the appropriate non-random sampling method and verbal consent from their parents was obtained
- 5- A pilot study was conducted on 10% of the sample, who were chosen from the study population, to show the clarity of the tool, and they were excluded from the sample.
- 6- The reliability of the study tools was examined using Cronbach's alpha and they were highly reliable.
- 7- The study tools were distributed to the adolescents in the center during their visit to the center in order to follow up or to obtain Insulin for their treatment. They were asked to answer the questions in the presence of the researchers,
- 8- The data taken from the questionnaires were coded and analyzed statistically using the statistical analysis program (SPSS) version 25.

Table 1: Distribution of students according to the demographic data:

Item	Category	Frequency n=150	%
Age	10-≤ 13	45	30.0
	13-≤ 16	33	22.0
	16-≤ 19	72	48.0
Gender	Male	72	48.0
	Female	78	52.0
Education	elementary	30	20.0
	Intermediate	59	39.3
	secondary	61	40.7
Family members	Less than 3	51	34.0
	3-5	90	60.0
	More than 5	9	6.0
Having friends	Yes	144	96.0
	no	6	4.0

Table 1 shows that about half of the students (48%) are from the age group (16-19 years), more than half (52%) are females, and more than a third (40.7%) enrolled in high schools. With regard to the number of family members, the highest percentage (60%) has families consisting of (3-5) persons, most of the students (80.6%) live with their parents, and most of them (96%) have friends.

Table2: Distribution of students according to their health data:

Item	Category	Frequency n=150	%
Years of diagnosis	1 year	3	2.0
	1-5 years	75	50.0
	More than 5 years	72	48.0
Insulin Injection number	1 time / day	72	2
	2 times / day	3	98
Insulin Injection method	Self-injection	106	70.7
	Injection with help	27	18.0
	Injection by others	17	11.3
Insulin preparation	Self-preparation	102	68.0
	Prepared by others	48	32.0
Having manual glucose test	Yes	132	88.0
	No	18	12.0
Home glucose check	Daily	30	20.0
	Weekly	73	48.7
	Monthly	23	15.3
	When it is needed	24	16.0
Physician Visiting	Yes	74	49.3
	No	6	4.0
	When it is needed	70	46.7
Received health teaching about Insulin Injection	Yes	103	68.7
	No	47	31.3

Table (2) shows the distribution of the students according to their health data. It shows that the number of years of diabetes in Half of the sample is between (1-5) years. Two doses of insulin are injected during the day in the majority (98%) of the students. The highest percentage of them (70.7%) depends on self-injecting insulin, and (68%) of them prepare the dose by themselves, and the majority of them (88%) own a home glucose monitor, moreover, about half of them (49.3%) reported that they go to the doctor on a regular period, and the highest percentage (68.7%) of them received training on insulin self-injection.

Table 3: differences between those with a positive attitude and those with a negative attitude toward healthy behaviors

Attitude	No	%	Mean	SD	P
Positive Attitude	140	93.3	85.48	4.79	0.000
Negative Attitude	10	6.7	71.70	2.63	

*Significant statistical Differences $P \leq 0.05$

Table (3) shows the differences between students with a positive attitude and those with a negative attitude toward healthy behaviors. It shows that the majority of them (93.3%) have a positive attitude towards healthy behavior with an average of (4.79 ± 85.48) and only (6.7%) have a negative attitude towards healthy behavior with an average of (71.70 ± 2.63) . The difference between the two groups has a very important statistical significance, where $(t = 8.981)$ and the level of statistical significance $(p = 0.000)$.

Table 4: The arithmetic mean and standard deviation in dimensions of the social support scale.

Dimensions of social support	No	Mean	SD	Level of social support	Arrangement
Family	24	3.32	0.172	High	1
Friends	19	2.70	0.396	Moderate	3
Doctor	25	3.27	0.223	High	2
Total degree of the scale	68	3.09	0.211	High	

Table (4) shows the arithmetic mean and standard deviation of the dimensions of the social support scale for the sample. It shows that the family dimension came in the first place with high social support level with an average (3.32 ± 0.172) , followed by the doctor dimension with an average (3.27 ± 0.223) and a high level of social support, and in the third place came the friend's dimension with an average (2.70 ± 0.396) and a moderate level of social support. The overall mean of the scale was (3.09 ± 9.211) thus means a high level of social support.

Table 5: Distribution of the students according to the number and percentage of social support levels

Level	Low		Moderate		High	
	No	%	No	%	No	%
Family	0	0	3	2.0	147	98.0
Friends	7	4.7	111	74.0	32	21.3
Physician	0	0	16	10.7	134	89.3
Total degree	0	0	39	26.0	111	74.0

*Significant statistical Differences $P \leq 0.05$

Table (5): shows the distribution of the students according to the number and percentage of social support levels. It shows that the majority of them (98%) have a high level of social support from the family, and the highest percentage of them (74%) have an average level of social support from friends, while most of them (89.3%) have a high level of social support from the doctor. As for the overall score of the scale, the highest percentage (74%) of the students has a high level of social support.

Table (6): The relationship between the attitude towards healthy behavior and the level of social support among the study students

Social support	Low		Moderate		High		Fisher's Exact	Sig
	No	%	No	%	No	%		
Attitude							1.091	0.028*
Negative	0	0	4	10.3%	6	5.4%		
Positive	0	0	35	89.7%	105	94.6%		

*Significant statistical Differences $P \leq 0.05$

Table (6) shows the relationship between the attitude towards healthy behavior and the level of social support, and there are statistically significant differences in the attitude towards healthy behavior according to the level of support, as the value of the Fisher test was (1.091) and ($p = 0.028$).

Table (7): The correlation between the dimensions of student's attitude towards healthy behavior and the components of social support among the students:

Social support	Family		Friends		Doctors	
	Pearson Chi-Square	P	Pearson Chi-Square	P	Pearson Chi-Square	P
Healthy diet	73.469	0.000**	68.493	0.000**	28.222	0.003**
Physical activity	32.261	0.000**	102.668	0.000**	63.946	0.000**

Treatment adherence	7.143	0.308	<u>22.149</u>	<u>0.036*</u>	9.777	0.134
Commitment to diet	150	0.000**	19.871	0.070	<u>13.534</u>	<u>0.035*</u>
Laboratory follow up	9.694	0.138	109.193	0.000**	59.271	0.000**
Healthy Behavior	8.713	0.560	106.032	0.000**	54.175	0.000**
Unhealthy Behavior	9.694	0.207	124.147	0.000**	<u>15.883</u>	<u>0.026*</u>

*Significant statistical Differences $P \leq 0.05$

Table (7) shows the correlation between the dimensions of student’s attitude towards healthy behavior and the components of social support among the students. The attitude towards healthy food, physical activity, and follow-up lab – tests show a positive correlation with social support from the family with a very important statistical significance ($P = 0.000$). A Highly statistical significance ($P = 0.000$) was found between the attitude toward treatment adherence and lab tests follow-up in one hand and they were positively associated with social support from friends with a statistically significant significance ($P = 0.036$). The table also shows that the attitude towards healthy food, physical activity, and lab tests follow-up are positively associated with support from the doctor with a highly statistical significance ($P = 0.000$), and adherence to diet and healthy behavior are positively associated with support from the doctor with significant statistical significance ($p = 0.035$, $p = 0.026$), respectively.

Discussion:

The results of the study Self-care behavior is considered the cornerstone of the management and care of diabetic patients, especially adolescents, which helps in controlling their glucose values. Behaviors, as adherence to these healthy behaviors reflects a positive attitude towards them and deepens the adolescent's commitment to the instructions given to him. ⁽¹⁷⁾

The results of the current study showed that the vast majority of the study individuals had a positive attitude towards healthy behavior with its various components. This result was consistent with the results of the study by Adity & Lasestari, (2016) ⁽¹⁸⁾ in Indonesia, which showed that adolescents have a good (positive) attitude towards a healthy lifestyle.

The results of the current study also showed that there are high levels in the dimensions of social support, especially from the family and the doctor. This result is consistent with the results of the reference study conducted by Luciana et al, (2014) ⁽¹⁹⁾, which reviewed 124 different studies around the world from 2005 to 2014 The results of the analysis showed an increasing interest in the issue of social support for adolescents with diabetes. The results also showed that social support is an important protective factor for adolescents with type 1 diabetes, delaying the metabolic complications associated with the disease, as well as increasing their participation in managing the disease through self-care.

The results of the current study also showed that there was a statistically significant correlation between the level of attitude towards healthy behavior and the level of social support for adolescents with diabetes. This result is similar to the results of Fahmy et al, (2010) ⁽²⁰⁾ study in Egypt, which aimed to study the relationship between adolescents' attitudes to family support and their level of glucose control. The results of their study showed a strong correlation between the availability of social support provided by the family and adolescents' attitudes. The convergence of social and

demographic characteristics and family customs between the Syrian society and the Egyptian society, as the cohesive family structure makes its members feel the imminent danger of a diabetic child, so they seek to secure maximum medical care for him through the available health system to cope with his disease in various aspects of physical, psychological and social health.

The results of the current study showed a correlation between the dimensions of attitude towards healthy behavior and the domains of social support among the sample members, that is, patients who had a high level of social support in the family axis had a positive attitude towards the following healthy behaviors: healthy food and physical activity more than their peers who They have medium and low levels of family support. These results are similar to the results of the study by ALBurno, (2022) ⁽²¹⁾ in Qatar, which aimed to understand the commitment of adolescents between the ages of 17-24 years to healthy food and physical activity and the factors affecting them. The analysis related to social factors showed that the adolescent lives a good experience that carries positive social and psychological aspects when his family participates in healthy cooking and their participation in avoiding processed sugar, or for that they stop buying sweetened drinks, or they participate in exercises, because this enhances their commitment to the instructions of the health team. ⁽²¹⁾

The results of this study also showed that adolescents who have a high level of social support from friends have a positive attitude towards healthy food, physical activity, laboratory tests follow-up, and general health behavior. This is due to the fact that friendship is an influential factor in the lives of adolescents in general and affects their health, social and psychological orientations. ⁽²¹⁾

The results also showed that adolescents who had a high level of support from doctors had a positive attitude towards healthy food, physical activity, laboratory tests follow-up, adherence to diet, and avoidance of unhealthy behavior. This result did not agree with the results of Singh et al. (2013) ⁽²²⁾ which aimed to understand the relationship between the support provided by the health team and the extent of adolescents' commitment to self-care measures. Poor social support provided by the health team was associated with a greater tendency for adolescents not to adhere to instructions such as (continuous monitoring, adherence to diet and prescribed insulin doses). Overall, the current study showed that there are positive attitudes of the respondents towards healthy behavior in its various dimensions. It also showed high levels of support from family, friends, and doctors provided to these adolescents. The social support provided to the adolescent affected his attitudes towards healthy behavior.

Conclusions and recommendations

Conclusions - The attitude towards healthy behavior is positive for the majority of students who have a high level of social support. The total level of social support is high for the majority of the sample. - The level of social support from friends is moderate for the majority of respondents. The level of attitude towards healthy behavior was positively affected by the level of social support - The dimensions of patients' attitude towards healthy behavior were associated with higher levels of social support provided to the adolescent, meaning that the relationship is positive and statistically significant between the levels of social support and the adolescents' attitude towards healthy behavior

Recommendations:

- Paying attention to the psychological and social aspects of adolescents with type 1 diabetes during their health care planning.
- Encouraging health education sessions for the diabetic adolescent, their friends and family members.
- Increasing the Awareness in schools toward type 1 diabetes and the positive role of r peers in supporting the diabetic adolescents

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