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Diabetes Prevalence and Quality of Life of Female Nursing Students

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Abstract
The prevalence of diabetes mellitus is getting epidemic shares in numerous parts of the world causing agrowing public health concern. Cases of Type 2 diabetes are swiftly increasing in the Middle East region. Deprived of lifestyle deviations, a division of the Middle East's inhabitants will be pretentious by 2035. For instance all sociocultural factors have created unhealthy lifestyles, which have become part of the social norms within Saudi society, thusaugmented the prevalence of sedentary lifestyle and obesity in women existing in Saudi Arabia. Therefore, this study ***aimed to*** *assess the effect of diabetes mellitus on quality of life of female nursing students in King Saud bin Abdulaziz University for Health Sciences, Riyadh (KSAU-HS). In a cross-sectional study design, 151 nursing students at KSAU-HS were included in the study. Bio sociodemographic questionnaire and Short-Form 36 (SF-36) Health Related Quality of life Survey Arabic version were used for data collection, and all included students were screened for random blood glucose level.* ***Results*** *of this study revealed that diabetes mellitus negatively impacted limitations of activities, emotional health problems and social activities on the assessed quality of life domains of diabetic participants;however, the difference between the diabetic and non-diabetic participants was minimal for all areas except physical activity that showed a descent in the mean score of diabetics' participants. Based on the findings of this study it could be* ***concluded that****, diabetes mellitus stated a low prevalence but the highest among all health problems affecting this youth population, and a very high prevalence among their first degree relatives which make those who did not have it still at risk for developing the disease. Diabetes mellitus affect the overall quality of life of youth in this study, however physical functioning is the worst affected domain and impacted the social activities of the study participants.*

Keywords: *Diabetes mellitus, diabetes prevalence, quality of life, university students' health*

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I. Introduction

Diabetes is a communal chronic hormonal problem that can cultivate at any time during a person's life and if untreated can lead to complications such as diabetic neuropathy, kidney problems, heart problems, retinopathy and other disorders. It occurs either when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin (the hormone accountable for regulating blood glucose) it produces [(1)]. Hyper glycaemia, or elevated blood glucose, is a common outcome of uncontrolled diabetes and overtime leads to serious damage to many of the body systems, especially the nerves system and blood vessels[(2)].

The figure of diabetics in the world stands at 365 million people, representing around 8.5% of the global population [(1)]. There are approximately 2.9 million diabetic people in the UK, and there's a thought that currently around 500,000 undiagnosed diabetics exist. Saudi Arabia is considered as the seventh highest rate in the world in terms of diabetes incidence, with about 3.4 million diagnosed diabetic cases, presenting an estimated 24.4% of the adult population suffering from DM.

The prevalence of diabetes mellitus (DM) is stated to be growing globally in similar with an increasing prevalence of obesity. Saudi Arabia and other Middle Eastern countries have a predominantly high prevalence of both conditions. DM is irreversible once established. It is a graduallyevolving condition and it can take many years to progress from pre-diabetic to diabetic state without interventions. The prevalence of type 2 diabetes mellitus in the Kingdom of Saudi Arabia is predicted more alarming than previously believed. Currently it was estimated to be 32.8% of the total Saudi population, and expected to reach 35.37% in 2020; 40.8% in 2025 and 45.8% in the year 2030[(3-7).]

Quality of life is anextremelyindividual measure of happiness also important component of many decisions. Conferring to personal preferences, there are aspects that play a role in quality of life vary but habitually health and safety. Excellence in Quality of life (QOL) is the general well-being of individuals and societies, outlining negative and positive features of life [(8)]. The above-mentionedsigns, life satisfaction,

including all from; physical health, family, education, employment, wealth, religious beliefs, finance and the environment. It is acrucialfeature in diabetes sinceunderprivileged quality of life leads to diminished self-care, which in turn leads to deteriorated glycemic control, increased risks for complications, and exacerbation of diabetes overwhelming in both the short run and the long run.

In 2012, diabetes was the direct cause of 1.5 million deaths globally, and high blood glucose was the cause of another 2.2 million deaths. The rising pattern of occurrence of type 2 diabetes mellitus develops a threatening and most challenging situation to the health care providers. It was estimated that up to 70 per cent of incidences of Type 2 diabetes can be prevented or delayed by adopting healthier lifestyles and improving quality of life of the population through conducting and giving information about physical exercise, and nutrition to control diabetes[(9)]. Saudi Arabia, at the moment ranked seventh among the top 10 countries familiar for their extraordinary prevalence of diabetes globally, sets a good model to study the aspects behind the increase in the occurrence of type 2 diabetes among children and adolescents[(10)]. The prevalence of diabetes mellitus is reaching epidemic proportions in many parts of the world and it is an important public health concern. This includes one in 10 adults has diabetes, half of them undiagnosed, and cases of Type 2 diabetes are rapidly increasing in the region. Deprived of lifestyle deviations, a section of the Middle East's inhabitants will be pretentious by 2035, conferring to the International Diabetes Federation. The amalgamation also estimates that diabetes in adults will almost double in the region over the next two decades, rising from 10 per cent of the population, to about a quarter of the population forecast in 2035. The disease led to 363,000 deaths in 2014, half of whom were under the age of 60 which states that in Saudi Arabia, 24 per cent of the population is affected by the disease, with 23 per cent in Kuwait, 22 per cent in Bahrain, 20 per cent in Qatar and 19 per cent in the United Arab Emirates [(9)].

The relationship between health and quality of life is significantly important in clinical conclusions and health policy making and the quality of life perspective is a strong stimulus for the individual's pronouncements and preferences. If there is a remarkable gap between an individual's health and quality of life, it would lead to false decisions and the desired results could not be obtained. University students constitute a large part of the country's young population and their age and social conditions can turn them into a symbol in the society. As the lifestyle of women in Saudi Arabia are very limited, like Women are not allowed to drive, and they are required to have a guardian for transportation purposes[(11)]. Furthermore, there is no sports education in girls' schools and it is prohibited by social norms for females to practice physical activities in public schools. Overall of these sociocultural elements have generated unhealthy lifestyles, which have become part of the social norms within Saudi society, thereby increasing the prevalence of sedentary lifestyle and obesity in women living in Saudi Arabia [(8)].

All nursing staff have an important role and clear responsibilities when treating people with diabetes [(1)]. Diabetes Specialist Nurses (DSNs) are essential in providing good patient care and supporting self-care management. They work totally in diabetes care and may be engaged in a variety of care settings. A joint position report on how DSNs can improve patient outcomes and deliver cost effective care, produced by Diabetes UK, the RCN and Training, Research and Education for Nurses on Diabetes as described by TREND-UK. Practice nurses in particular play a clinical role in screening, maintaining and supporting people with diabetes, also they have a vital role as they are often the people who carry out the annual diabetes and foot check. A specialized nurse in Diabetes is often the first point of contact for people, referring them to other specialist services and Competencies relating to diabetes nursing, dietetics and podiatry can be found there. Diabetes Specialist Nurses also provide training, education and support to non-specialist health care professionals including GP's, nurses in primary, secondary and community settings and care homes. Altogether nursing staff has an important role and clear responsibilities when considering people with diabetes. Nurses from corner to corner nursing continuum including occupational health nurses, nurses working in public health and school nurses are expected to come into contact with people who have diabetes or partaking tests to diagnose diabetes.

It had been put forward that Saudi Arabia should include the diabetes preventive measures on a war footing basis in its national health policy to minimize the liability of the disease [(12)]. Hence, this study aimed to assess Diabetes Prevalence, quality of life and academic performance of female nursing students at King Saud bin Abdul Aziz University for Health Sciences, Riyadh.

Objectives of the Study

Aim of the Study:

To assess impact of diabetes mellitus on quality of life of female nursing students atKSAU-HS,Riyadh.

Specific Objectives:

1. Asses the prevalence of diabetes mellitus among female nursing students in KSAU-HS, CON-R
2. Assess physical health status of female nursing students in KSAU-HS, CON-R

3. Determine quality of life of female nursing students in KSAU-HS, CON-R
4. Assess the relationship between diabetes mellitus and quality of life of female nursing students in KSAU-HS, CON-R

II. Materials and Methods

Study Design:
Descriptive cross-sectional research design was used in this study.

Study Setting:

The study was conducted in King Saud Bin Abdulaziz University for Health Sciences (KSAU-HS) in Riyadh, Saudi Arabia. KSAU-HS was established in 2005 in Riyadh by King Abdullah Bin Abdulaiziz Al Saud. The University has seven colleges which are College of Medicine, College of Nursing, College of Dentistry, College of Pharmacy, College of Applied Medial Sciences, College of Public Health and Health Informatics and College of Science & Health Professions.

The study was carried out at the female Nursing College affiliated to king Saud bin Abdul-Aziz University for Health Sciences, Riyadh campus. The college was purposely selected because it has the highest number of enrolled female students among the KSAU-HS colleges in Riyadh.

Study Subjects:

One hundred and fifty one undergraduate full-time female students enrolled at the Nursing College, KSAU-HS at the time of the study were included in the study.

Inclusion criteria:
- Age (18-25)
- Level 5-8
- Full time undergraduate students
- Saudi nationality
- Willing to participate in the study
- Absence of any kind of disability or chronic illness other than diabetes mellitus.

Exclusion Criteria:
- Students who are diagnosed with any chronic diseases other than diabetes mellitus (e.g., cardiovascular diseases, renal diseases, etc..).
- Pregnant and breastfeeding students.
- Students who are diagnosed with psychological problems.
- Students with physical disability.
- Students with involuntary weight loss or gain during the 6 month period before the time of the study interview.
- Students who were involved in the pilot study.

Sampling:

Undergraduate full-time female students enrolled at the Nursing College-Riyadh, KSAU-HS who had been present at the college at the time of data collection were selected randomely and included in the study. Using G power, the sample size for correlation analysis was completed for an alpha 0.05, power of 0.95, and a medium effect size of 0.3 (Faul, F., et al., 2009). A sample of at least 138 participants should be included in this study. However, to compensate for expected incomplete questionnaires, 158 participants were invited to participate, however, 7 students refused to participate (non-response rate 4.4%) and the reason for refusal was being uninterested or busy.

Tools of the study
Data was collected using the following study tools:

Tool 1: ***Student's bio-socio-demographic structured interview schedule***. *This tool consists of 2 parts, developed by the researchers to collect data about the following information*:

Part A- ***Soci-demographic data***
Age, academic year, parent's educational level, parent's occupation, family income, crowding index, and place of residence.

Part B- Health data

It includes; the student's medical history, health complaints and using of medications during the 12 month period before the time of the study, student's anthropometric measurements, and random blood glucose level were measured using calibrated devices.

***Tool 2:Short-Form 36 (SF-36) Health Related Quality of life Survey arabic version*:** This tool (SF-36) was originally developed by an American research group to provide an instrument for the self-evaluation of HRQL[13-14]. It had been extensively validated in an American context and is described as being adequate to be used starting from early adolescence[15].The arabic version of the SF- 36 [16]was used to collect data about student's quality of life for this study. The internal consistency reliabilities ranged from 0.85 for general health to 0.94 for physical functioning in a U.S. study. The internal consistency reliabilities of subscales in Sabbah, et al., 2003 study ranged from 0.70 to 0.90 [16].

The questionnaire consists of 36 items measuring eight quality of life domains; Physical Functioning, Bodily Pain, General Health, Vitality, Social Functioning, Role Emotional, Mental Health, and one single item determines perceived differences in state of health over the past year. The health domains described by the SF-36 ranged in score from 0 to 100, the higher scores depict better health and functioning. Students' responses were presented as a profile of scores calculated for each scale. For all domains, each raw scale score was transformed to a 0 to 100 scale.

***Tool 3:Biochemical measurement*:**The students were measured Random blood glucose (RBG) at the time of the interview by using a standardized Gluco Plus machine (Glucometer) using capillary finger prick technique[17-18]. [It was planned in the study proposal that students with RBG ≥ 140 mg/dl will be requested to visit the diabetic clinic at the NGHA hospital to be seen by a specialist and confirm if their blood glucose is normal or high (All students in the university are covered with medical insurance to be used in all NGHA hospitals and clinics). Students who would be requested to visit the diabetic clinic would be followed up till getting the result of their visit], However, those students who had more than 140 mg/dl random blood glucose level during the screeing for this study admitted that they are already diagnosed with diabetes mellitus. Confirmed results were recorded, analysed and used to estimate the prevalence of diabetes among the students for the purpose of this study.

Data Management and Analysis Plan

Data was coded using SPSS program 20th version [19]. The univariate data was analyzed using descriptive analysis factors, which are mean, standard deviation, and average dispersion. While the bivariate data was analyzed using frequency and percentage. Correlations were measured using Pearson correlations to estimate the degree of association. A P-value of 0.05 or less was considered as statistically significant difference. The used tests were: Student t-test for normally distributed quantitative variables, to compare between two studied groups, F-test (ANOVA) for normally distributed quantitative variables, to compare between more than two groups, Pearson coefficient to correlate between two normally distributed quantitative variables and Regression to detect the most independent/ affecting factor for diabetes mellitus.

Ethical Considerations

Approvals for conducting this study were obtained from the Research Unit at the College of Nursing, KSAU-HS and the Institutional Review Board (IRB) of King Abdullah International Medical Research Center (KAIMRC).

Before participation, allstudents were informed about the purpose of the study, given a written description about the study and assured anonymity of all collected data during all study process and in the final report. In addition, they were reassured that their participation is voluntary and they had the right of withdraw at any time.

To assure privacy of collected data, no names or contact details were attached to the questionnaires. Data was coded and the completed questionnaires were kept in a locked cabinet till the end of the study and destroyed after result generation. A private computer with password was used for data analysis and management.

III. Results

Table (1) shows age of the study group ranged between 18 and25 years old with a mean of21.58 ± 1.07. Academic level of study participants ranged between 5th and 8th with a slight increase (56.3%) in levels 7 and 8. Almost one tenth (9.3%) of the participants were married, and only 4.6% of them had children. Less than one fifth (17.5%) of the study participants mothers'had university degree or above, and almost three quarters (73.5%) of the mothers were home makers.Slightly more than one quarter (27.8%) of the participants' fathers

had university degree, and less than quarter (21.2%) had professional type of work.More than half (55.0%) of the students had family income enough and save, and four fifth (80.8%) of them live in owned houses.

Table (1) also demonstrates that slightly more than one tenth (11.3%) of the students had health problems of whom slightly less than one third(29.4%) of them were diabetics. [The crude diabetes prevalence among total study population was 3.3% (5 out of 151)]. Slightly more than two fifth (43.0%) of the students had family history of chronic illness, of whom one third (33.8%) of the families were diabetics. The mean BMI for the study participants was 25.76 ± 19.13, and their random blood glucose ranged between 62 and 358mm/dl.

Table (1): Bio-socio-demographic characteristics of the study participants (n = 151)

Socio demographics characteristics	No.	%
Age(years)		
Min. – Max.	18.0 – 25.0	
Mean ± SD.	21.58 ± 1.07	
Academic level		
5-6	66	43.7
7-8	85	56.3
Marital status		
Single	137	90.7
Married	14	9.3
Have children		
Yes	7	4.6
No	144	95.4
Mother's education		
Illiterate	36	23.8
primary/middle	50	33.1
Secondary	39	25.8
University & above	26	17.2
Mother's occupation		
Home maker	111	73.5
Self-help/employed	17	11.3
Professional	11	7.3
Retired	9	6.0
Others	3	2.0
Father's education		
Illiterate	9	6.0
primary/middle	36	23.8
Secondary	64	42.4
University & above	42	27.8
Father occupation		
Unable to work	13	8.6
Manual	25	16.6
Professional	32	21.2
Retired	59	39.1
Others	22	14.6

Table (1): Bio-socio-demographic characteristics of the study participants cont. (n = 151)

Bio-socio-demographic characteristics	No.	%
Family income		
Enough and save	83	55.0
Enough	61	40.4
Not enough	7	4.6
Family accommodation/house		
Owned	122	80.8
Rent	29	19.2
Current health problem		
No	134	88.7
Yes	**17**	**11.3**
Current medical diagnosis (n=17)		
Anemia	4	23.5
Bronchial Asthma	2	11.8
Diabetes Mellitus	5	29.4
Others	6	35.3
Family history for chronic illness		
No	86	57.0
Yes	65	43.0
Type of family chronic illness		
Diabetes Mellitus	22	33.8
Others	43	66.2
BMI		

Min. – Max.	14.82 – 65.29
Mean ± SD.	25.76 ± 19.13
Random blood glucose level mg/dl	
Min. – Max.	62.0 – 358.0
Mean ± SD.	97.23 ± 30.10

Table (2):Relation between total score and percent score of SF–36 health survey domains (n = 151)

SF–36 health survey domains	Total score	% score
General health 1		
Min. – Max.	25.0 – 200.0	12.50 – 100.0
Mean ± SD.	128.0 ± 33.66	63.99 ± 16.83
Limitations of activities		
Min. – Max.	0.0 – 1000.0	0.0 – 100.0
Mean ± SD.	686.4 ± 264.1	68.64 ± 26.41
Physical health problems		
Min. – Max.	0.0 – 400.0	0.0 – 100.0
Mean ± SD.	254.3 ± 145.0	63.58 ± 36.26
Emotional health problems		
Min. – Max.	0.0 – 300.0	0.0 – 100.0
Mean ± SD.	186.9 ± 120.3	62.29 ± 40.09
Social activities 1		
Min. – Max.	65.0 – 300.0	21.67 – 100.0
Mean ± SD.	211.0 ± 58.36	70.32 ± 19.45
Energy and emotions		
Min. – Max.	180.0 – 800.0	20.0 – 88.89
Mean ± SD.	520.9 ± 132.8	57.88 ± 14.75
Social activities 2		
Min. – Max.	0.0 – 100.0	52.81 ± 29.31
Mean ± SD.	0.0 – 100.0	52.81 ± 29.31
General health 2		
Min. – Max.	75.0 – 400.0	18.75 – 100.0
Mean ± SD.	241.6 ± 68.67	60.39 ± 17.17
Overall quality of life		
Min. – Max.	1025.0 – 3400.0	28.47 – 94.44
Mean ± SD.	2281.9 – 525.2	63.39 ± 14.59

Relation between diabetes mellitus and bio-socioeconomic variables reveals no significant differences betweenmean age of diabetic and non-diabetic students. The mean random blood glucose level for diabetic students was more than two folds higher than non-diabetic students(respectively, 212.4 ± 96.47& 93.29 ± 14.39) and this result was statistically significant (t=2.760, 0.051). In addition, three fifth (60.0%) of diabetic students had family history of chronic illness compared to almost two fifth (42.5%) of the non-diabetic students with no significant association (table 3).

Table (3):Relation between diabetes mellitus and bio socio demographics data (n = 151)

Bio-socio demographic variables	Diabetes Mellitus				Test of Sig.	p
	No (n=146)		Yes (n=5)			
	No.	%	No.	%		
Age (years) Mean ± SD.	21.57 ± 1.06		22.0 ± 1.22		t= 0.889	0.376
Academic level						
5-6	63	43.1	3	60.0	χ^2=1.275	^{MC}p=0.865
7-8	83	56.9	2	40.0		
BMI Mean ± SD.	25.79 ± 19.45		24.72 ± 2.54		t= 0.123	0.902
RBG Mean ± SD.	93.29 ± 14.39		212.4 ± 96.47		t=2.760	0.051*
Family history of chronic illness						
Yes	62	42.5	3	60.0	χ^2=0.606	^{FE}p=0.652
No	84	57.5	2	40.0		

χ^2: **Chi square test,** MC: **Monte Carlo,**FE**: Fisher Exact,** t: Student t-test, p: pvalue for comparing between the two groups

Univariate model for the relation between diabetes mellitus and bio-socioeconomic variables reveals that only random blood glucose level was significantly associated with diabetes prevalence in the study population **(table 4)**.

Table (4):Univariate model for the relation between diabetes mellitus and bio-socioeconomic variables (n=151)

Bio-socioeconomic variables	DM				OR (95% CI)	p
	No (n=146)		Yes (n=5)			
	No.	%	No.	%		
Age (years) Min. – Max. Mean ± SD.	21.57 ± 1.06		22.0 ± 1.22		1.412 (0.661 – 3.017)	0.373
Academic level 5-6 7-8	63 83	43.1 56.9	3 2	60.0 40.0	0.697 (0.310 – 1.570)	0.384
BMI Mean ± SD.	25.79 ± 19.45		24.72 ± 2.54		0.996 (0.941 - 1.055)	0.902
RBG Mean ± SD.	93.29 ± 14.39		212.4 ± 96.47		1.106 (1.020 – 1.200)	0.015*
Family history of chronic illness Yes No	62 84	42.5 57.5	3 2	60.0 40.0	2.032 (0.330 – 12.53)	0.445

p: p value for comparing between the two groups

Univariate logistic regression analysis of mean score of General health 1, Social activities 1, Energy and emotions, General health 2 werehigher in diabetic than non-diabetic students, also, higher mean score of Limitations of activities, Physical health problems, Emotional health problems and Social activities 2 in non-diabetic students than diabetic students, but those results were not significant(**table 5**).

Table (5):Univariate regression model for the relation between diabetes mellitus and mean score of SF–36 health survey domains (n=151)

	Diabetic (n=146)	Non-diabetic (n=5)	OR (95% confidence interval	p
	Mean ± SD.	Mean ± SD.		
General health 1	72.50 ± 20.54	63.70 ± 16.70	1.034 (0.977 - 1.094)	0.252
Limitations of activities	66.0 ± 23.02	68.73 ± 26.58	0.996 (0.964 - 1.030)	0.820
Physical health problems	40.0 ± 45.41	64.39 ± 35.82	0.983 (0.959 – 1.007)	0.158
Emotional health problems	53.33 ± 50.55	62.59 ± 39.86	0.994 (0.973 – 1.016)	0.613
Social activities 1	73.67 ± 22.12	70.21 ± 19.43	1.009 (0.963 – 1.058)υ	0.696
Energy and emotions	63.11 ± 11.18	57.70 ± 14.86	1.027 (0.963 – 1.095)	0.421
Social activities 2	50.0 ± 0.0	52.91 ± 29.73	0.997 (0.967 – 1.028)	0.826
General health 2	61.25 ± 11.18	60.36 ± 17.36	1.003 (0.952 – 1.057)	0.909

p: p value for comparing between the two groups

Univariate regression model for the relation between diabetes mellitus and overall mean score of SF–36 health survey domains shows slightly lower overall mean SF-36 health survey score for diabetic than non-diabetic students (respectively, 61.36 ± 11.78 & 63.45 ± 14.70) with no significant difference.(**Table 6**).

Table (6):Univariate regression model for the relation between diabetes mellitus and overall mean score of SF–36 health survey domains (n=151)

	Diabetic (n=146)	**Non-diabetic (n=5)**	**OR (95% CI)**	**p**
	Mean ± SD.	**Mean ± SD.**		
Overall percent score of SF-36 health survey	61.36 ± 11.78	63.45 ± 14.70	0.990 (0.931 – 1.053)	0.752

P: p value for comparing between the two groups

IV. Discussion

Diabetes mellitus is a prevalent metabolic disorder characterized by a deficit in insulin secretion or action resulting in hyperglycemia. Recently, a dramatic increase has been recognized in diabetes prevalence among adolescents and young adults. Onset of diabetes at a younger age was reported to be associated with prolonged disease duration, has a more aggressive disease phenotype and higher risk for complications with adverse effects on quality of life[20].

Given that DM is prevalent in Saudi Arabia**, the** crude diabetes prevalence among current study population who had chronic illnesses was 29.4%, and almost one third (33.8%) of the total study participants first degree relative were diagnosed with DM. Those results came in accordance with the result of previous study in Saudi Arabia[21-22].

Previous studies accused both age and gender for worsening glycemic status, a study reportedslight increase in DM in men older than 60 years of age [23].In other surveys, women showed significant higher prevalence of diabetes than men. Several other studies reported that diabetes tends to increase with increasing age[24-29]. In the current study, age was slightly higher in the diabetic than non-diabetic participants, but this result was not significant. However, both age and gender cannot be judged in this study because this study participants'were all female young adults.

Obesity is a known major risk factor for the development of diabetesmellitus[30-31]. In this study the mean BMI was almost equal and within normal range for both diabetic and non-diabetic participants, contradicting the results of Pinhas-Hamielet al [32].

Diabetes mellitus as a sever chronic disease is known to negatively affect quality of life. Health related quality of life is an important factor determining self-management and risk for developing complications[33].

Results of this study revealed that diabetes mellitus negatively impacted limitations of activities, physical health problems, emotional health problems and social activitieson the assessed quality of life domains of diabetic participants, but the difference between the two groups were minimal for all domains except physical activity that showed a drop in mean score for diabetics than non-diabetics. Those findings are supported by previous studies that reported worsened quality of life domainsspecifically reduced physical functioning of diabeticpatients[33].Surprisingly,general health 1, social activities 1, energy and emotions, general health 2 quality of life domains showed better but not significant mean score in diabetic than non-diabetic students. Those results could be explained by the young age of the study participantsthat previous studies reported its synergistic effect on quality of life of diabetic patients[34]. In general, lower overall quality of life scores were observed in diabetic than non-diabetics participants, however those observations were not statistically significant.

V. Conclusion and Recommendations

Based on the findings of this study it could be concluded that, diabetes mellitus reported a low prevalencebut the highest among all health problemsaffecting this youth population, and a very high prevalence among their first degree relatives which make those who did not have it still at risk for developing the disease. Diabetes mellitus affect the overall quality of life of youth in this study, however physical functioning is the worst affected domain and impacted the social activities of the study participants.

A diabetes support group to improve health care in young diabetic people is recommended, and it should be integrated in a national population based glycemic control strategy that encourages physical activities and healthy lifestyle directed to all age groups.Initiation of intense follow-up program for young diabetics in

their places as their schools or workplaces is highly recommended for monitoring and prevention of complications.

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