

Psychological Hardiness as a Predictor of Quality of Life of Diabetics in Jordan.

Ahmad Hasan Muhareb Harahsheh

Associate Professor-Counseling Psychology, Department of Educational Psychology and Psychological and Educational Counseling, College of Educational and Psychological Sciences, Amman Arab University, ORCID //orcid.org/0009-0007-9613-9291, a.harahsheh@aau.edu.jo

Abstract

This study aimed to reveal the predictive relationship between Psychological Hardiness and Quality of Life. Due to the significance of Hardiness in improving the quality of life, this study discusses to what extent psychological hardiness plays role in indicating the quality of life of (166) individuals suffering from diabetes. The study uses two scales, namely, Quality of life ($\alpha=0.95$), and Psychological Hardiness ($\alpha=0.86$). The study finds high level of quality of life, and high levels of psychological hardiness dimensions (Commitment, Control), and an average level of Challenges dimension. Moreover, the statistical analysis demonstrates significant correlations between quality of life and psychological hardiness; commitment ($r=0.85$), with a negative relative effect of (72.54%), and high degree of variance in the quality of life (90.09%), in other words, the higher the commitment levels, the higher quality of life, furthermore, control ($r=0.89$), with a minor relative effect of (6.35%), and low level of variance in the quality of life (7.89%); the more levels of control increase, the better the quality of life. However, challenges dimension ($r=0.90$), appears to have a very low relative effect with (1.63%), and low level of variance in the quality of life (2.02%), i.e., the more increase in the challenge's levels, the more decrease in the quality of life. Therefore, the study concludes that high levels of psychological hardiness impact the quality of life of diabetic individuals.

Keywords: Diabetes, Quality of life, psychological hardiness.

Introduction

The world is witnessing a new inclination and interest towards chronic diseases due to their widespread among people, in particular, diabetes, which poses significant threat to public health, in addition, costing countries (including Jordan) big budgets to provide medical care for diabetics. Therefore, experts have drawn their attention to the urgency of adopting new medical strategies and policies for patients at all aspects, rather focusing solely on the medical aspect, this interest has emerged with the rise of health psychology, which resulted in a paradigm shift in the care for people in health and sickness through the Biopsychosocial model (BPS), which focuses on understanding the biological, psychological, and social aspects alike, aspects that affect the disease, its development, and prevention, and plays a role in maintaining health. Moreover, the significance of psychological and social factors such as: social support, psychological hardiness, self-appreciation, quality of life, and other factors that help patients to adapt to their lifelong disease/s with its burdens, repercussions, and complications, and to be in social and psychological harmony. Quality of life and psychological hardiness are well studied concepts in the medical context, due to their significance in providing better medical care and more meaning into life, rather just surviving with the disease (Mikolajczak, 2013).

When a person is diagnosed with diabetes, it is a shifting point in their lives, in the sense that now they are diagnosed with a lifelong disease accompanied with fundamental psycho, socio, and economic ramifications upon the patients themselves and their surroundings. Hence, a diabetic person may develop a state of denial, and in certain occurrences, some might suffer from depression, however, eventually accepting their health situation. The most significant implication is their quality of life. The significance of this research stems from the novelty of its concept; Therefore, the concept of quality of life has become a necessity and a fundamental demand in the

current time, especially, for people suffering from chronic diseases, and in particular diabetes (Nafiaa et al., 2017). Thus, studying the quality of life and psychological hardness acquired a significant attention from a psychological perspective; economists, sociologists, and decision makers realized that the life of people suffering from diabetes are not only numbers and statistics, rather responses and feelings. In other words, the economic growth rates, the increase of per capita income of diabetics, and the improvement of services and welfare provided to them, do not necessarily result in the fulfilment of their needs, and personal ambitions, and ensuring their human value. This study aims to study a large segment of society (diabetics) through their psychological hardness to predict their quality of life while living with diabetes.

Theoretical Framework and Literature Review

Diabetes:

Diabetes is chronic endocrine disease and a metabolic disorder, caused by the pancreas' failure or insufficiency to secrete insulin, or the ineffectiveness of insulin, leading to high blood sugar levels, or as a result of the cells of the body resistance towards insulin hormone (Simon, 2016). Diabetes, heart diseases, and cancers are among the most widespread diseases according to World Health Organization (WHO), and are the cause of death of (36) million people annually, representing (60%) of mortalities around the world (Safer-tabi et al., 2016).

According to the International Diabetes Federation (IDF), a diabetic person dies every eight seconds around the world. Moreover, (Mikdajczak, 2013) claims that by (2030) diabetes will be the seventh cause of death around the world. Therefore, WHO has adopted new health strategies to withstand the threats of diabetes on the public health. Statistics from (IDF) indicate that (463) million people suffer from diabetes in (2019), and in (2030) the number might increase to (578) million, and (700) million in (2045). Jordan is among the countries that observe a high raise in the number of diabetics in the recent and upcoming years (Safer-tabi et al., 2016).

Diabetes poses serious psychological issues on the patients, most significantly, anxiety and depression; a diabetic person is more likely to suffer from depression than a healthy person, that is, one out of three women, and one out of five men. In addition, (40%) of diabetics experience a drastic decrease in mental well-being and a high level of anxiety due to the high stress levels and the lack of social and professional role, inadequate control, and little to no social support, consequently, imposing a challenging mental and physical issues resulting in increasing the blood sugar in the body (Mikolajczak, 2013). Moreover, diabetes can cause various personality disorders (regression, suicidal thoughts and many others) (Nafiaa et al., 2017). According to Imran (2009) diabetics demonstrate a decreased estimation of their quality of life, and a negative correlation between the diabetes and quality of life. Moreover, Bin Trad and Bakosh (2017) conducted a study involving (66) diabetics, the study indicates that diabetics show high levels of psychological and mental stress levels, and a significant relationship between psychological stress levels and quality of life among diabetics.

Nevertheless, it is worth mentioning that not all diabetics experience the same symptoms; there are indeed individual variations and other factors such as the type of diabetes, age, gender, the duration of the disease, and the personal beliefs regarding the disease. Such implications (psycho, physio, and socio) negatively impact the quality of life of diabetics, therefore health organizations in addition to the medical care, they provide psychological and social support to minimize their sufferings. Shreki (2014) argued that an appropriate treatment of diabetes entails a longer life span, more active individuals, and a better performance in life. Zatot (2017) indicated that (53%) of diabetics demonstrate positive tendencies towards healthy behavior compared to (38%) of hypertensives, thus improving the quality of their lives. In the contrary, Imran (2009) showed a low quality of life, and finds differences in the quality of life attributed to gender, age, duration of diagnosis, and educational level, all of which impacts either negatively or positively evaluating the quality of life of diabetics. Furthermore Corr  a

et al. (2017) argued that in Brazil, the quality of life of diabetics is subject to variation with regard to gender; men demonstrate better life quality compared to women. Whereas Spasic and Tatjana (2014) claimed diabetics enjoy better quality of life. However, Tashtoush and Kechar (2017) showed gender-based differences in favor of males, duration of the disease, and academic qualification, but not age. Therefore, after reviewing the relevant literature and previous studies, it appears that there are predictors of a low quality of life i.e., gender, duration of the disease, and age; the older the patient the more complications to their disease, which result in a drastic deterioration on the physical, mental, and intellectual levels, in addition to the interpersonal and social relationship.

Psychological Hardiness

The term first appeared by (Suzanne Kobasa), as a personal trait that functions as a source of response against life stressful events, and an optimal way to respond to stressful life patterns (Al-Smadi et al., 2024; Kobasa, 1983). There are three interrelated dimensions of hardiness: I- Commitment, refers to the tendency to be involved with various life activities and developing interest and curious tendencies towards the surrounding world. II- Control, which refers to the personal efforts towards influencing the surrounding events. While III- Challenge, unlike stability is the de facto pattern/mode of life. Collectively, such concepts/dimensions provide individuals with the grit and courage to be motivated in utilizing challenges and threats into their own personal growth. According to Bartone (2006) hardiness is a personal style and a general pattern of performance that involves behavioral and cognitive characteristics impacting the self-image of individuals and their interactions with the outside world.

Individuals with high level of hardiness are more mentally and psychologically stable and healthy compared to individuals with low levels of hardiness (Kitan & Abdul, 2020). Moreover, they are less likely to experience work-related exhaustion, and are able to actively withstand difficult situations and capable of providing solutions to their problems (Lambert et al., 2003). Furthermore, they possess a high sense of commitment to their goals and values, great control over their lives, view hardships as opportunities for growth rather obstacles, are more satisfied and happier in life, and able to demonstrate compatibility and flexibility in their mentality and behaviors (Zeer et al., 2016). Kuang et al. (2021) argued that high levels of hardiness are correlated to improving the quality of life and self-efficacy, while a decrease in hardiness is a threatening factor to decreasing self-efficacy, social support, and high blood sugar, with a decrease in the quality of life (Alhaj-Mahmoud & Ahmad, 2021).

The study also shows that interventions aimed to enhance hardiness improve the quality of life and self-efficacy of diabetics. Additionally, Oral and Karakurt (2022) indicated that hardiness is associated with an abstract attitude towards influencing events, control anxiety and negative emotion, overcoming setbacks and learn from experiences, and positive attitudes towards life in general. In contrast to individuals with low levels of psychological hardiness, who have great chance of experiencing anxiety, depression, and a sense of incapability, and less actively involving in overcoming challenges (Mazzetti et al., 2020). Moreover, individuals with low levels of psychological hardiness tend to isolate themselves, resolve to drug abuse in an attempt to escape from life stressful events and hardships, and fail to provide emotional support to their families, resulting in compromised and tensioned family ties (Nemati, 2019).

Quality of Life

Recently, various research and studies in psychology focused on positive psychology, which is mainly concerned with developing personal strength aspects of individuals. Quality of life is one of the significant topics of research and study. Until 1978 members of WHO suggested a definition to the quality of life, which is exclusive to medical and health evaluation i.e., quality of life is an evaluation of individuals psycho, socio, and physio conditions regardless of whether an individual is suffering

from disease or not. However, Brousse and Boisaubert (2007) stipulated that quality of life is the right of individuals for a psychological welfare and a quality of life in addition to their physiological welfare. In 1975 the term quality of life (QoL) was used as a medical term, and used systematically in the early 1980s in oncology, when physicians were faced with an increase cost of treatment in order to expand the life span of cancer patients. Quality of life was an efficient contribution to the research regarding patients care, reflecting the extent of respect and appreciation of patients' feelings and satisfaction with medical services provided to them, besides the traditional notion that revolves around the illness itself (Berlin & Fleck, 2003).

The concept of quality of life is subject to variation according to the time, the mental state of individuals, and age (Abu-Huwaij et al., 2024). That is, happiness can hold many meanings to the same person depending the situation a person is experiencing; a sick person might find happiness in health, a poor person sees happiness in wealth, thus, concepts change and alter with along with the circumstances surrounding individuals. There are however factors that impact quality of life indicators such as the ability to think in a rationale manner, take decisions, managing surrounding circumstances, physio and psycho health, economic and social conditions, and religious beliefs and cultural values by which patients are able to identified their core essentials of happiness in life (Shalock, 2004).

Quality of life can be characterized as the quality of material and social services provided for individuals in a given society, and the inclination into a luxurious lifestyle that can be achieved within a society of abundance. Such society is able to overthrow difficult living condition to the majority of its members (Vreeke et al., 1997). It can also be defined (in light of self-determinants) as individuals' satisfaction with their shares and position in life, an inner feeling of comfort, independence and self-satisfaction. It is a reflection of the human self, with the achievement of a general feeling of comfort, satisfaction, happiness, pleasure and success. It is associated with individual's personal values that determine his/her beliefs about their surroundings and the difficulties they face in order to achieve self-satisfaction. The quality of life is the individual's feeling of happiness and satisfaction in light of current life conditions, and is affected by daily life events, that changes the intensity of emotions and feelings, and is the subjective feelings of personal happiness and self-satisfaction with oneself and with the important aspects of oneself personal life (Sharlock, 2004).

According to WHO, quality of life is individual's realization of their own situation in life in a cultural context and the value they live by, and to what extent that is compatible (or not) with their goals, expectations, values, and interests regarding their physical health and mental state, the level of independence and autonomy, social relations, personal beliefs, and their relation to the environment in general (Rat et al., 2006). Didarlo and Alizadeh (2016) argued that age, education, duration of the disease, and family income are highly associated with all aspects of quality of life, moreover, diabetes-related diseases are highly associated with the quality of life in general. Whereas Zeng et al., (2016) revealed that diabetics enjoy an average quality of healthy life, and are more likely to report low degrees of pain and discomfort. The study also reports that some diabetics suffer from psychological dysfunction, in addition to experiencing fear of hyperglycemia (FOH) and low self-esteem. Furthermore, high levels of (FOH), low self-esteem, ageing, low academic achievements, high levels of glycated hemoglobin, and diabetes-related complications are associated with low level of healthy life quality. Ramya et al., (2022), concluded that there is statistically significant relationship between mental health and the quality of life of type 2 diabetics.

In the current study, quality of life is characterized as the feeling of a diabetic person towards his/her satisfaction in real life, self-awareness and realization, realizing the value and meaning of life, and a personal sense of an individual, despite its influence by material capacities. It is attributed to diabetics' awareness of themselves, and its reflection on the concept of their quality of life, having to live with a lifelong disease

while succeeding in their education and/or professionally, while others might describe it as the extent in which they adhere to God and demonstrating a grit and patience living with their disease.

Statement of the Problem

Diabetes is considered to be an increasing health issue and concern, targeting people regardless of their gender and age. Therefore, international research centers dedicate their human and funding capabilities by exchanging expertise and conducting various studies aimed to living with a chronic disease preventing health complications such as heart disease, hypertension, and kidney failure, and preventing psychological and social problems. In addition to paying attention to health psychology, diabetes prevention, committing to treatment plans and programs, and social support to enhance the quality of life of diabetics. This research was motivated by the topic of psychological hardiness, and its significance (and insignificance) to diabetics, moreover, its importance to diabetics living with their disease without any personal and/or social complications, considering that hardiness is an indicator and predictor of the quality of life of diabetics.

The interest with psychological hardiness was a result of various studies discussing the impact of hardiness on the quality of life see Kobasa, (1979-1983) indicating that hardiness is a positive personal trait with its aspects (commitment, control, challenge) that functions as a psychological factor in preventing psychological and physical effects of psychological stresses (Kobasa, 1983).

Studies show that hardiness and various psychological factors influence and are influenced by the quality of life of individuals. For example, Nawaz et al., (2014) find a relationship between hardiness and quality of life of diabetics in Pakistan. Moreover, Kuang et al., (2021) argues that psychological hardiness is associated with an improved quality of life and self-efficacy, and that a decrease in hardiness poses a threat to decreasing self-efficacy, in addition, hyperglycemia is associated with low quality of life. Hence, this research discusses psychological hardiness as a predictor of quality of life of diabetics in Jordan.

METHODS

Study Design

The research uses the descriptive correlational design, which was deemed compatible with the objectives of this paper.

Participants

The sample of the study consists of randomly selected (166) diabetics, after obtaining the data from The National Center for Diabetes Endocrinology and Genetics (NCDEG) of the Higher Council for Science and Technology (HCST) in Jordan. Participants represent various regions and backgrounds of the fabrics of the Jordanian society, taking into account their consent to participate in the study.

Measures

Quality of Life Scale was developed consisting of (41) statements/items, as adopted from the previous studies and the relevant literature e.g., (Kuang et al., 2021; Ramya et al., 2022). The scale covered (7) dimensions: Happiness and self-acceptance (7) items, social relationships (8) items, independence (7) items, adaptation to health and environment (7) items, meaning in life (6) items, personal growth and development (6) items. to test the validity of the survey, the survey was presented to a panel of experts in psychology, psychological guidance and counseling, and Arabic language. The panel provided their feedback about the items, and the language used in the survey. After reviewing the panel feedback, all (41) items were deemed fit for the final version of the survey. Moreover, to test the construct validity of the instrument, a pilot study was conducted consisting of (30) diabetics outside the original study community. The correlation coefficients between the items and the overall score of the scale were calculated, which range between (0.43-0.71). The survey reliability was tested using

Cronbach's Alpha mounting to $\alpha = (0.95)$, and 5=points Likert scale was used to rate responses as follows: low (1-2.33), average (2.34-3.67), high (3.68-5).

Psychological Hardness a scale was developed after reviewing the relevant literature in particular, (Nawaz et al., 2014; Al Eid et al., 2023). The survey consisted of (24) items covering (3) main dimensions: commitment (9) items, control (8) items, and challenges (7) items. The survey was presented to a panel, and no alternations were needed. Construct validity of the measure was tested by a pilot study consisting of (30) diabetics outside the original study. Correlation coefficient values between the items and the dimension they intend to measure range between (0.51-0.72) for commitment, and (0.48-0.78) for control, and (0.68-0.78) for challenges. The survey consistency was tested via Cronbach's Alpha to $\alpha = (0.86)$, and 5=points Likert scale was used for items rating; (1-2.33) low, (2.34-3.67) average, and (3.68-5) high.

Procedures

After identifying the research problem, the measuring instruments were developed and the psychometrics properties were identified. The survey was both paper-based and online (Google Forms) self-administered questionnaire. Ministry of Health granted the researchers a permission to collect patients' data from the relevant department. The data indicated that diabetics suffer from psychological and physical conditions, upon which patients were directly contacted to obtain their consent to participate in the study. Participants were able to choose to receive the paper-based form or the online form, after explaining to them the purpose of the study. Guaranteeing that their responses are used for research purposes only. Surveys were then sent to the participants, and upon receiving their responses the data were then exported and analyzed via SPSS software.

Data Collection

In order to answer the first, and the second questions of the research, *Mean* and Standard Deviation of the responses were calculated. Whereas, the multiple linear regression (MLR) analysis using (Stepwise Method) was used to answer the third question.

RESULTS AND DISCUSSION

Results

To answer the descriptive questions regarding the levels of quality of life, and the levels of hardness of diabetics, the mean (m) and standard deviation (SD) values were calculated and shown in table 1.

Table 1 Mean and standard deviation values of quality of life, and psychological hardness and their dimensions.

Quality of life dimensions	No	M			SD
		Value	Rank	Level	
Social relations	2	4.38	1	High	0.58
Independence	3	4.28	2	High	0.62
Meaning in life	5	4.15	3	High	0.67
Happiness and self-acceptance	1	4.00	4	High	0.64
Personal growth and development	6	3.95	5	High	0.70
Adaptation to health and environment	4	3.82	6	High	0.76
Total		4.11		High	0.57
Psychological hardness dimensions					
Commitment	1	4.17	1	High	0.65
Control	2	4.04	2	High	0.71
Challenge	3	2.95	3	Average	1.10

below. According to table 1. the mean value of quality of life is (4.11) with (0.57) SD, indicating a high level of quality of life. Whereas, the mean values for the psychological hardiness dimensions were respectively as follows: commitment (4.17) with (0.65) SD, control (4.04) with (0.71) SD, indicating high levels of commitment and control, while challenges demonstrate an average level with mean of (2.95) and (1.10) SD.

To answer the third question regarding the predictive ability of psychological hardiness dimensions on predicting the quality of life of diabetics in Jordan, the MLR analysis was used where psychological hardiness dimensions (commitment (x_1), control (x_2), and challenges (x_3)) were coded/entered into the model as predictors of quality of life (y): according to the staircase method, as shown in Table 2.

Table 2. Results of multiple linear regression analysis of predictors (dimensions of psychological hardiness) on the predictor (quality of life)

Dependent variable (quality of life)										
Predictors	Correlation coefficient R			Correlation coefficient R ²			Unsterilized β			
	Pearson`s	Semi-partial	Multiple	Joint	Relative	Value	SE	T	Standardized β	
		Value	Rank							
Commitment <i>x</i> ₁	0.85	0.85	1	0.85	0.7254	0.7254	0.45	0.05	*9.13	0.52
Control <i>x</i> ₂	0.82	0.25	2	0.89	0.7889	0.0635	0.32	0.04	*7.16	0.40
Challenges <i>x</i> ₃	0.28-	0.13-	3	0.90	0.8052	0.0163	0.07-	0.02	*3.56-	0.13-

*Significant ($\alpha=0.05$)

Table 2 shows the following:

- A. Commitment dimension (x_1) entered the regression model for having the largest absolute value of Pearson's correlation coefficient, with a large negative relative effect of (72.54%) of the joint effect (80.52%) of the predictive model, with a high contribution rate of (90.09%) of the total variance explained; the more increase in the commitment level (z_1) by a standard unit, the quality of life (y) increases by (0.52) standard unit, with a significance ($\alpha=0.05$)
- B. Control Dimension (x_2) entered the regression model for having the calculated semi-partial correlation coefficient value with a small relative effect of (6.35%) of the joint effect (80.52%) of the predictive model. With low contribution rate of (7.89%) of the total variance explained; the more increase in the level of control (z_2) by a standard unit, the quality of life (y) increases by (0.40) in the standard unit with significance ($\alpha=0.05$).
- C. Challenge's dimension (x_3) entered the regression model for having the calculated semi-partial correlation coefficient with a small relative effect of (1.63%) of the joint effect (80.52%) of the predictive model. With very low contribution rate of (2.02%) of the total variance explained; the more increase in the level of challenges (z_3) by a standard unit, the quality of life (y) decreases by (0.13) in the standard unit with significance ($\alpha=0.05$).

Discussion

The study results reveal a high level of quality of life of diabetics in Jordan, this might be attributed to various factors such as: piety and spirituality, due to the religious tendencies observed among the Jordanian society; influencing their life experience, and overcoming medical hardships and health-related challenges. Faith and the unshaken belief in God, provides patients with patience and a sense of acceptance in their fate to accept their medical conditions, minimizing their negative feelings towards their sickness, moreover, improving the quality of their lives (Shalock, 2004).

The social support which characterizes the Jordanian society; the cohesion of families, friends, and society, involving emotional, moral, and financial support, might

have a significant impact in alleviating the burdens of illness, nurturing the sense of happiness and satisfaction in life, that helps in raising the quality of life among individuals (Vreeke et al., 1997). Moreover, health awareness, and the accessibility to diabetes medical assistance and services including periodical tests and medications allow patients to better cope living with the disease, therefore, improving the quality of their lives (Berlin & Fleck, 2003). Additionally, adapting with the disease as well as enjoying some extent of psychological hardiness through developing effective techniques and mechanisms to cope with the disease play a major role in enhancing the quality of their lives (Ramya et al., 2022). In addition to a positive mindset in life, nurturing a sense of optimism and hope for better life are factors that improve the quality of their lives (Brousse & Boisauvert, 2007).

With regard to the order of quality-of-life dimensions, the order might be a reflection to their priorities and values in their lives, and the challenges and needs related to their disease;

1. Social relations might reflect the importance of social relationships in the Jordanian culture, and the role of social support in the lives of diabetics. Social support from their families, friends, and the community enhances patients' chances to adhere to the treatment, reduce sense of loneliness and isolation, and enable them to share their feelings and experiences with others.
2. Independence might reflect their desire to be independent, and their ability to be in control of their financial, social, and personal lives, without being completely dependent on others, despite their disease.
3. Meaning in life: This dimension indicates the significance of the existential and spiritual aspects through faith (religion), family, work, helping others, and achieving their personal goals; diabetics may find their disease as an opportunity to reflect on life, re-evaluate priorities, and discover the true meaning of life (Shalock, 2004).
4. Self-acceptance and happiness: Self-acceptance represents reconciliation with oneself, accepting one's strengths and weaknesses, and the new reality of their life with their disease. Happiness is achieved by focusing on the positive aspects of life and developing positive relationships.
5. Personal growth and development: diabetics might view their experience with the disease as an opportunity for personal growth and development; learning lessons and skills to cope and overcome challenges, an opportunity for spiritual and mental growth, besides appreciating the value of health and life.
6. Adaptation to health and environment: Diabetics might have adapted to their surrounding environment and their medical conditions, leading a normal lifestyle, and they may emphasis the psychological, social, and spiritual aspects of quality of their life, while they consider their health and environmental adaptation to be part of their daily routine, they may have confidence in the Jordanian healthcare system and their ability to access the necessary healthcare. Therefore, making this dimension less important in assessing the quality of their lives. The interpretation of quality of life and its dimensions is associated with the cultural, social, and psychological context of the patients, thus priorities may differ for diabetics in other cultures and contexts (Rat et al., 2006).

The results also reveal high level of psychological hardiness in both (Commitment and Control) dimensions, and an average level of Challenges.

The order of dimensions of psychological hardiness of diabetics in Jordan can be explained as follows: Firstly, high levels of Commitment may indicate the importance of this dimension in their lives and their experience with the disease. The importance of commitment is demonstrated by committing to the medication, regularly monitoring

their blood sugar, committing to self-care, and a sense of purpose and meaning. Diabetics may commit to personal, professional, or social goals that go beyond their disease, which enhances their sense of value and importance (Kuang et al., 2021). The cultural context also represents cultural values that enhance commitment among diabetics through commitment to pay attention to their health for the sake of family and society. Moreover, faith and religious beliefs may also enhance their patience, endurance, and commitment in withstanding and overcoming their medical conditions (Zeer et al., 2016). Secondly, the dimension of control was observed to be at a high level, which explains the need for patients to be in control of their disease and their life in general. The sense of control enhances their ability to manage the disease effectively, make informed decisions about treatment and self-care, reduce their sense of helplessness, and enhance self-confidence. The social context in Jordan reflects the desire for independence and self-reliance (Lambert et al., 2003). Thirdly, the dimension of challenges was shown to be at an average level. Indicating that diabetics view diabetes ensued challenges to be moderate, rather extreme and at high levels, accepting that change and adjustments and challenges for that matter as part of life. Hence, they might not think of their disease as an opportunity for personal growth and development, as much as a burden that requires management and adaptation (Nemati, 2019). They also believe that focusing on managing their disease, is far much important than pursuing growth. Furthermore, they perceive the moderate and average level of challenges as a reflection of their reality living with a chronic disease, in other words, managing the risks of the disease is much important than considering the disease as an opportunity to personal change and their perspective to life in general (Oral & Karakurt, 2022). Moreover, they prefer a stable route managing their disease rather attempting change, which might be directed into the stable approach they seek to manage their disease (Mazzetti et al., 2020). Generally speaking, the order in which psychological dimensions ranked in-indicates the importance of commitment and control in particular, in their experience with the disease, these dimensions highlight their need to manage their disease and maintain physical and mental health in light of the constant challenges imposed by diabetes.

The results also indicate the multiple linear regression analysis to understand the impact of the independent variables (dimensions of psychological hardiness: commitment, control, challenges) and how they can predict a single dependent variable (quality of life), and which dimensions of psychological hardiness contribute most to explaining the variance in quality of life of diabetic in Jordan (Ramya et al., 2022), as well as understanding the direction and significance of this relationship:

1. Commitment was entered first for having the strongest simple correlation with quality of life; therefore, it was entered as the first predictor in the model. It revealed a large relative effect (72.54%) of the joint effect, indicating that commitment explains a very large proportion of the variance in quality of life out of the total predictive effect of the entire model (80.52%). This indicates that commitment is the most significant and influential predictor, with a significant contribution (90.09%) of the total variance explained (80.52%). Diabetics who enjoy high levels of commitment (sense of purpose, engaging in activities, belief in the value of work) tend to enjoy a better quality of life (Nawaz et al., 2014; Zeer et al., 2016).
2. Control was also introduced to measure the semi-partial correlation between the predictor (control) and the dependent variable (quality of life), for having the second strongest correlation with quality of life. The relative effect was relatively small (6.35%) of the total joint effect. This shows that control adds predictive value with a small contribution (7.89%) to the total variance explained (Zeng et al., 2016). The more control diabetic patients feel over their lives (the ability to influence life events, the sense of self-efficacy), the higher

their quality of life (Kuang et al., 2021).

3. Challenges was also entered, and the relative effect appears very small (1.63%) of the total joint effect; demonstrating that challenges add very little predictive value, with a very small contribution (2.02%) of the total variance explained. The negative direction (-0.13): the negative value (-0.13) indicates a negative relationship between challenges and quality of life. That is, an increase in the feeling of challenge (viewing problems as challenges and opportunities for growth) is associated with a minor decrease in quality of life of diabetics (Imran, 2009). It is possible that participants interpreted the challenge dimension differently than originally intended by psychological hardiness theory. They may have associated "challenges" with the negative and stressful aspects of diabetes, rather than the positive opportunities for growth and development, and focused too heavily on challenges; not an ideal coping strategy in the context of diabetes (Bin Trad & Bakoush, 2017). With this said, future studies are encouraged to further study and attempt to understand the excessive focus on challenges may be unhelpful for diabetics Jordan.

Limitations and future suggestions

While the results of this study are significant, they however subject to certain limitations; the sample size might have played a role in stipulating the results of the study. Nevertheless, according to (Fraenkel et al., 2014), the sample size within a correlational study should consist of at least (30) participants. Moreover, self-administration of the questionnaires might pose another limitation, i.e., it requires objectivity from participants, which is assumed by the study.

Despite the aforementioned limitations and constraints, workshops, specified courses, and designing preventive and counseling programs can be useful to raise awareness among diabetics of the importance of committing to diabetes treatment programs. This is attributed to the significant relationship between physical and mental health, which in turn leads to increased levels of psychological hardiness, consequently, impacting their quality of life. Diabetics may benefit from the results of this study by increasing their awareness of the importance of enhancing psychological hardiness to achieve a high-quality life for individuals with diabetes. The results of the study may stimulate future clinical studies involving psychological counseling programs aimed at raising the levels of psychological hardiness and quality of life through optimal coping with their disease. Further studies may support (or disprove) the results of this study.

Conclusion

The results of this study might motivate future researchers to conduct more studies aimed at designing programs to enhancing psychological hardiness levels of diabetics. The study also encourages future research to support or disprove the results of this study, in particular, the relationship between high levels of psychological hardiness and improving the quality of life of diabetics.

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