

Relationship between person's health beliefs and diabetes self-care management regimen



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Purpose: To examine the relationship between the health beliefs of Saudi adults with type 2 diabetes mellitus (T2DM) and their adherence to daily diabetes self-care management regimen. A secondary aim was to examine the health beliefs of adults with a diabetic foot ulcer (DFU) and participants without a DFU.

Method: Descriptive correlational design with a convenience sample of 30 participants. Participants were recruited for this pilot study from an outpatient clinic at King Abdulaziz Medical City in Riyadh. The participants completed self-reported questionnaires about their health beliefs, daily diabetes self-care management regimen, and demographic characteristics. Hierarchical multiple regression analysis was used to test the interaction effects.

Findings: Participants who reported having a high internal health locus of control (IHLoC) and a high level of self-efficacy (SE) adhered well to their foot care regimen ($P = .038$). The more the participants believed that God controls their health, and the higher their SE, the greater the participant's adherence to their medication regimen ($P = .035$). The stronger the participant's belief that following their diabetes treatment regimen will lead to good outcomes, the greater the participant's adherence to their dietary regimen for those with a low IHLoC ($P = .015$). Participants with a high SE and reported that their doctor is able to help them control their diabetes were more likely to follow their dietary regimen ($P = .048$). Participants with a DFU reported having additional health conditions besides T2DM ($P = .018$) and had less than a college education ($P = .015$). Although participants with a DFU reported that they were responsible for their diabetes ($P = .21$), they stated that God manages their diabetes ($P = .29$), and the disease can be controlled based on luck ($P = .10$).

Conclusions: Participants' beliefs were found to influence their daily self-care management regimen. Further studies are needed using a larger sample. (J Vasc Nurs 2017;35:187-192)

Diabetes mellitus is one of the most common long-term problems worldwide,¹ especially in the Middle East and North Africa countries.² Type 2 diabetes mellitus (T2DM) is the most prevalent form of diabetes cases in these countries,² and it is expected

that 635 million adults will suffer from T2DM by 2040. In Saudi Arabia, the prevalence of T2DM is projected to increase to 44% by 2022 as the rates of obesity continues to rise.³ If T2DM is not well controlled, patients are at risk for developing secondary health care conditions, such as peripheral vascular disease.⁴ According to data from the Saudi National Diabetes Registry database of 62,681 Saudi adults with diabetes, 95% of the patients had been diagnosed with T2DM, 37% of them had experienced a diabetic foot ulcer (DFU), and 33% of them had required a lower extremity amputation.⁵ Therefore, people with T2DM are encouraged to follow a healthy lifestyle and perform daily self-care management regimen to effectively manage the disease.⁶ However, some participants with T2DM ($N = 220$) do not follow their daily self-care management regimen such as taking their prescribed medication because they perceived that their risk for developing complications was low (19%) or moderate (35%).⁷ In another study, participants with diabetes ($N = 222$) perceived that performing their self-care management regimen had moderate benefits for their health (44.2%), and only 39.2% of them performed the recommended self-care management regimen.⁸

The health beliefs of people with diabetes have been found to influence their self-care management.^{9,10} However, little is known about the relationship between a person's beliefs and their health behaviors in a Saudi population. The purpose of this study is to examine the relationship between a Saudi adult with T2DM reported self-efficacy (SE), health locus of control (HLoC), and outcome expectancy on their level of adherence

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to diabetes self-care management regimen. The diabetes self-care management regimen includes adhering to diet, exercise, blood glucose monitoring, medication, and foot care. A secondary aim was to examine the health beliefs of adults with a DFU and participants without a DFU. Five dimensions of the concept of HLoC are examined in this study, which are internal HLoC (IHLoC), doctor (DHLoC), God (GHLoC), chance (CHLoC), and other people (OPHLoC). Rotter¹¹ classified the concept of the HLoC as a unidimensional construct in which the person can hold either internal or external beliefs. Individuals with an internal locus of control believed that they have the ability to control the desired outcome. However, people with an external locus of control believed that they did not have the ability to control the desired outcome. In this pilot study, DHLoC, GHLoC, CHLoC, and OPHLoC will be considered as dimensions of external HLoC. Accordingly, people with CHLoC are thought to perceive that the outcomes of their behavior is out of their control, and occurs randomly because of luck or fate. People with OPHLoC perceived that they have minimal power to control their health outcomes, as other people such as family members or friends, influence their behavior and health outcomes. People with GHLoC perceive that they have no control over their health and illness, as only God controls their health and illness. Participants with DHLoC believe that their doctor can aid them to achieve their desired health outcome.

THEORETICAL FRAMEWORK

The modified social learning (MSL) theory will be used as the theoretical framework for this pilot study as its assumption allows studying the interaction effect between health beliefs.¹² The main assumption of MSL theory is that there are different types of beliefs that interact with one another to predict a person's health behavior. The theory predicts that people who have a high IHLoC, high SE, and high value of health will engage in healthy behaviors.¹² In this pilot study, the authors hypothesized that Saudi adults with T2DM who have a high SE, high internal health, and high value of self-care management regimen outcomes (Outcome Expectancy) will have greater adherence to their diabetes self-care management regimen.

METHODS

Design and sample

A descriptive correlational design pilot study was conducted at an outpatient clinic at King Abdulaziz Medical City in Riyadh (KAMC-R), Saudi Arabia. A convenience sampling (N = 30) was used, and participants were eligible for inclusion in this study if they were Saudi, ≥ 18 years old, have T2DM, and can speak Arabic.

Instruments

After the informed consent process was completed, participants anonymously completed five self-report questionnaires. After completing a questionnaire about the participants' demographic characteristics, the participants completed the Arabic version of form C of the multidimensional health locus of control scale, which was used to measure IHLoC, DHLoC, OPHLoC, and CHLoC. The participants additionally completed the Arabic version of God locus

of health control scale, which were used to measure health locus of control. The participants also completed the Arabic version of part III of the multidimensional diabetes questionnaire, which was used to assess SE and outcome expectancy. The participants completed the Arabic version of the revised and expanded summary of diabetes self-care activities scale, which was used to measure participants' level of adherence to diabetes self-care management regimen. The authors reported the reliability and validity of the questionnaires in an earlier published paper.⁹

Data analysis

Data were analyzed using SPSS 22 (IBM Corp, Armonk, NY).¹³ Hierarchical multiple regression was conducted, and four blocks were created. The first block included gender and marital status to control for their effects. The second block contained the mean-centered independent variables. The third block included the two-way interactions (the products of SE, health locus of control, and outcome expectancy), and the fourth block consisted of the three-way interactions. A significant interaction term implies that a moderating effect exists between the beliefs being tested (P value $< .05$). A t test was conducted to examine the differences in the health beliefs of participants with a DFU and participants who did not have a DFU. The cut-off value was set at 0.05 to determine a significant difference between the health beliefs of participants with a DFU and participants who did not have a DFU.

Ethical approval

The ethics review board from the University and King Abdullah International Medical Research Center in Riyadh, Saudi Arabia approved this pilot study. The authors maintained the standards of ethical conduct in research and protected the participants' privacy and confidentiality.

RESULTS

Participants' characteristics

All participants in this pilot study were Saudi. Most participants were men (60%), married (67%), ≤ 49 years of age (52%), and did not have a college degree (63%). Most participants belonged to a tribe (77%), had diabetes for more than 1 year (87%), did not have a DFU (60%), and had a comorbid illness besides diabetes (67%). The full description of the participants' demographic characteristics can be found in a previously published study.⁹ Most of the 12 participants ($n = 8$) with a DFU had less than a college education (67%; $\chi^2 = 5.92$, $P = .015$) and 11 participants with a DFU reported having additional health conditions besides T2DM (92%; $\chi^2 = 5.62$, $P = .018$). Conversely, most of the 18 participants ($n = 14$) without a DFU had a college education (78%; $\chi^2 = 5.92$, $P = .015$) and 9 reported no other health conditions besides T2DM (50%; $\chi^2 = 5.62$, $P = .018$).

Interactions between beliefs

After controlling for gender, marital status, and main effects, eight two-way interactions were found to be statistically significant (see Table 1). The significant interaction term indicates that a moderating effect exists between beliefs.

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