

Variables predicting quality of life among university students with type 1 diabetes

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Abstract

The study aimed to determine whether family support, physical activity, and motivation for achievement have an impact on predicting the quality of life among type 1 diabetes university students. It aims also to identify the differences between genders in the quality of life, family support, and motivation for achievement. The quantitative approach was used, using the Quality-of-life Scale, Motivation for Achievement Scale, and Family Support Scale. The results showed that family support, motivation for achievement, and physical activities are positively related to the quality of life and its dimensions for university students with diabetes. It also contributes to predicting the quality of their life with its fields in varying proportions. Furthermore, the study recommends that universities should organize programs for their students with diabetes of type 1 that support their practice of physical activities and develop the motivation for achievement.

Keywords: Virtual Counseling Program; Psychological immunity and Coronavirus pandemic.

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1. Introduction

Quality of life (QOL) is a concept that many sciences have been interested in, such as medicine, economics, politics, sociology, geography, and psychology, QOL is considered one of the modern concepts in the psychological heritage, especially in the field of positive psychology, as it is a relative multi-dimensional concept that differs from one person to another and is affected by several factors, and its achievement is through a group of aspects represented in psychological, social, material, and physical health. Therefore, the impact of any of these aspects may affect the QOL, and among the most important of these aspects is physical diseases, especially chronic ones, and one of the chronic diseases that can negatively affect the QOL of diabetes. (Al-Sharif, 2017; Bo Aysha and Zakaria, 2020).

Diabetes is considered one of the most common chronic diseases at present in various countries of the world, and this may be due to several factors, including obesity and well-being, change in the type of food, psychological tensions, and other reasons (Abdul Hamid, 2007). The raise in the number of people with diabetes to 422 million in 2014 is a serious indicator, continues to increase, and is widespread among the sexes, making it increasingly interested by many researchers and doctors in recent years. The prevalence of diabetes in the Kingdom of Saudi Arabia reaches (17.9%), but it is making great efforts to ensure the QOL of the population by setting goals to reduce the spread of diabetes in line with the rate achieved in the best-living countries (QOL Program Document, 2020).

Students with diabetes, especially at the undergraduate level, suffer from some psychological problems such as depression and anxiety, in addition to sleep problems and physical pain, and it negatively affects their QOL (Cakmak & Gen, 2020; Delevatti et al., 2018; Jawadi and Turki, 2018; Raymakers et al., 2018; Molvær et al., 2020). Studies (Gu et al. 2020; Janssen et al., 2020) found poor quality of life for diabetics, and a study (Al-omairi, 2018) showed that females have the same quality of bad or so bad life compared to male patients. Improving the quality of life is one of the most important goals that societies seek to take care of and lead in, which will positively affect the health and psychological state of their members.

Type 1 diabetes is characterized by little or no insulin production, it is also sometimes known as '*Juvenile Diabetes*' or '*Early Diabetes*' because it often develops before the age of forty, usually during the teenage years. It is a life-threatening disease if will be left without proper clinical care, as well as it will need insulin injections for lifetime, a healthy diet, Physical Activities, and regular blood tests. The blood sugar levels can be regulated by following a regulated diet and lifestyle and practicing physical activities.

Previous studies have shown that regular physical activity helps in managing chronic diseases, including diabetes, as well as improves mental health, quality of life, and well-being (Kesici & Çavuş, 2019; Martins et al., 2018; Markosyan & Perikhanyan, 2019; Tveten et al., 2017). QOL is related to family support for elderly patients with type 1 and 2 diabetes and for females as well. Social support, represented by family support, has contributed to reducing their sugar level. It is associated with improved physical indicators and mental health; also with social support, represented by family support, predicts physical activity for diabetics, (Gallegos-Carrillo et al., 2009; Iamandi-Cioinaru et al., 2017; Mohebi et al., 2013; Morowatisharifabad et al., 2019; Shao et al., 2017; Terrasson et al., 2018; Sulistyarini & Andriansyah, 2019; Lu et al., 2020).

Some studies have also concluded that it is possible to improve QOL in diabetics through the motivation for achievement. Studies have ended (Lassoued, 2017; Mohamed, 2016; Al-omairi, 2018) that there is a statistically significant relationship between QOL and motivation for achievement and that QOL can be predicted through motivation for achievement of university students in general, and

diabetics in particular. If Physical Activities, family support, and motivation for achievement are related to QOL.

1.1 Theoretical Framework

The current era has been characterized by technical development in several areas. This development has had a great impact on human life, providing him with a decent livelihood, and giving his life quality. The elements of sophistication and urbanization that man has reached may reflect a level of QOL, the quality of human life is the quality of his characteristics in terms of his physical, psychological, and cognitive composition and the degree of compatibility with himself and others and his social and moral composition (Jawadi and Turki, 2018).

The concepts of QOL varied to include concepts including happiness, satisfaction, good life, and self-satisfaction. The learner's assessment of his reaction to life whether embodied in life satisfaction as 'Cognitive Calendars', or conscience as 'Constant Emotional Reaction' to life conditions through the availability of opportunities for satisfaction and achievement of needs; and achieving QOL through a range of indicators of mental health, social health, material aspect, and physical health, which is one of the basic pillars of QOL. Therefore, the incidence of physical diseases, especially chronic ones, affects QOL, especially in the case of the individual's failure to accept his disease and his new status, and this is more embodied in the field of chronic diseases, which have become the most important causes of death in the world. Chronic diseases develop slowly and those who suffer from them live for long periods of time and cannot be cured in most cases, but what is desired is to try to control their development by the patient and the supervisors of treatment (Bo Aysha and Zakari, 2020)

There are differences between males and females in QOL, so enjoying a better QOL requires stronger social support, through its social network such as family and friends (Ke et al., 2010). Family support as an aspect of social support is a multidimensional concept that can be monitored through objective support, called practical or visual support, including direct material assistance from a social network of stable social ties (e.g. family, relatives, friends, etc.) and unstable connections (informal support groups). Support can also be monitored through self-support of the emotional and subjective experience of respect, support, and understanding, and the demand for family support may go beyond family, relatives, friends and colleagues to society, and most importantly this type of support is its quality, not quantity (Lu et al., 2020). Stronger family support can develop positive mental and emotional changes within the patient, male or female; strengthens his/her determination, faith, and confidence in managing his or her conditions and improving his/her QOL. Moreover, social support has a direct impact on the patient's self-stimulation and confidence in diabetes management, resulting in improved blood sugar control (Shao et al., 2017).

As a form of social support related to the health of diabetics, it also has a relationship and an impact on QOL of diabetics (Sulistyarini & Andriansyah, 2019). Family support has some physical and mental health indicators in older people with diabetes, regardless of complications of other chronic diseases (Gallegos-Carrillo et al., 2009). Diabetes of all kinds is among the most common chronic diseases, one of the main concerns of the third millennium, which requires a treatment system whose effectiveness depends on the patient's acceptance and commitment to treatment and follows the imposed therapeutic instructions (Mohebi et al., 2013).

Many studies have shown that there are mutual relationships between adherence to treatment behaviors and knowledge of the disease, as well as how to deal with the disease through diet and Physical Activities therapy (Bo Aysha and Zakari, 2020). Type 1 diabetes is a prevalent disease among university students of both sexes, with owners suffering from significant health complications at the

level of the retina, heart, and kidneys as well as high treatment costs, as diabetes treatment consumes 34% of the Ministry of Health's budget (Riyadh Magazine, 2015).

In the face of the increasing number of people with diabetes in Saudi Arabia, doctors have been informed to conduct studies on the physiology of the disease, but within the limits of the researchers' knowledge studies related to the physiology of the disease with other variables such as QOL, as people with this disease have a special view of life they live, where the study of (Cakmak & Gen, 2020) indicated that the incidence of diabetes has an impact on QOL, where it is considered an independent factor for the quality of social life, so QOL can be predicted through it. The perception of diabetics towards themselves, and the society in which they live is different when compared to the healthy ones, where they suffer from psychological stress, face psychological and social difficulties, and the support provided to them is QOL sought by each infected person (Jawadi and Turki, 2018).

1.2 Related Research

QOL of people with diabetes of both sexes is always affected by psychological and social problems, physical disorders, and lifestyle changes. Family support plays a role in improving QOL of type 1 diabetics, with a study of (Novita & Novitasari, 2017) indicating a direct relationship between family support and QOL in females with diabetes providing family social support to female diabetics can improve their QOL. Physical Activities are strong signs of mental and physical health of human as well as their role in fighting diseases and reducing their symptoms, as moderate-intensity physical activity such as walking, or high intensity, leads to the prevention of diabetes. A study of (Janssen et al., 2020) showed that people with diabetes have a marked decline in QOL. The impact of Physical Activities on QOL of both sexes extends, as indicated by the study of (Tveten et al., 2017) which giving more attention to Physical Activities. It increases QOL, and the study of (Kesici & Çavuş, 2019), confirmed that the concept of university QOL is a concept examined in a multidisciplinary manner in international literature that is influenced by cultural, artistic, and sports activities offered to students. Moreover, the study of (Delevatti, et al. 2018) confirmed that air sports training in the aquatic environment has similar effects for aerobic Physical Activities in the earth's environment on QOL. Also, family support is a predictor of physical activity, and with increased family support, the likelihood of minimal physical activity has increased (Morowatisharifabad et al., 2019).

The motivation for achievement is also one of the most important variables of human motivation, as it reflects the maturity of the human personality and its awareness of the nature of its responsibilities, in which the individual seeks male or female to translate these perceptions into practical and realistic gains that can be described in the academic field by accomplishment or academic achievement (Mostafa, et al., 2020). Motivation for achievement is a personal factor affecting the academic performance of university students of both sexes, particularly their educational achievement, provided that they do not turn into impulsiveness and recklessness without good planning of the learning process, which mental habits control and balance; they develop goals-setting skills for learners, finding solutions to problems and implementing educational plans efficiently, and making them more active in managing their learning (Fenderson, 2010).

1.3. Purpose of the Study

The purpose of the study is to find out the degree of contribution of motivation for achievement, Physical Activities, and family support in predicting the quality of life, and which of them contribute to a greater degree, especially among university students with type 1 diabetes, and on what dimensions

of quality of life these variables contribute more to university students than Diabetics. The purpose of the study can be clarified through the following questions:

1. What is the nature of the relationship between family support, motivation for achievement, and physical activities as independent variables, with QOL?
2. What are the differences between males and females in quality of life, family support, and motivation for achievement?
3. Can QOL be predicted by family support, motivation for achievement, and physical activities?

2. Method and Materials

2.1. Research Model

The current study followed the quantitative approach to the motivational relationship of achievement, Physical Activities, and family support to QOL in type 1 diabetes students of Imam Abdul Rahman Bin Faisal University. In addition to whether these factors are to predict QOL in its four areas (physical health, mental health, social relations, and environment), and identify the differences between the sexes in the quality of life and its fields.

2.2. Participants

The sample of the study consisted of (104) male and female students of type 1 diabetics at Imam Abdul Rahman Bin Faisal University in Dammam, which included (59 males, and 45 females) and an average age of 20.88 years with a standard deviation of 1.38 years. They are the students who have agreed to participate in the study.

2.3. Data Collection Tools

The study tools consisted of:

1. The WHO's Abridged Quality of Life Scale

The quantitative data were collected using the WHO's Abridged Quality of Life Scale, the most commonly used measure in many scientific researches, consisting of (26) phrases, formulated in the form of questions that each answered on a five-order scale of 1 to 5 degrees, the high degree of better QOL, the short version of the scale was translated for many languages, characterized by high psychometric properties, and the scale is adapted to different cultures under WHO supervision; it measures four sub-areas: physical health, mental health, social relations, and environment as well as overall degree of QOL. The participants respond on the scale using the five-point Likert Scale', and the short version was applied with the lengthy version to a sample of (25) students at Imam Abdul Rahman Bin Faisal University after obtaining their approval, the correlation coefficient for Criterion-related Validity was 0.78, Alpha Cronbach stability coefficients for the scale were 0.91, and sub-dimensions respectively were 0.81, 0.77, 0.84, 0.79.

2. The motivation for achievement Scale:

The quantitative data were also collected by using the motivation for achievement Scale prepared by (Hermans, 1970) that translated into Arabic by Moses (1987) and the scale is commonly used in scientific research and Saudi Arabia. It is consisting of (28) phrases, which consist of incomplete sentences followed by five alternatives, so the respondent chooses the appropriate alternative by putting the mark (V) for positive expressions. The responses are assessed on the five-five-point Scale by grades (5, 4, 3, 2, 1), and vice versa for negative phrases. Positive phrases include numbers (2, 5, 6, 7, 8,

10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26) and negative phrases also include numbers (1, 3, 4, 9, 15, 16, 27, 28). The highest score was received by respondents (140) while the lowest score (28). Criterion-related Validity was used; as the scale was applied with the motivation for achievement scale for the completion of Khalifa (2006) to the same rationing sample and calculated the correlation coefficient between sample scores on the two scales; as the Pearson correlation coefficient value was 0.437, a value of significance at 0.01. Scale stability: calculated in the same sample, Alpha Cronbach stability coefficient (0.79).

3. The family support scale

The family support scale was also used by researchers, a measure of 5 phrases. The respondent chooses the appropriate alternative by putting the mark (√). The responses are assessed on the five-points Likert Scale. The psychometric properties of the scale were calculated through the sincerity of the arbitrators where it was presented to a number of (10) competent arbitrators in the fields of education, psychology, and sociology. They reported the convenience and suitability of the scale, with some referring to some modifications and additions, but the stability of the scale was calculated after its application on the rationing sample. Alpha Cronbach's stability coefficient reached (0.79). A question was also asked about the Physical Activities of three alternatives to the study sample (always practiced, sometimes practiced, not practiced).

2.4. Data Collection Process

An electronic link has been formulated to collect data. It consists of three parts: The first part includes practical instructions explaining the purpose of collecting data that are used only for scientific research. The second part included demographic data. The third part included the Arabic version of the three study tools. The link was posted to male and female students with type 1 diabetes via university mail after obtaining an IRB.

2.5. Data Analysis

The SPSS statistical package was used to calculate the Pearson and Spearman correlation coefficient, to clarify the relationship between quality of life and (family support, motivation for achievement, and Physical Activities), and t-test to determine the significance of differences between male and female university students with type 1 diabetes in quality of life, and Multiple regression model to predict the quality of life through family support, motivation for achievement, and Physical Activities.

3. Results

- ***The answer of the first question, its analysis:***

The first question: “ ***What is the nature of the relationship between family support, motivation for achievement, and physical activities as independent variables, with QOL?***”

To clarify the relationship between independent variables (family support, motivation for achievement, and Physical Activities) on the QOL variable in its four areas among university students with type 1 diabetics, Pearson and Spearman correlation coefficients were used. Table (1) is illustrating the relationship between (family support, motivation for achievement, and Physical Activities) and QOL in its four areas (environment, social relations, mental health, and physical health).

Table 1. Correlations between independent variable scores (family support, motivation for achievement, and Physical Activities) on QOL variable in its four areas in university students with type 1 diabetes (number = 104)

		Physical Activities	Motivation for Achievement	Family Support
Physical Health	R	.398**	.408**	.556**
	Sig.	.000	.000	.000
Mental Health	R	.336**	.305**	.538**
	Sig.	.000	.001	.000
Social Relations	R	.323**	.295**	.324**
	Sig.	.000	.001	.000
Environment	R	.356**	.254**	.419**
	Sig.	.000	.005	.000
Overall Score of QOL	R	.427**	.389**	.545**
	Sig.	.000	.000	.000

Level-two constructs; a: $p < .05$; b: $p < .005$; c: $p < .0005$; d: $p < .01$; e: $p < .001$; f: $p < .0001$

It is clear from the previous table that:

the highest correlation between family support and physical health ($r = 0.56$), between family support and the overall score of QOL ($r = .55$), between family support and mental health ($r = .54$), and then between family support and the environment ($r = .42$). Family support to each of the four areas and the overall score of QOL ranged from 0.56 to 0.32 and these correlations explain to some extent a relative disparity between family support, the overall score, and the sub-dimensions of QOL scale. However, the simple correlation coefficient did not help to demonstrate the contribution of family support to QOL of university students with type 1 diabetes. Thus, the multiple regression model was used to verify further, as described in the following section.

What can also be observed in the table (1), is that the highest correlation between motivation for achievement and physical health ($r = 0.41$), then between the motivation for achievement and the overall degree of quality of life ($r = .39$), then between the motivation for achievement and the field of mental health ($r = .31$), then between the motivation for achievement and the field of social relations ($r = .30$), then between the motivation for achievement and the field of the environment ($r = .25$). The relationship between the motivation of achievement and each of the four areas and the overall score of QOL ranged from 0.41 to 0.25, and these are explained the correlations are somewhat relatively different between the motivation for achievement and both the overall degree and the sub-dimensions of the QOL scale. The simple correlation coefficient did not help to demonstrate the contribution of motivation for achievement in QOL of university students with type 1 diabetes. Thus, the multiple regression model was used to further investigate, as described in the following section.

What can also be observed in table (1), is that the highest correlation between Physical Activities and the overall quality of life ($r = 0.43$), then between Physical Activities and physical health ($r = .40$), then between Physical Activities and the field of the environment ($r = .36$), then between Physical Activities and mental health ($r = .34$), then between Physical Activities and social relations ($r = .32$). The relationship between Physical Activities and each of the four areas and the overall score of QOL ranged from 0.43 to 0.32 explains these correlations to some extent, there is a relative disparity between Physical Activities and both the overall score and the sub-dimensions of the QOL scale.

The answer of the second question, its analysis:

The second question: *“What are the differences between males and females in quality of life, family support, and motivation for achievement?”*

To clarify the differences between male and female university students with type 1 diabetes in QOL with its areas, family support, and motivation for achievement, a test was used to calculate the significance of the differences between the average of two independent groups, and table (2) shows the results of the differences.

Table 2. Differences between males and females in QOL with its areas, family support, and motivation for achievement

	Male		Female		df	t	Sig.
	M	S. D	M	S. D			
Physical Health	28.56	6.28	26.78	6.60	102	1.40	.164
Mental Health	23.88	4.84	22.33	6.45	102	1.40	.165
Social Relations	10.95	3.01	11.40	2.82	102	0.788	.44
Environment	27.9492	5.52556	27.4000	4.65344	102	0.537	.59
QOL	91.3390	17.50528	87.9111	17.78127	102	0.983	.33
Motivation for Achievement	99.6271	11.40462	104.5333	9.91234	102	2.298	.024
Family Support	19.4237	1.79274	18.5556	1.86542	102	2.404	.018

It is clear from the previous table that:

there are no statistically significant differences between male and female university students with type 1 diabetes in the overall score of the QOL scale and sub-areas (physical health, mental health, social relations, and environment). The results also show statistically significant differences between male and female university students with type 1 diabetes in the motivation for achievement towards females. There are statistically significant differences between male and female university students with type 1 diabetes in family support for males

• **The answer to the third question, its analysis:**

The third question stated:” **Can QOL be predicted by family support, motivation for achievement, and physical activities?”**

The researchers verified predictability through three factors: family support V1, motivation for achievement V2, Physical Activities V3, with QOL and its four areas in university students with type 1 diabetes. In other words, researchers tried to figure out how much these factors (V1, V2, and V3) predict QOL and its four areas in university students with type 1 diabetes. Therefore, the multiple regression model was calculated, and the results showed variations for each area of QOL, and the contrast was 56% of the total variation in the overall score of QOL.

Table 3. Analysis of multiple regression of predicting independent variables (family support, motivation for achievement, Physical Activities) with QOL variable with its four areas in university students with type 1 diabetes (Number = 104)

	Items	β	t	F	P	R^2 Adjusted	rpt
Physical Health	Family support	0.386	5.19	0.00			0.55
	Physical	0.338	4.52	0.00	40.76		0.35
	Activities					0.00	.537

	Motivation for achievement	0.273	3.85	0.00				0.41
	Physical Activities	0.388	4.81	0.00				0.25
Mental Health	Family support	0.359	4.49	0.00	30.52	0.00	.462	0.51
	Motivation for achievement	0.154	2.01	0.04				0.27
	Physical Activities	0.407	5.17	0.00				0.24
Social Relations	Motivation for achievement	0.224	2.71	0.01	22.87	0.00	.298	0.30
	Family support	0.429	4.91	0.00				0.39
Environment	Physical Activities	0.276	3.16	0.00	27.93	0.00	.343	0.21
	Physical Activities	0.434	5.93	0.00				0.33
Overall score of QOL	Family support	0.338	4.66	0.00	44.20	0.00	.557	0.53
	Motivation for achievement	0.228	3.29	0.00				0.37

It is clear from the previous table that:

Table (3) shows that all three predictors (family support, motivation for achievement, and Physical Activities) interpreted 54% of the disparity in physical health, R^2 adjusted = 0.537, and the multiple regression model shows that R^2 function [F (3, 104) = 40.76, $p < .0001$] was the most contributing factor being family support. β results showed that 38.6% of the discrepancy was attributable only to family support. This factor talks about what matters to diabetic university students to achieve physical health. The other factor, Physical Activities, was the second most important factor in the field of physical health. It contributed 33.8% of the variation. The last factor, motivation for achievement, contributed only 27.3% to the variation.

Table (3) also shows that all three predictors (family support, motivation for achievement, and Physical Activities) interpreted 46% of the disparity in mental health, R^2 adjusted = 0.462, and the multiple regression model shows that R^2 function [F (3, 104) = 30.52, $p < .0001$] was the most contributing factor being Physical Activities. β results showed that 38.8% of the variation was attributable only to Physical Activities. This factor talks about what matters to diabetic university students to achieve mental health. The other factor, family support, was the second most important factor in the field of mental health. It contributed 35.9% of the variation. The last factor, motivation for achievement, contributed only 15.4% to the variation.

While table (3) shows that only two of the three predictors (Physical Activities, motivation for achievement) interpreted 30% of the disparity in social relations, R^2 adjusted = 0.298 and the multiple regression model shows that R^2 function [F (3, 104) = 22.87, $p < .0001$] was the most contributing factor being Physical Activities. β results showed that 40.7% of the variation was attributable only to Physical Activities. This factor talks about what matters to diabetic university students to achieve social relationships. The other factor, motivation for achievement, was the second most important factor in the field of social relations. It contributed 22.4% of the variation.

Table (3) shows that only two of the three predictors (family support, Physical Activities) interpreted 34% of the variation in the environment, R^2 adjusted = 0.343 and the multiple regression model shows that R^2 function [$F(3, 104) = 27.93, p < .0001$] was the most contributing factor being family support. β results showed that 42.9% of the discrepancy was attributable only to family support. This factor talks about what matters to diabetic university students for the environment. The other factor, Physical Activities, was the second most important factor in the environment. It contributed 27.6% to the variation.

Table (3) also shows that all three predictors (Physical Activities, family support, motivation for achievement) interpreted 56% of the variation in QOL, R^2 adjusted = 0.557, and the multiple regression model shows that R^2 function [$F(3, 104) = 44.20, p < .0001$] was the most contributing factor being Physical Activities. β results showed that 43.4% of the variation was attributable only to Physical Activities. This factor talks about what matters to diabetic university students to achieve QOL. The other factor, family support, was the second most important factor for QOL. It contributed 33.8% of the variation. The last factor, motivation for achievement, contributed only 22.8% to the variation.

4. Discussion

The purpose of the study was to know the nature of the relationship between (motivation for achievement, Physical Activities, and family support) as independent variables, and QOL with its four areas in university students with type 1 diabetes. Quantitative results showed a correlation between variables (motivation for achievement, Physical Activities, and family support) and QOL in all its fields. This finding shows that the raise in both (family support, motivation for achievement, and Physical Activities) leads to a higher QOL for university students with type 1 diabetes. This result is consistent with studies (Mohamed, 2016; Lassoued, 2017; Al-omairi, 2018) that have resulted in a statistically significant relationship between QOL and motivation for achievement among university students in general, and diabetics in particular, as consistent with the study of (Shao et al, 2017) which concluded that family support is a form of social support that brings positive mental and emotional changes in diabetics; strengthens their resoluteness and confidence in managing their health (physical and psychological health); thus contributes to improving their QOL, as its impact reflects on improving their sugar rare in the blood; it is also consistent with the result (Novita & Novitasari, 2017; Mousavi et al., 2017) which indicated a direct relationship between family support and QOL. In addition to the result of the Study (Al-Mohaimed, 2017), which concluded that anxiety is more common among patients with impaired social support, it is also consistent with a study (Tveten et al., 2017) which indicated a relationship between Physical Activities and QOL as interest in Physical Activities increases QOL and is also consistent with studies (Kesici & Çavuş, 2019; Martins et al., 2018; Markosyan & Perikhanyan, 2019) which noted that regular physical activity helps in the management of chronic diseases including diabetes, and can improve mental health, QOL and well-being, and to increase interest in university students with type 1 diabetes, the search for variables that can have a positive correlation with their QOL is critical to improving their QOL, because as previous studies have indicated that they suffer from some psychological and physical problems, which may negatively affect their QOL (Cakmak & Gen, 2020; Delevatti et al., 2018; Jawadi. and Turki, 2018; Molvær et al., 2020; Raymakers et al., 2018).

However, correlation coefficients have not helped to determine the extent of contribution to family support, Physical Activities, and motivation for achievement in predicting QOL among university students with type 1 diabetes. Thus, the multiple regression model was used for further verification. The purpose of the current study was also to identify between males and females in the QOL and its areas of university students with type 1 diabetes. The quantitative results showed that there were no significant differences between the high and low-level type 1 diabetic student in QOL and its sub-areas

(physical health, mental health, social relations, environment). This finding differs from the results of a study (Al-omairi, 2018) which concluded that females have a bad or so bad QOL compared to male patients.

The results also showed significant differences between male and female students with type 1 diabetes in the motivation for achievement towards females, and this result differs from the findings of the study (Omari, 2020), which concluded that there were no differences in motivation for achievement between males and females.

The results also showed significant differences between male and female university students with type 1 diabetes in family support for males, and this result varies from the results of my study (Novita & Novitasari, 2017; Mousavi et al., 2017) which ended up linking family support and QOL in females with diabetes. The purpose of the study was also to know to what extent variables (motivation for achievement, Physical Activities and family support) could predict QOL with its four areas in type 1 diabetic university students, and the results showed that family support and Physical Activities, respectively, predict improved physical health and the environment as one of QOL areas of university students with type 1 diabetes, while the motivation for achievement predicts physical health only. This result is consistent with the results of studies (Gallegos-Carrillo et al, 2009; Iamandi-Cioinaru et al., 2017; Mohebi et al., 2013; Morowatisharifabad et al., 2019; Shao et al., 2017; Terrasson et al., 2018; Lu et al., 2020) which concluded that QOL is associated with family support in elderly people with type 1 and 2 diabetes as well as females, lowering their sugar level, improving physical indicators and mental health, and family support predicts the physical activity of diabetics.

While the results showed that Physical Activities, family support, and motivation for achievement respectively predict improved mental health as an area of QOL and the overall score of QOL, this finding is consistent with the study (Hu, et al,1999) which concluded that moderate-intensity physical activity such as walking, or high intensity leads to the prevention of diabetes, as consistent with the results of studies (Kesici & Çavuş, 2019; Martins et al., 2018; Markosyan & Perikhanyan, 2019; Tveten et al., 2017) concluded that regular physical activity helps to manage diabetes and can improve mental health, QOL, and well-being. The results also showed that Physical Activities, and motivation for achievement respectively, predict improved social relationships as an area of QOL and this result is consistent with the results of studies (Lassoued, 2017; Mohamed, 2016; Al-omairi, 2018) to a statistically significant relationship between QOL and the motivation for achievement and that QOL can be predicted by motivation for achievement among university students in general, and diabetics in particular.

5. Conclusion

The study aimed to reveal the relationship of motivation for achievement, Physical Activities, and family support to QOL of type 1 diabetics of university students, the differences between males and females in QOL and its areas, family support, motivation for achievement, whether these factors predict QOL in its four areas (physical health, mental health, social relations, and environment). By using the quantitative approach, the results showed that family support and motivation for achievement and Physical Activities are positively related to QOL and its areas of diabetics of university students. The results showed that the lack of results in the presence of statistically significant differences between males and females in QOL and its areas, the existence of statistically significant differences between males and females in the motivation for achievement towards females, differences between males and females in family support towards males, and variables of family

support, Physical Activities, and motivation for achievement have contributed to predicting the quality of their life and its areas in varying proportions.

6. Recommendations

A recommendation related to the results of the study is that universities can organize programs for their type 1 diabetic students in which they are interested in exercising and developing motivation for achievement, to have an impact on their QOL, the family should provide appropriate family support to their children with type 1 diabetes, and many restrictions should be noted with regard to the current study: First, 104 university students with type 1 diabetes and for deeper results could be studied in more numbers at a number of universities. Second, extensive research on the differences between diabetics, university students, and non-sick peers in QOL.

References

- Abdul Hamid, M. (2007). *Diabetes: Its Causes, Complications & Treatment*. Riyadh: King Fahd National Library.
- Aljumah, A. A., Ahamad, M. G., & Siddiqui, M. K. (2013). Application of data mining: Diabetes health care in young and old patients. *Journal of King Saud University-Computer and Information Sciences*, 25(2), 127-136.
- Al-Mohaimed, A. A. (2017). Prevalence and factors associated with anxiety and depression among type 2 diabetes in Qassim: a descriptive cross-sectional study. *Journal of Taibah University Medical Sciences*, 12(5), 430-436.
- Al-Sharif, A. (2017). *QOL of Diabetics and a Proposed Perception of the Role of social work in improving it*. Giza: Atlas for Publishing and Media Production.
- Al-omairi, S. A. (2018). *dietary habits and quality-of-life among Saudi adult type ii diabetics in Jeddah*. Master's Thesis, College of Home Economics, King Abdul-Aziz University.
- Bo Aysha, A. & Zakaria, N. (2020), *QOL & its Relationship to Health Behavior in among diabetics. a field study in the city of Warqla*. <https://2u.pw/8pBAu>
- Cakmak, S., & Gen, E. (2020). Relationship between quality of life, depression and anxiety in type 1 and type 2 diabetes. *Dusunen Adam*, 33(2), 155–169. <https://doi.org/10.14744/DAJPNS.2020.00075>
- Delevatti, R., Schuch, F. B., Kanitz, A. C., Alberton, C. L., Marson, E. C., Lisboa, S. C., Pinho, C. D. F., Bregagnol, L. P., Becker, M. T., & Kruehl, L. F. M. (2018). Quality of life and sleep quality are similarly improved after aquatic or dry-land aerobic training in patients with type 2 diabetes: A randomized clinical trial. *Journal of Science and Medicine in Sport*, 21(5), 483–488. <https://doi.org/10.1016/j.jsams.2017.08.024>
- Fenderson, S. (2010). *Instruction, perception, and reflection: Transforming beginning teachers' habits of mind*. University of San Francisco.
- Gallegos-Carrillo, K., García-Peña, C., Durán-Muñoz, C. A., Flores, Y. N., & Salmerón, J. (2009). Relationship between social support and the physical and mental wellbeing of older Mexican adults with diabetes. *Revista de Investigacion Clinica*, 61(5), 383–391.
- Gu, S., Wang, X., Shi, L., Sun, Q., Hu, X., Gu, Y., Sun, X., & Dong, H. (2020). Health-related quality of life of type 2 diabetes patients hospitalized for a diabetes-related complication. *Quality of Life Research*, 29(10), 2695–2704. <https://doi.org/10.1007/s11136-020-02524-3>
- Hermans, H. J. (1970). A questionnaire measure of achievement motivation. *Journal of applied psychology*, 54(4), 353.
- QOL Program Document, (2020). https://vision2030.gov.sa/sites/default/files/attachments/QoL%20Arabic_0.pdf
https://www.who.int/health-topics/physical-activity#tab=tab_1
- Iamandi-Cioinaru, C., Corad, B., Marin, M., Trocea, A., Colda, A., Rusu, E., & Radulian, G. (2017). Health-related quality of life of patients with diabetes in Romania. *Romanian Journal of Diabetes, Nutrition and Metabolic Diseases*, 24(4), 325–332. <https://doi.org/10.1515/rjdnmd-2017-0038>

- Elsharkasy, A. S., Bedaiwy, A. A. & Alomary, N. M. (2022). Variables predicting quality of life among university students with type 1 diabetes. *Cypriot Journal of Educational Science*. 17(9), 3103-3116. <https://doi.org/10.18844/cjes.v17i9.7975>
- Janssen, L. M. M., Hilgsmann, M., Elissen, A. M. J., Joore, M. A., Schaper, N. C., Bosma, J. H. A., Stehouwer, C. D. A., Sep, S. J. S., Koster, A., Schram, M. T., & Evers, S. M. A. A. (2020). Burden of disease of type 2 diabetes mellitus: cost of illness and quality of life estimated using the Maastricht Study. *Diabetic Medicine*, 37(10), 1759–1765. <https://doi.org/10.1111/dme.14285>
- Jawadi, K. & Turki, I. (2018). Sports Practice and Its Relation to The Quality of Life Among Diabetes Patients. *Journal of Physical Education Sciences*. 11(4), 110-125. <https://doi.org/10.33984/0904-011-004-006>
- Khalifa, A. (2006). *motivation for achievement scale*. Cairo: Dar Gharib for printing, publishing, and distribution. <https://2u.pw/4DIqE>
- Ke, X., Liu, C., & Li, N. (2010). Social support and quality of life: A cross-sectional study on survivors eight months after the 2008 Wenchuan earthquake. *BMC Public Health*, 10. <https://doi.org/10.1186/1471-2458-10-573>
- Kesici, A. E., & Çavuş, B. (2019). University life quality and impact areas. *Universal Journal of Educational Research*, 7(6), 1376–1386. <https://doi.org/10.13189/ujer.2019.070605>
- Lassoued, A. A. L. I. (2017). Quality of Life as a predictor of Motivation for Learning among a sample of students at EL-Oued University. *International Interdisciplinary Journal of Education*, 6(12), 88-96. https://www.ijoe.org/v6/IIJOE_07_12_06_2017.pdf
- Lu, S., Wu, Y., Mao, Z., & Liang, X. (2020). Association of formal and informal social support with health-related quality of life among Chinese rural elders. *International Journal of Environmental Research and Public Health*, 17(4). <https://doi.org/10.3390/ijerph17041351>
- Markosyan, R., & Perikhanyan, A. (2019). Health-related quality of life in children with type 1 diabetes in armenia. *Iranian Journal of Pediatrics*, 29(4), 1–6. <https://doi.org/10.5812/ijp.88275>
- Martins, K. A. K. F., Mascarenhas, L. P. G., Morandini, M., Cat, M. N. L., Pereira, R. M., De Carvalho, J. R., De Lacerda Filho, L., & Franca, S. N. (2018). Health-related quality of life in a cohort of youths with type 1 diabetes. *Revista Da Associacao Medica Brasileira*, 64(11), 1038–1044. <https://doi.org/10.1590/1806-9282.64.11.1038>
- Mohamed, N., A., H. (2016). The predictive value of self-efficacy and motivation for Achievement in QOL among Female Graduate Students at the Faculty of Education. *Journal of the Faculty of Education in Educational Sciences*, 40 (1), 281-348.
- Mostafa, I. S.M., Elsharkasy, A. & Mohamed, A. (2020). The Contribution of Mind Habits to Predict of Motivation for Achievement among High & Low Study Achievement of Male and Female University Students. *Journal of Educational & Psychological Sciences, Qassim University*, 14(2), 795- 827. <https://jeps.qu.edu.sa/index.php/jep/article/view/2438>
- Mohebi, S., Rad, G., Bakht, L., & Feizi, A. (2013). Importance of social support in diabetes care. *Journal of Education and Health Promotion*, 2(1), 62. <https://doi.org/10.4103/2277-9531.120864>
- Molvær, A. K., Iversen, M. M., Iglund, J., Peyrot, M., Tell, G. S., Holte, K. B., & Berg, T. J. (2020). Higher levels of bodily pain in people with long-term type 1 diabetes: associations with quality of life, depressive symptoms, fatigue and glycaemic control – the Dialong study. *Diabetic Medicine*, 37(9), 1569–1577. <https://doi.org/10.1111/dme.14331>
- Morowatisharifabad, M. A., Abdolkarimi, M., Asadpour, M., Fathollahi, M. S., & Balaei, P. (2019). Study on social support for Physical Activities and its impact on the level of physical activity of patients with type 2 diabetes. *Open Access Macedonian Journal of Medical Sciences*, 7(1), 143–147. <https://doi.org/10.3889/oamjms.2019.016>
- Moses, F. (1987). *The Measure of Motivation for Achievement for Middle, secondary, and university stages*. Anglo-Egyptian Library. <https://www.anglo-egyptian.com/ar/book.php?id=12960>
- Mousavi, A., Vahedi, Z., Kiaei, Z., & Rahimi, M. (2017). The relationship between family social support and quality of life in diabetic female patients. *Journal of Research and Health*, 7(2), 712-718.

- Elsharkasy, A. S., Bedaiwy, A. A. & Alomary, N. M. (2022). Variables predicting quality of life among university students with type 1 diabetes. *Cypriot Journal of Educational Science*. 17(9), 3103-3116. <https://doi.org/10.18844/cjes.v17i9.7975>
- Novita, D. A., & Novitasari, R. (2017). The Relationship Between Social Support and Quality of Life in Adolescent with Special Needs. *Psikodimensia*, 16(1), 40–48. <https://doi.org/10.18869/acadpub.jrh.7.2.712>
- Omari, A. (2020). Quality of family life and its relationship to motivation for achievement among a sample of male and female secondary school students in Jeddah. *Journal of the Faculty of Education in Mansoura*, 112(5), 2740-2776. <https://doi.org/10.21608/MAED.2020.199374>
- Raymakers, A. J. N., Gillespie, P., O'Hara, M. C., Griffin, M. D., & Dinneen, S. F. (2018). Factors influencing health-related quality of life in patients with Type 1 diabetes. *Health and Quality of Life Outcomes*, 16(1), 1–5. <https://doi.org/10.1186/s12955-018-0848-4>
- Riyadh Magazine (2015). Issue 17011. Saudi-Diabetes-&-Endocrine-Association. Type 1 diabetes. [Cited 2019 21/09/2019]; Available from: <https://sdea.org.sa/en/2019/09/21/type-1-type-2-diabetes/?lang=ar>
- Shao, Y., Liang, L., Shi, L., Wan, C., & Yu, S. (2017). The Effect of Social Support on Glycemic Control in Patients with Type 2 Diabetes Mellitus: The Mediating Roles of Self-Efficacy and Adherence. *Journal of Diabetes Research*, <https://doi.org/10.1155/2017/2804178>
- Sulistyarini, R. R., & Andriansyah, Y. (2019). Social support, gratitude, and quality of life of patients with chronic disease in Yogyakarta, Indonesia. *Psychology and Education*, 56(1–2), 1–14.
- Terrasson, J., Terrade, F., Somat, A., Adamiak, S. N., Guitteny, M. A., & de Kerdanet, M. (2018). Association between quality of life of adolescents with type 1 diabetes and parents' illness perception as evaluated by adolescents. *Psychology, Health and Medicine*, 23(3), 347–359. <https://doi.org/10.1080/13548506.2017.1348608>
- Tveten, K. M., Arnevik, K., & Jahnsen, R. (2017). Goal-directed physical activities in group rehabilitation and impact on health-related quality of life and participation among young adults with physical disabilities—a qualitative study. *European Journal of Physiotherapy*, 19(3), 131–136. <https://doi.org/10.1080/21679169.2017.1304573>