

The Influence of Perceived Social Support on Self-Management and Wellbeing among (Type1) Diabetic Adolescent Females

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Abstract: Adolescents are struggling to find their own identity separate from their families. Many of the diabetic – related tasks can interfere with the adolescent's drive for independence and peer acceptance. Friends, families are an important source of support for adolescents with diabetes and can affect their wellbeing. **This study aimed** at evaluating the influence of perceived social support on self-management and wellbeing among (type 1) diabetic adolescent females. **Subject and methods:** All adolescent females contact the diabetic clinic at Al Dawadmi , SHARQ primary health care center , Kingdom of Saudi Arabia , from the first of July to the end of September 2011 were included in the study .Their number were (106) diabetic females. An interview questionnaire sheet , perceived social support scale and self-management instrument as well as wellbeing scale were used to collect the required data . **Results:** the study revealed a correlation between perceived level of family social support and some biosocial variables including female over weight, ,family income ,positive family history, irregular follow-up and some associated symptoms($P<0.05$).60.4%, 81.1%, 43.4% of studied female diabetic adolescents were have low level of family's social support, low level of friend's social support and low level of wellbeing respectively. The frequency of self management adherence items among studied group was differ. Most of diabetic adolescents females, with low level of family social support were have incompliance related to diet regimen, medication, blood glucose testing and exercise. But related to friend's, incompliance, it included diet, exercise and un-prescribed substances .There were a relationship between perceived family, friends social support of the studied (type I) diabetic adolescents female and their wellbeing measures as well as total wellbeing status. It is **concluded** that, diabetes mellitus needs continuing self management medical care to prevent long-term complications .Social support including family and friends play a major role in the compliance and self-management among diabetic female adolescent ,as well as wellbeing status. [Wafaa Hassan El-Soreety and Nabila El-sayed Saboula. **The Influence of Perceived Social Support on Self-Management and Wellbeing among (Type1) Diabetic Adolescent Females**] Journal of American Science 2011; 7(12): 1179-1187].(ISSN: 1545-1003). <http://www.americanscience.org>.

Key words: Perceived social support, family, friends, Self Management, Wellbeing, Diabetes Type I, Adolescents Female

1. Introduction:

Type 1 diabetes is one of the most common endocrine and metabolic conditions in childhood; incidence is rapidly increasing especially among the youngest children. Insulin-treatment is life-saving and lifelong ¹. It mostly has an acute onset with children and adolescents .It is painful, time-consuming and interferes with daily life. ²

Adolescence is a stressful period for many families of children with type1 diabetes for many reasons. A significant developmental task in this period is parents handing over the responsibility for everyday diabetes management to the adolescent ³. Such a transition is often a considerable challenge for parents, families particularly when parents observe their adolescent taking risks in diabetes management that might have negative consequences to their well-being ⁴.

Social support is emotional, informational and instrumental support from the family, friends, health care provider and community. It consists of teaching,

encouraging and enabling another person it also can take the form of constraining, warning against and doing for another. Social support by its name suggests a process that is embedded in an individual's total life space. ⁵

There is an evidence that social support play a key role in predicting dietary adherence. Previous researches indicated that family social support for diabetes may be critical to adolescent 's disease management ¹. There are multiple classification of social support one often cited classification proposed by **Kazak et al., (2003)** ⁶ consists of three commonly acknowledged kinds of support: First, social embeddedness (refers to the frequency of the interaction between the individual and his or her social network), Second, received social support(refers to emotional and instrumental help actually provided by network members to the individual), Third, perceived support (is an individual perception that support will be available from his or her network member).

Self-management refers to the extent to which the person adhere to prescribed diet restriction, physical activities requirement, medication administration, testing blood sugar level and foot care. It is measured utilizing a standardized instrument which measures adherence to diet supplements and medication management over the past 7 days or over one week and also glucolated hemoglobin (HbA1c) test were used to assess global self-management.¹

Self-discipline and adherence to a balanced diet are necessary if the disease is to be well managed. In many countries, especially in less privileged families, access to self-care tools and also to insulin is limited and this may lead to severe handicap and early death in diabetic children². Typically, decision-making autonomy in diabetes is assumed gradually as the adolescent takes up increasing responsibility for making self-management decisions previously made by parents⁷⁻⁸.

In the United States, even with the increasing rate of type 2 diabetes, type 1 diabetes accounts for approximately two-thirds of new diagnoses of diabetes in patients ≤ 19 years⁹. High incidence has been reported among Arab children including kingdom of Saudi Arabia, Kuwait and Qatar¹⁰. The most recent studies carried out in Saudi Arabia revealed that the higher prevalence rate (162) per 10,000 of diabetes type 1 was in the central region of kingdom of Saudi Arabia including Al-dawadmi Governorate followed by Eastern region. The total prevalence of type 1 diabetes mellitus among Saudi children and adolescents (0-19 years old) is 109.5 per 100,000.¹¹

Adolescents often have the motor and cognitive skills to perform all diabetes-related tasks and determine insulin doses based on blood glucose levels and food intake. This is a time, however, when peer acceptance is important, risk-taking behaviors common, and rebellion against authority is part of teens' search for independence. Thus, adolescents must be supervised in their diabetes tasks and allowed gradual independence with the understanding that the independence will be continued only if they adhere to the diabetes regimen and succeed in maintaining reasonable metabolic control¹².

Many children and adolescents are unable to cope emotionally with their condition. Diabetes causes them embarrassment, results in discrimination and limits social relationships. It may impact on school performance, on family functioning and can lead to family disruption and divorce. Parents experience a financial burden and may have to reduce their working hours or give up work entirely to care for their child.²

2. Subject and Methods:

The aim of this study was to evaluate the influence of perceived social support on self-management and wellbeing among (type1) diabetic adolescents female. A descriptive design was used to achieve the aim of this study.

Sampling:

A purposive sample of all female diabetic adolescents who contact the primary health care center (SHARQ) at Al-Dawadmi town (K.S.A) from the first of July to the end of September 2011 were included in this study. Their number were 106 female adolescents and their age ranged from 12-21 years, only females diagnosed with type 1 diabetes of at least 1 year duration were involved in the study.

Tools:

Four tools were used to collect the required data:

1. Interview questionnaire sheet to collect biosocial data including age, income, weight, diabetic past history, disease duration...etc
2. Perceived social support scale from friends & family¹³. The scale consists from 40 items (20 items about friends, and 20 items about the family) that assess how individuals perceive social support from their friends and family. Each item asks the individual to circle a "yes" or "I don't know" or "no response". Each yes response scored as 1, I don't know is not awarded any score and a "0" is given for each no response. For each two sections (family & friends) a maximum of 20 points is possible with a higher score reflecting greater perceived social support. Score from 0-19 means lower level social support and score from 20-40 indicates higher level Social support.
3. Self-management instrument¹⁴ which measure Self-management effort of a person with diabetes over the past 7 days. Respondents are asked to indicate over the last week how many days they adhere to diabetes self care activities in the following six different areas. It consists from 17 items including 6 dimensions (diet, exercise, medication, blood sugar testing, foot care, and un-prescribe substances) that assess the self-management effort of diabetic adolescent over the last 7 days. If adolescent females follow any of self management item from 1-3 days she considered incompliance, If ≥ 3 days she considered compliance.
4. Wellbeing Assessment tool¹⁵: it is a general wellbeing scale. This tool is adopted from the McKinley Health Centre at the University of Illinois including all health subscales (Physical health, Social health, Emotional health, Spiritual health, intellectual health). Each subscale encompasses 10 items. The

responses is ranged from very unhealthy, Somewhat unhealthy, Somewhat healthy, and ends with very healthy. The total wellbeing score is (200). The higher mean score (more than 100) indicates higher level of wellbeing. The lower mean score (less than 100) indicates lower level of wellbeing.

Methods

Permission was obtained from the director of the primary health care center (SHARQ) at AL-Dawadmi. The questionnaire sheet was developed after reviewing of the related literature.

The adolescent females informed that all information related to this questionnaire would be strictly confidential.

Perceived social support scale, self-management, and wellbeing instrument were adopted and translated into Arabic language.

Female adolescents were interviewed individually during their follow up at the SHARQ health care center, KSA. Each interview took 35-45 minutes for filling out the questionnaires and scales.

A hemoglobin A1c (HbA1c) ¹⁶ test were assessed: It is a biochemical indicator of self-management effort. It measures the level of glucose in the blood over the past 12 weeks. Any score less than 7 % is excellent, a score between 7 % - 8 % are consider to be good, any score above 8 % is poor. Therefore, a score above 8 % would indicate that the individual is managing their diabetes successfully.

Statistical analysis:

The collected data were organized, tabulated and statistically analyzed using SPSS software statistical computer package version 13. For quantitative data, the range, mean and standard deviation were calculated. For qualitative data, comparison between two groups and more was done using Chi-square test (X²). For comparison between means of two groups student t-test was used. Significance was adopted at $p < 0.05$ for interpretation of results of tests of significance. ¹⁷⁻¹⁸

3. Results

Regarding biosocial data of the studied type I diabetic female adolescents in relation to their level of perceived family social support. This table revealed that, the majority of female adolescent with diabetes (60.8%) were at age 12 - <17 yrs. Likewise, the higher percentage (69.3%) of them were suffering from overweight. On the other hand, there were a correlation between family income ($\geq 10,000$), positive family history, irregular follow-up compliance and

low level of perceived family social support ($P < 0.05$).

Figure 1. illustrated that, the majority (60.4%) of studied diabetic adolescents female were have low level of perceived family social support, compared to only 39.6% with high level of perceived family social support.

Figure 2. illustrated that, the majority (81.1 %) of studied group (female diabetic adolescents) were have low level of perceived friends social support, compared to only 18.9% with high level of perceived friends social support.

Figure 3. illustrated that, the majority (56.6%) of studied group (female diabetic adolescents) were have high level of wellbeing state, compared to only 43.4% with low level of wellbeing state.

Figure 4. showed that, the frequency of self management aspects among type I diabetic adolescent females was differ concerning diet regimen, most of these females 94.3% were not compliance to diet regimen compared to only 5.7% were compliance. Regarding medication, one third (33%) of diabetic adolescent females were adhere to medication while it was 67% were not adhere. Likewise, regarding foot care, blood sugar testing, exercise and un-prescribed substances, the higher percentage (96.2%, 84.9%, 85.8%, 57.5) respectively of diabetic adolescent females were compliance to them. While the lower percentage (3.8%, 15.1%, 14.2%, 42.5%) respectively of diabetic adolescent females were not adhere to the previous aspects.

Concerning perceived family social support and self management, table 3 showed that, most of diabetic adolescents (100%, 81.2%, 100%, 93.7%, 95.3%) respectively, with low level of family social support were have no compliance related to diet regimen, medication, blood glucose testing and exercise as a self management aspects, there were a significant difference ($P > 0.05$).

Likewise, regarding perceived friends social support, this table showed that, the majority of diabetic adolescents (96.5%, 86%, 69.8%) respectively were have no compliance related to diet, exercise and un-prescribed substances as a self management aspects. There were a significant difference $P > 0.05$.

Table 3. showed Relationship between perceived family, friends social support of the studied diabetic female adolescents (type I) and their wellbeing status, where the higher mean score (31.28, 31.00, 32.28) respectively, of diabetic female adolescents with high level of perceived family social were have a high level of physical, social, emotional wellbeing, there were a significant difference ($P > 0.05$). But in relation to spiritual and intellectual health aspect there was no a significant difference. Likewise, regarding perceived friends social support, this table

showed that, higher mean score (31.60, 29.75, 29.75) respectively, of diabetic female adolescents with high level of perceived friends social support were have a high level of social, emotional and intellectual well-being ,there were a significant difference ($P>0.05$). Concerning perceived family social support , figure 5 showed that, the higher percentage of diabetic adolescents with low level social support (64.1%) were have a low level of total wellbeing compared to only 35.9%

among diabetic adolescents who have a high level of total wellbeing. There were a significant difference (0.0001). Likewise, regarding perceived friends social support, this table showed that, there were an equal percentage(50%) of diabetic adolescents who have low and high level of total wellbeing status respectively. There were a significant difference ($X^2=6.73$, $P=0.009$).

Table (1): Biosocial data of the studied diabetic adolescent females (type I) in relation to their level of family support.

Variables	Level of perceived family social support for the studied diabetic adolescent females (Type I) (n=106)						X ²	P
	Low (n=64)		High (n=42)		Total (n=106)			
	N	%	n	%	n	%		
Age (years):								
12-<17	31	60.8	20	39.2	51	100	0.007	0.934
17-21	33	60.0	22	40.0	55	100		
Weight (in relation to age):							8.598	0.003*
Normal weight	12	38.7	19	61.3	31	100		
Over weight	52	69.3	23	30.7	75	100		
Income (Riyal):							15.728	0.0001*
1000-<5000	23	88.5	3	11.5	26	100		
5000-<10000	18	40.9	26	59.1	44	100		
≥ 10000	23	63.9	13	36.1	36	100		
Disease duration (years):							1.235	0.266
1-<5	25	54.3	21	45.7	46	100		
≥ 5	39	65.0	21	35.0	60	100		
Positive family history:							6.65	0.009*
Yes	59	66.3	30	33.7	89	100		
No	5	29.4	12	70.6	17	100		
Follow-up compliance:							23.906	0.0001*
Regular	15	33.3	30	66.7	45	100		
Irregular	49	80.3	12	19.7	61	100		
Problems affect children:							0.760	0.383
Insomnia	39	63.9	22	36.1	61	100		
Isolation	39	76.5	12	23.5	51	100		
Fatigue	41	78.8	11	21.2	52	100	14.554	0.0001*
HbA1c level:							3.091	0.213
Excellent (<7)	2	33.3	4	66.7	6	100		
Good (7-< 8)	8	50.0	8	50.0	16	100		
Poor (>8)	54	64.3	30	35.7	84	100		

*Significant ($P<0.05$)

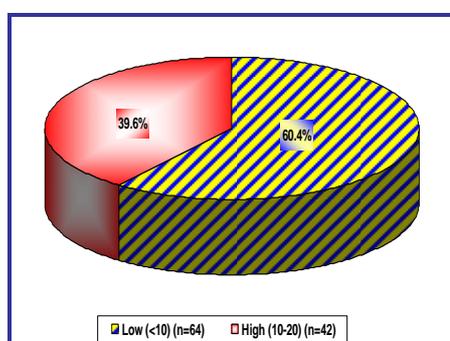


Figure (1): Level of perceived family social support among studied type I diabetic adolescent females.

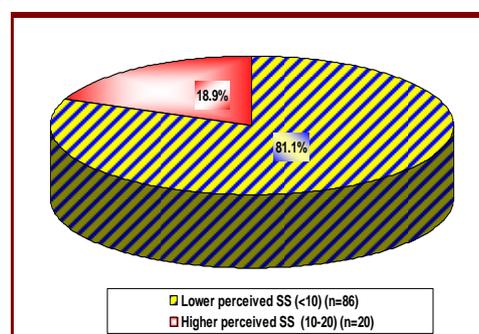


Figure (2): Level of perceived friend's social support among studied type I diabetic adolescent females

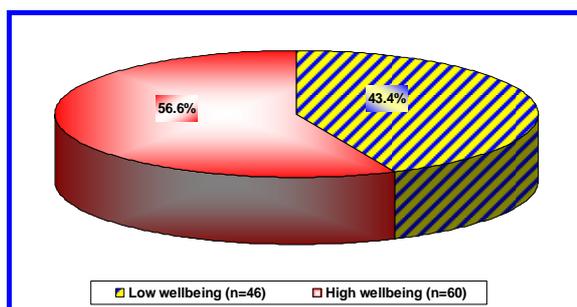


Figure (3). Wellbeing status of the studied (type I) diabetic adolescent females.

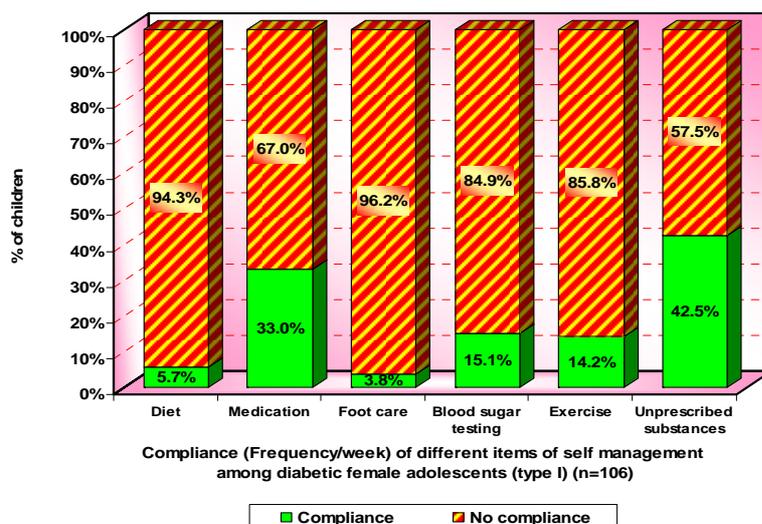


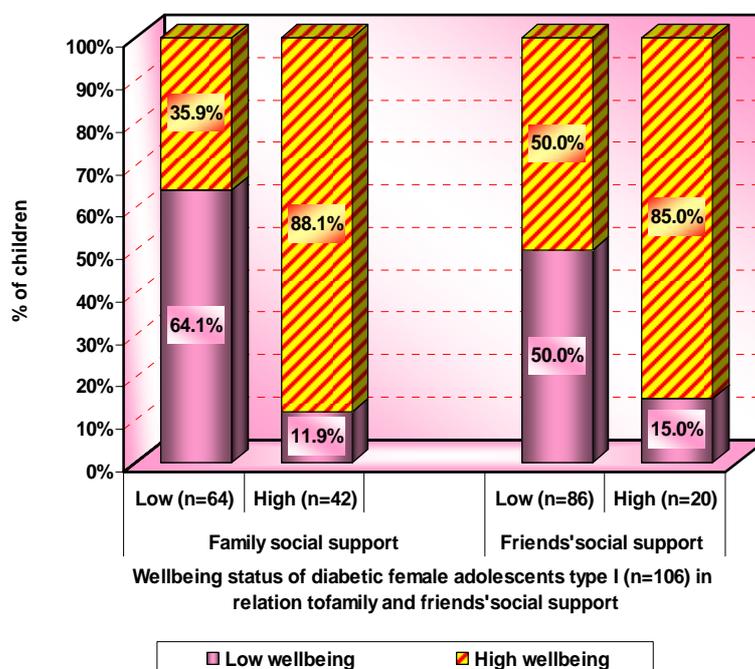
Figure (4): Frequency of reported self management different items per week among type I diabetic adolescent females.

Table (2): Relationship between family social support to the studied diabetic female adolescent (type I) and their self management .

Compliance of the studied female adolescents with diabetes to perform different self management items (frequency /week)		Level of perceived family social support for the studied diabetic children (Type I) (n=106)				X ² P	Level of friends' social support for the studied diabetic children (Type I) (n=106)				X ² P
		Low (n=64)		High (n=42)			Low (n=86)		High (n=20)		
		n	%	n	%		n	%	n	%	
Diet	No Compliance	64	100.0	36	85.7	7.20 0.007 *	83	96.5	17	85.0	4.027 0.045*
	Compliance	0.00	00.0	6	14.3		3	3.5	3	15.0	
Medication	No Compliance	52	81.2	19	45.2	13.29 0.0003*	59	68.6	12	60.0	0.534 0.461
	Compliance	12	18.8	23	54.8		27	31.4	8	40.0	
Foot care	No Compliance	64	100.0	38	90.5	3.98 0.045*	82	95.3	20	100	0.967 0.326
	Compliance	0	0.00	4	9.5		4	4.7	0	0	
Blood glucose testing	No Compliance	60	93.7	30	71.4	8.19 0.004*	71	82.6	19	95.0	1.960 0.162
	Compliance	4	6.3	12	28.6		15	17.4	1	5.0	
Exercise	No Compliance	61	95.3	30	71.4	10.02 0.001 *	83	86.0	8	85.0	38.13 0.0001*
	Compliance	3	4.7	12	28.6		3	14.0	12	15.0	
Un-prescribed substances	No Compliance	37	57.8	24	57.1	0.005 0.946	60	69.8	1	5.0	25.27 0.0001*
	Compliance	27	42.2	18	42.9		26	30.2	19	95.0	

Table (3): Relationship between perceived family, friends social support of the studied diabetic female adolescents (type I) and their wellbeing status.

Wellbeing subscale	Family social support for the studied diabetic female adolescents (Type I) (n=106)		t-test P	Friends' social support for the studied diabetic female adolescents (Type I)		t-test P
	Low (n=64)	High (n=42)		Low (n=86)	High (n=20)	
	Range Mean±SD	Range Mean±SD		Range Mean±SD	Range Mean±SD	
Physical Health	21-37 28.48±3.46	25-36 31.28±2.77	4.561 0.0001*	2-36 28.48±4.46	23-37 29.60±3.87	1.084 0.281
Social Health	22-36 29.03±3.53	22-36 31.00±3.90	2.693 0.008*	22-36 29.39±3.68	24-36 31.60±3.80	2.396 0.018*
Emotional Health	21-36 29.37±3.83	22-37 32.28±3.53	3.327 0.002*	22-35 27.70±4.87	21-37 29.75±3.81	2.057 0.042*
Spiritual Health	22-37 28.59±3.40	23-37 28.92±3.39	0.484 0.630	23-34 28.55±3.41	22-37 28.85±3.40	0.354 0.724
Intellectual Health	2-37 29.64±6.20	23-36 30.07±3.30	0.413 0.680	23-35 27.40±3.60	21-37 29.75±5.51	2.12 0.023*

**Figure (5): Relationship between family and friends' social support of the studied diabetic female adolescents (type I) and their total wellbeing status.**

4. Discussion

Diabetes mellitus is a chronic disease which needs continuous care all over the diabetic patient's life, especially at adolescent age. Perceived social support plays a major role in the adherence to self-management effort to manage the disease, negative perceived social support has a bad effect on diabetes mellitus management¹²

Connell et al., (1992)¹⁹ ascertain that there may be an important gender difference in the relationship between social support and self-management where females are more affected by diabetes in their lives and

all their quality of life than males. The current study sample included only female adolescents having diabetes, this was related to the socio-cultural nature of the Kingdom of Saudi Arabia (no contact with males). In addition to, females are more likely to participate in diabetes mismanagement, where boys are more likely to engage in risky behaviors²⁰.

Also the finding of this study revealed that, female age (12-<17 yrs) was prone to a lower level of social support. This may be attributed to, since teens

may not be emotionally or mentally mature enough able to support themselves or accept support from others.²¹

The current study revealed that, there was association between family social support level and low family income among diabetic adolescents. This finding was congruent with Anderson et al., (2000)²² who ascertain that, parent-child conflict has been associated with poorer diabetes outcomes and poorer family income. But the study of Skinner et al., (2000)²³ neglect that relationship.

The current study revealed a correlation between low perceived family social support and presence of overweight among female adolescents. One possible reason is the girl's greater concern with body image and weigh gain and the use of insulin manipulation to control weight²⁴. This hypothesis is partially supported by the increase in insulin skipping that observed in girls over the adolescent age (physical maturation). Neither age, duration of illness or socioeconomic status was associated with any of the wellbeing measures²³. This finding not congruent with the current study's finding, this may attributed to the differences related to study gender, socio-culture differences and study's setting.

The present study revealed a relationship between low perceived social support and positive history of disease and disease associated problems including fatigue and isolation and irregular follow up. This finding was congruent with Silverstein et al., 2005¹² who certain that, characteristics of the adolescent and their parents predict an increased risk for difficulties with diabetic management. Finding with adolescent include the presence of associated health problems (emotional and behavioral disorders) including risk taking behaviors resulting in delinquent behavior and depression. Fatigue resulting in decrease calories and increase insulin action may cause hypoglycemia. Weininger et al., 2001²⁵ ascertain the relation between positive history of disease, poor compliance and follow up with poor family social support

The frequency of self management aspects among type I diabetic adolescent females was differ. the higher percentage of compliance was related to un-prescribed substance and medication, followed by exercise, blood sugar testing, foot care and finally diet regimen. This was consistent with Schilling et al., 2006²⁶ who ascertain that adolescents with diabetes tend to overlook or omit self-management tasks especially in early adolescence between the ages of 13 and 15 yrs²⁷. This is particularly true in social contexts with peers when adolescents anticipate peer pressure or do not want to appear different from others²⁸. Although some self-management tasks are illness specific (e.g., measuring blood glucose for diabetes), there is a common core of self-

management tasks that cuts across specific illness categories. These include, but are not limited to, recognizing and responding to symptoms, using medications, managing acute episodes, maintaining diet and physical activity, smoking cessation, managing relations with significant others, and managing the psychological responses to illness²⁹

In relation to social support, self-care tasks that have a social component, such as those relating to diet, may be more open to social network influences than tasks that are usually performed in a more solitary manner, such as taking medication³⁰

Concerning perceived family social support and self management, the study showed most of diabetic adolescents with low level of family social support were have no compliance related to diet regimen, medication, blood glucose testing and exercise as a self management aspects. Barker., (2010)¹, mentioned that perceived level of social support help in the management compliance items, follow up periodically, affect in the relation between the ill adolescent and his family which leads to improvement in the disease process. This Also, was agreed with Gallant., 2003³⁰ who found that, the higher levels of social support were associated with better self-management behaviors. Moreover, the relationship between family social support with diet and exercise may be relatively strong, whereas the relationship between support and medication adherence and glucose testing may be relatively weak.

Concerning perceived friends social support and self management. The study found the majority of diabetic adolescents were have lack of compliance related to diet, exercise and un-prescribed substances as a self management aspects. Youth with diabetes frequently experiment with diabetes mismanagement through non adherence and may engage in risky behavior including recreational drugs. It is reasonable to assume that family members and friends may facilitate the self-management process in a variety of ways, providing, for example, occasional advice, emotional support, tangible support that indirectly facilitates self-management and more direct assistance with illness management activities. There is some evidence that illness-specific support is more predictive of health outcomes than general support.³⁰

The current study revealed a correlation between family social support and wellbeing aspects including physical, social, emotional wellbeing. This was consistent with Gallant., 2003³⁰ who stated that, social support's influence on emotional well-being may be especially helpful for tasks that may deteriorate during periods of psychological distress. The relation between social support and health has received a great attention in recent years where it found association between level of perceived social support

and health components¹². Also, Schwartz., (2005)³¹ reported that, health status variables would predict perceived social support level from friend and family. Skinner and Hampson., 2001²⁰ added that, the combination of family and peer support is associated with better psychological wellbeing.

The present study also, revealed a correlation between friends social support and wellbeing aspects including social, emotional and intellectual wellbeing. Friends may play a unique role in an older adult's health-related social network. Age peers are likely to be managing health problems of their own, and thus their influence may differ substantially from that of family members (Spitze and Ward., 2000)³². Also, Heisler, (2010)³³ mentioned that those person with high perceived social support from friends and family had high level of wellbeing measures.

In Conclusion: Diabetes mellitus needs continuing self management medical care to prevent long-term complications. Social support including family and friends play a major role in the compliance and self-management among diabetic female adolescent, as well as wellbeing status.

Acknowledgment:

The authors thank the adolescent female patients for participating in this study, and thank the nursing staff in primary health care center (SHARQ) at Al dawadmi Governorate (KSA) for facilitating data collection process.

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11/12/2011