



## ORIGINAL RESEARCH

## Ethnic Diversity and its Effect on Illness Perception and Self-Management of Type 2 Diabetes Patients

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### Abstract

Israel is a country with a mosaic of different cultures. All residents undergo a process of change and are united under a single culture. The study main purpose was to investigate whether Ethnic diversity have effect on illness perception and self-management of Type 2 Diabetes patients (DSMES) in Israel. The methodology used was a descriptive, exploratory design, 250 patients with Type 2 diabetes mellitus (T2DM), born in Israel, or in the former USSR, aged 35-75, (response rate 80%). Two instruments were used: The Illness Perception Questionnaire and Diabetes Self-Management Questionnaire. A significant positive correlation was found between illness perception and self-care management among the two ethnic groups: The Israeli natives comparing to Immigrants from former USSR. The Immigrants from former USSR attributed less importance to the T2DM perception, and DSMES, compared to those who were Israeli's born. These findings provide further evidence about the important significance of the reference to the subject of cultural diversity. The study's results highlight the challenges of the nurses, who are the patients' advocate, and in addition, within their framework, they must deliver and enable the provision of support and guidance to all patients especially the new immigrants. In conclusion, activities should be aimed at developing awareness of ethnic diversity, offering the patients a chance to acquire and exercise proper illness perceptions and self-managements and providing them tools that they can reuse when exposed to any health change that may occurred.

### Keywords

Ethnic diversity, Diabetes type 2, Self-care management, DSMES, Illness perception, Nursing care

### Introduction

Israel is a land of immigration - a diverse society with a mosaic of different cultures, where all residents, Jews and non-Jews, religious and secular, undergo a process

of change and are united under a single culture. The Israeli society is like a colored puzzle with many ethnic groups, which can also be described as a "cultural mosaic" - a mix of ethnic groups, languages, and cultures that exist within society [1]. Since 1948, many waves of immigrants from all over the world arrived to Israel. In "Operation Moses" (1984-1986) and "Operation Solomon" (1991), over 30,000 Jews arrived from Ethiopia. In addition, the influx of the Jewish immigrants from the Soviet Union in the 1990s was the largest immigration wave, about one million people; in absolute terms, 15% of the Israeli population [2]. Lots of immigrants from all over the world immigrated to Israel and increased the population of the country by over 12 percent in six years. Today there are 8,000,000 citizens in Israel, of which 74.9% are Jews and approximately 20.73% are Muslims [3]. As for the time being, Israel has not as yet accrued long-term experience in combating disparities in its healthcare system [4]. That is why this study will answer the question: Does ethnic diversity have effect on illness perception and self-management of Type 2 Diabetes patients? Two large population groups in Israel will be discussed and compared: Native-born Sabras, as opposed to immigrants from the Soviet Union. Therefore, the basic characteristics of each group and group will be displayed here shortly:

A 'sabra' (Hebrew: *tzabar*) is an informal term that refers to any Jew born in Israeli territory, and first appeared in the 1930s, referring to Jews who had been born in Ottoman or Mandatory Palestine [5]. The sociological characteristics of the sabra were examined by Oz Almog in his book 'The Sabra - The Creation of the New Jew' [6]. Almog [6] describes the image of



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the native-born Israeli by eight characteristics: Elitism, self-satisfaction; Directness; Roughness; Social involvement; Sociability, spending time with friends and family; Temperament and joy of life; Curiosity and initiative; Non-conformism and criticism.

These characteristics are quite different from the characteristics of other group - immigrants from the Soviet Union. The uniqueness of the Jewish immigrants from the Soviet Union is the high human capital which is very impressive and important. It was an extraordinary wave of immigration compared to immigrants in other immigration countries. The Central Bureau Statistics in Israel [7] studied the integration of the former Soviet Union Jews in Israel. They found that the rate of the immigrants who had academic degrees (BA, MA and PhD) among them was very high, and one of the characteristics of immigrants from the Soviet Union is the composition of relatively older ages. The median age was 33.5 years, while the median age of the other immigrants was 26 years [7]. It was also noted in this survey, that the level of control of the Hebrew language and the community involvement of immigrants from the former Soviet Union decreased with age. Russian language has remained central to the immigrants' linguistic repertoire; it constitutes a language and a culture for many of them, including for the younger generation born in Israel [8].

At this stage, it is important to emphasize the issue of new immigrants' ways of coping with the new situation. Post, Pong, and Ou [9] described three styles of immigrants' behavior which is very typical to the Soviet Union immigrants: Assimilation, Separation, and Integration. The term Assimilation means abandoning former cultural habits and values in order to be accepted in the new country; The term Separation means: focusing on keeping own values and avoiding contact with the majority culture; and the term Integration means holding on to some aspects of the original culture (cultural integrity) such as central norms and values, and at the same time, trying to melt into the new cultural environment. Understanding these three styles is very important to us as professional's nurses so that we can recognize the basis of the immigrants' behavior and we must find adjustment patterns to help them in their illness perception and self-care management including education and support (DSMES). Most of the aged immigrants from the former USSR chose the strategy of separation, i.e. saving their culture of origin, while younger immigrants have chosen the integration strategy, which includes involvement in the surrounding culture while preserving their culture of origin.

Effective management of the Diabetes disease requires a complex plan for self-care and healthcare supervision [10]. About 90% of patients with diabetes worldwide have diabetes type 2, which was formerly called adult diabetes, but recently this type of diabetes

began to appear among young people and children. The disease is caused by inefficient use of insulin, which is largely the result of excess weight, an unbalanced diet, and lack of exercise. Treatment of diabetes is a lifelong condition that includes adherence to physicians' recommendations and diabetes self-management, which is a much more complex phenomenon that requires integration of many complex skills into the daily life of individuals. When the patient with diabetes improves his/her self-management, it can prevent or significantly slow the progression of the disease and its complications [11]. The prevalence of diabetes across the world has increased from year to year. According to W.H.O. report [12], an estimated 422 million adults were living with diabetes worldwide, compared to 108 million in 1980. Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries [13]. Paralleled to presenting the status of the diabetes disease around the world, The Israeli Ministry of Health [13] reported that Israel was ranked among the first five countries in which diabetes mortality rates were the highest. The Israeli MOH attaches great importance to the prevention of diabetes and its complications. For this purpose, it acted to improve the monitoring of the disease, by establishing a National Diabetes Registry at the Center for Disease Control at the Ministry of Health [13], and regulating reporting on pre-diabetes, diabetes and its complications. This is to enable planning health care services and programs to prevent diabetes and its complications in the population. At present, we do not yet have updated diabetes prevalence rates of the last years [13].

It is important to note and emphasize the issue and the impact of health behavior in diabetes, as expressed in the perception of the disease and self-management of the disease. Diabetes has a significant impact on the daily lives of people, their families, healthcare and more. There are also cultural and environmental factors that affect the disease itself and the ADA note that Diabetes is a disease that can be viewed as a link between one's ethnicity and race and the incidence of the disease among this group [11]. Barriers to illness perception and self-management can be communication barriers like distrust, misunderstanding, and educational methods, or also organizational barriers like quality of care and access issues. Consequently, there is a need to improve cross-cultural communication and to develop different approaches to diabetes education [14].

In summary, the purpose of this study was to investigate the impact of ethnic diversity on illness perceptions and diabetes self-management education and support (DSMES) by comparing two ethnic groups in Israel: Those born in the Soviet Union compared to Israeli native-born, and how they related to illness perception and DSMES, which might have implications to the delivery of nursing and health care. The author believes that illness perception and DSMES lead to life satisfaction,

which has important value concerning the patient's well-being. This research is important due to its unique point of view. No previous research was found in Israel concerning this issue and exploring the two ethnic groups: Soviet Union compared to Israeli native-born, might reveal a different angle and new approaches concerning self-care management including the education and support that can be recommended for treatment of the population.

### Self-perception of the diabetes disease

Self-perception is a set of features with which one identifies. It consists of convictions about one's general appearance, physical and intellectual condition, abilities, activity, social position, attractiveness, individual needs, moral regulations, etc. An individual functions properly when three basic psychological needs are guaranteed: Maintaining one's identity, self-esteem, and control over one's surroundings [15].

Leventhal's self-regulatory theory [16] distinguishes between two aspects of self-perception of the disease: emotional and intellectual. The emotional aspects are characterized by subjective emotional feelings resulting from the disease or the patient's general condition. The intellectual aspect is the patient's internal coping with the disease, thoughts running through his/her head, and it can vary depending on previous knowledge about the disease or information from the medical staff [16].

The self-regulatory model of illness behavior explains that during the outbreak of the disease, the individual is highly motivated to solve the problem and to achieve a state of equilibrium that is associated with the symptoms. It is solved in three stages: interpretation, coping and evaluation. These three stages continue until the individual appreciates that his/her way of coping is successful, and reaches a state of balance [17].

**Stage 1: Interpretation:** The individual can give meaning to the problem by recognizing the disease process: identity, causes, consequences, timeline, and control healing, allowing the individual to think and to consider appropriate ways of dealing with the disease.

**Stage 2: Coping:** The next step is to develop appropriate coping methods. Coping can take many forms, and in a situation of illness, the individual chooses the appropriate coping methods according to his/her personality in order to return to normal health [17].

**Stage 3: Evaluation:** At this point, the individual has found his/her way of coping and must decide whether to continue with the existing strategy or to choose another alternative, either to replace or modify, or to add additional coping strategies [17].

In summary, when the individual receives notification about his/her diabetes disease, he/she must pass through all three stages (interpretation, coping and evaluation) in order to regain equilibrium, and have good

self-perception of the illness and diabetes self-management including education and support. That is the basis of Leventhal's self-regulatory theory and it is the conceptual framework for this study.

### Diabetes self-management including education and support (DSMES)

Diabetes self-management including education and support (DSMES) is the fundamental aspect of diabetes care that includes diabetes self-management education (DSME), diabetes self-management support (DSMS), nutrition therapy, physical activity, weight management, and psychosocial care [11]. Diabetes requires lifelong behavioral changes, mostly through education, counseling, skills building, and support, through behavioral interventions offered by health care providers in order to enable people with diabetes to perform self-care and achieve the right balance. Diabetes self-management is instrumental in preventing complications [18], and balance is the keyword in life in general, and particularly among diabetes patients. Balance is achieved through dietary changes, exercise and medication and achieving balance is made possible through efficient DSMES that is tailored to the patient's needs.

Self-care in diabetes is an evolutionary process of development of knowledge or awareness by learning to survive with the complex nature of diabetes in a social context. The Behavioral changes are compound processes that are influenced by factors such as beliefs, attitudes, skills, motivation, and social support. The main factors of achieving behavioral goals are self-efficacy and belief in the ability to perform certain behaviors. In addition, the management of Type 2 diabetes mellitus (T2DM), is multi-disciplinary, and includes involvement of many health colleagues. Therefore, successful management requires comprehensive knowledge, patient education and cooperation, skills and self-care. Effective management of the disease also involves an effort that includes lifestyle changes and medication. These changes are not easy, especially when it comes to things such as diet, exercise and various other life-changing things [19].

Alongside the increase in the prevalence of diabetes, there are also negative effects of self-management of the disease, because diabetes affects the quality of life and productivity at work. Therefore it is very important to remember that diabetic patients' self-management leads to feelings of significantly positive self-ability, especially in combination with psychological and emotional support. Furthermore, in addition to self-management, it is important to seek help, such as consulting a diabetes clinic or a diabetes nurse, in order to get support, help, explanations and learning materials related to self-management of the disease [20]. The main recommendations concerning effective self-treatment of diabetes include encouraging the patient to actions such as the promotion of motivation, ongoing monitor-

ing of targeted results (evaluation), and education related to diabetes.

Due to the fact that diabetes is a disease that requires rigorous self-management by the patient, patients should be capable and responsible enough to take care of themselves, and to learn and maintain all the skills of self-management of diabetes. Self-management of diabetes is of great importance, since the adoption of behaviors that constitute a healthy lifestyle control the disease as much as possible and help prevent complications. Optimal management of the disease helps to maintain stability over time, prevents disease progression, and allows for better quality of life [17,21]. That is why, it is important to research the behavior of two Israeli ethnic groups having T2DM, concerning illness perceptions and self-care management.

In summary, in order to achieve Behavioral changes which are not easy and include complex processes, especially when it comes to things such as diet, exercise and various other life-changing issues [22], it is essential to gather and analyze information concerning these two ethnic group. Consequences of poor self-management of diabetes affect quality of life and productivity at work and for that reason it is very important to identify such behaviors, to encourage patients to seek help, and to get support [20].

#### The research hypotheses were:

1. A positive correlation will be found between the perception of T2DM, and self-care.
2. Differences will be found in the perception of T2DM between Israeli natives and immigrants from the former Soviet Union.

## Method

### Study design

This quantitative study consisted of a descriptive exploratory design that included a convenience sample of patients (n = 200) with T2DM, who filled out the survey.

The study questionnaires were distributed by nurses who worked in different HMOs (Health Maintenance Organizations) during two seminar days for diabetic patients, organized by the HMOs and municipalities on the issue of perception and coping with T2DM. The two seminars were held in central Israel. The first was held in an area where many immigrants from the former Soviet Union lived. The second seminar was held in an area where the majority of the population was a well-established population, living for many years in Israel. It is important to note that there was a high response rate to the questionnaires (80%), and a limit of 100 questionnaires was set for each of the two groups studied.

The high response rate of the respondents (80%) can be explained by three factors: 1) The event was a seminar in which patients with type 2 diabetes were in-

terested, and therefore it was easier to recruit them to answer the questionnaire; 2) The request to fill out the questionnaires came from nurses, and it is possible that the patients felt a certain obligation to fill out the questionnaire; 3) The questionnaire itself was anonymous, short, clear and simple, and therefore easy to answer.

The questionnaire included 21 questions. Participation of the patients was voluntary and the data was anonymous. Hardcopy questionnaires were distributed in order to encourage those who were deterred by technology to participate. The questionnaire was accompanied by an introductory letter including information about the purpose of the study, assurance of confidentiality, and each patient was asked to sign informed consent.

### Measures

The survey instrument was organized into three groups of questions: A. Background demographic factors such as age, gender, ethnicity, and education; B. Scale of illness perception [23]; and C. Scale of DSMES using the Diabetes Self-Management Questionnaire that was developed in order to facilitate the collection of appropriate data [24].

### Language equivalence of the questionnaire

The questionnaire was translated from English into Hebrew and Russian language separately by two expert nurses, speaking English, Hebrew and Russian to ensure the language equivalence of the scale. Then, a presentation form was prepared and asked the opinions of the experts about the questionnaire. The experts were asked to score each item on the presentation form to determine the consistency between the English and Hebrew and Russian items of the questionnaire. Experts who were consulted about the questionnaire provided their opinions about its language equivalence. The questionnaire items were revised based on the expert opinions. At this stage, the expert reported that the questionnaire were consistent with each other. In addition, the back-translated and original questionnaires were matched, and the Hebrew and Russian versions were finalized.

### Content validity questionnaire

Content validity of the questionnaire items was made by creating a presentation form for consulting expert opinion. The experts were asked to score each item regarding content validity. All of the experts also scored all of the items regarding content validity. This analysis verified the content validity of the questionnaire.

It is important to note that Broadbent, et al. [25] systematically reviewed the use and performance of the Brief Illness Perception Questionnaire used. They reviewed 474 different publications that used the IPQ-R and their conclusion was that the Brief IPQ-R was useful across many applications and has provided further evidence for

its validity, and good test-retest reliability (Pearson correlations 0.24-0.73) had been demonstrated.

**Illness perception was measured** using the IPQ-R questionnaire, which is an instrument that assesses cognitive representations of a variety of illnesses in individuals [23]. The instrument has good psychometric properties (alpha scale 0.72-0.83) and assesses the following illness perceptions [23]: Identity Cause (ideas about what caused the illness), Timeline Acute/Chronic (beliefs about how long the illness will last), Timeline Cyclical (beliefs about the predictability or cyclic nature of illness), Personal Control (the extent to which an individual has control over illness), Treatment Control (beliefs about treatment effectiveness), Illness Coherence (extent to which an individual has a clear understanding of illness), Consequences, and Emotions.

The Illness Perception Questionnaire (IPQ-R) was adapted in this study and included 13 items that represented five chosen groups that the author believes are the main issues of illness perception. Each item was evaluated on a Likert scale ranging from 1 “does not affect at all” to 5 “affects very much”. Following are some examples of the questions:

**Emotional representation (6,8):** To what extent does your illness affect you emotionally? To what extent are you worried about your illness?

**Illness timeline (2):** How long do you think your disease will last?

**Treatment control (4):** How much do you think your treatment (medication, etc.) can help your condition?

**Illness coherence (1):** How much does your illness have an impact on your life?

An internal consistency test was conducted, and Cronbach’s alpha was found to be 0.57. Consequently, items 10 and 11 were removed (the importance of genetic background and unhealthy way of life as factors that caused your illness), following which Cronbach’s alpha was 0.701.

The items were coded so that a high score indicated a high level of perception of the disease. The negatively-keyed items (3, 4, and 7) were reverse-scored before the reliability analysis. High scores on the questionnaire reflected relatively high levels of the attribute being measured by the questionnaire. Reverse-scoring of the negatively-keyed items ensures that all of the items - those that are originally negatively-keyed and those that are positively-keyed - are consistent with each other.

**The Diabetes Self-Management Questionnaire (DSMQ)** was developed by Schmitt, et al. [24] at the Research Institute of the Diabetes Academy Mergentheim. It is the first German instrument targeting diabetes self-care, and was designed to assess behaviors associated with metabolic control within common treatment regimens for type 1 and type 2 diabetes in adult patients.

Sixteen items form the final scale for full psychometric assessment. Seven of these items are formulated positively and nine inversely with regard to what is considered effective self-care. The questionnaire presents itself as an efficient instrument which provides reliable and valid information on diabetes self-care.

The questionnaire consists of 5 items that measure self-care management. Each item was evaluated on a scale ranging from 1 “does not apply to me at all” to 5 “applies to me very much”. For example: “I check glucose levels in my blood regularly”. Items were coded so that a high score indicated a high level of self-treatment behavior. The original Cronbach’s alpha was 0.84. An internal consistency test revealed that Cronbach’s alpha was 0.58. Question 14 was removed, following which Cronbach’s alpha was 0.62. Means and standard deviations of the study variables were measured as follows: Self-perception of diabetes -  $M = 2.96$ ;  $SD = 0.63$ ;  $Range = 3.10$ ; Self-care management -  $M = 3.02$ ;  $SD = 0.79$ ;  $Range = 3.25$ .

### Study size

This was a convenience sample with good responsiveness, and the study size was finally included 100 participants from each group.

### Statistical methods

**Data analyses:** Descriptive statistics were employed, i.e. means and standard deviations of sequential variables and frequencies of categorical variables. Pearson correlations were used to measure the relationships between variables using a hierarchical regression model.

## Results

### Participants

Out of the 250 questionnaires, 200 were returned (total response rate 80%). With regard to the characteristics of patients, 50% were native born and 50% former Soviet Union immigrants. The sample included men and women with T2DM, aged 35-75, born in Israel and the former Soviet Union. 100 native Israelis and 100 immigrants from the former Soviet Union responded. 48% were males, 52% were high school graduates, and the rest had academic degrees (BA, MA, and PhD). No differences were found between the gender and the education level of the two groups of the sample. [Table 1](#) summarizes the sample characteristics.

The study main purpose was to investigate wheth-

**Table 1:** Sample characteristics.

Variable		N	%
Gender	Male	96	48%
	Female	104	52%
Level of Education	High School	105	52.5%
	B.A	58	29%
	M.A	28	14%
	PhD	9	4.5%

**Table 2:** Comparative data - Average and SD of the two groups in self-perception of diabetes and self-care management.

Scale	Former USSR N = 100		Israeli natives N = 100		df = 198
	M	SD	M	SD	
Self-perception of diabetes	2.44	0.40	3.47	0.30	20.45***
Self-care management	2.40	0.49	3.64	0.47	18.24***

\*\*\*p < 0.001.

**Table 3:** Differences between the two groups in gender.

Scale	Female (n = 104)		Male (n = 96)		T (df = 198)
	M	SD	M	SD	
Self-perception of diabetes	2.94	0.60	2.98	0.66	0.47
Self-care management	2.94	0.83	3.11	0.72	1.55

Note: p > 0.05.

er Ethnic diversity have effect on illness perception and self-management of Type 2 Diabetes patients (DSMES) between two ethnic groups in Israel. Two hypotheses were presented: 1. A positive correlation will be found between the perception of T2DM, and self-care; 2. Differences will be found in the perception of T2DM between Israeli natives and immigrants from the former Soviet Union.

**The first hypothesis** claimed that a direct correlation would be found between the perception of T2DM, and self-care; the more positive the perception of the disease, the more positive self-management is. To test this hypothesis, Pearson's correlation coefficients were calculated. The hypothesis was confirmed: A significant strong positive correlation was found between the perceptions of the disease and self-care management ( $r = 0.66$ ,  $p < 0.001$ ).

**The second hypothesis** assumed that a difference in the perception of T2DM, between Israeli natives and immigrants from the former Soviet Union would be found; patients from the former Soviet Union attribute less importance to the disease and self-treatment than natives do. A t-test for the average independent samples was performed to test this hypothesis. [Table 2](#) presents comparative data between the two groups.

The findings show that the hypothesis was confirmed. A significant difference in the perception of the disease between immigrants from the former Soviet Union and Israeli natives was found. Thus, patients born in the former Soviet Union (M = 2.44, SD = 0.40) attribute less importance to the disease compared to Israeli native-born patients (M = 3.47, SD = 0.30).

A significant difference between self-treatment behaviors between former Soviet Union immigrants and natives was also found [ $t(198) = 18.24$ ,  $p < 0.001$ ]. Thus, those born in the former Soviet Union (M = 2.40, SD = 0.49) attribute less importance to self-management compared to Israeli native-born patients (M = 3.64, SD = 0.47).

### Gender differences

In addition, no gender differences were found at

the self-perception of the disease and self-care management. T-test was performed for independent sample samples. [Table 3](#) presents the comparison between the two groups. The result is contrary to the results of Chiu, & Wray [26], which investigate if there are gender differences, and how these gender-related variables explain the gender-functional limitations relationship in adults with T2DM. They found that there is a difference between men and women in self-care perception and management, women had better diet and blood glucose self-monitoring behaviors than did men.

### Education differences

In order to check the effect of education on the dependent variables one-way variance analysis (ANOVA) was performed. No differences were found in the perception of disease and response to treatment in patients with different levels of education.

### Discussion

This study, based on Leventhal's theory [16], claims that patients develop thoughts and understandings about the nature of the disease, its causes, its effects, and how to cope with it, based on the emotional and behavioral characteristics of the individual's culture.

Jayne and Rankin [27], who studied the application of Leventhal's Self-Regulation Model with a group of Chinese immigrants with T2DM, concluded that Leventhal's self-regulation model was useful in profiling a vulnerable group whose diabetes management, social environment, and self-image could be improved through thoughtful patient education strategies.

Nguyen [28], who explored diabetes self-management strategies and behaviors among Vietnamese type 2 diabetes patients using Leventhal's model, revealed that participants built theories of the identity, causes, consequences, timeline, and controllability of diabetes, which were inconsistent with the medical literature. Participants labeled diabetes by their symptoms of hypo-/hyperglycemia, and they focused on the relief of these symptoms.

Using Leventhal's theory may help to predict health outcomes based on the ability of the individual to

self-regulate, manage, or solve threats to health such as diabetes. A deeper understanding of the experiences of the individual or group can aid in creating interventions for behavior adjustment. It is also important to remember that although members of a specific culture can have similar ideas and feelings about certain health issues like diabetes, every individual is unique in his/her personal experiences, personality characteristics, and exposure to external influences. A significant positive correlation between the perception of the disease and the patient's self-management was supported; namely, the more positive the perception of the disease, the greater the patient's self-management. Beard, et al. [29] noted that patients with diabetes, who had known the accurate assessments of their last HbA1c, were related to better understanding of diabetes care and had high levels of illness perception. Suzuki-Saito, et al. [30] claimed that some diabetic patients, who reported a good perception of their glycemic control, actually showed poor control, and this misperception might well hinder successful diabetes management. The author believes that the significant correlation between the perception of the disease and self-care management is very understandable, due to the fact that a high level of perception of the disease is congruent with positive beliefs and attitudes, all of which give the patient with diabetes motivation to promote and well manage his/her self-care by education and support.

The significant positive correlation between diabetes perception and diabetes DSMES is directly connected to the next research question that focuses on differences due to the patient's culture. Examining the difference between the two groups' perception of the disease and the patients' self-management, a significant difference was found between the two groups. Immigrants from the former Soviet Union attached less importance to the diabetes illness compared to those born in Israel. These results are consistent with the results of the study by Wilson, et al. [31] which found that ethnicity affects the perception of the disease and the patient's self-management among the groups examined. These findings provide further evidence about the important significance of the reference to the subject of cultural diversity. The difference between the two ethnic groups is the result of a large cultural difference resulting from the cultural diversity expressed in the values, perceptions, and attitudes of those immigrants, ages 40 and older, who acquired this throughout their lives in the Soviet Union. In addition to this, difficulties in learning and understanding the Hebrew language (reading, hearing and speaking) are a serious obstacle to acclimatization in the State of Israel. Most of the patients are not sufficiently fluent in the Hebrew language [8] and as a result, they do not always understand what they have been told by their nurse or physician. Therefore, because of language difficulties and different cultures, these patients do not understand the instructions given

to them by the caregivers. This finding can be explained by the fact that the average age of patients with T2DM, is usually high. Immigrants from the USSR were less integrated into the culture of the new country. They employ the separation behavior: Focusing on keeping their own values and avoiding contact with the majority culture. The various diabetes health specialists, especially nurses, may not have taken the necessary steps to estimate and assess the differences, with regard to different patients coming from different culture, in the perception of diabetes and how to manage it. The study highlights the challenges of the nurses, who are the patients' advocate, and within their framework they must deliver and enable the provision of support and guidance to all patients especially the new immigrants. These patients come from different cultures, they do not speak the language well and they find it difficult to acclimatize and maintain healthy behaviors that include correct illness perception and self-management.

It is a very important finding, which reinforces the significance of the special consideration of the cultural background of the patient with diabetes type 2. Nam, et al. [14] summarized the existing knowledge regarding various barriers of T2DM, management. Patients' adherence, attitude, beliefs, and knowledge about diabetes may affect diabetes self-management. Culture and language capabilities influence the patient's health beliefs, attitudes, health literacy, thereby affecting diabetes self-management [31,32]. The study's results also highlights the importance of collaborative working of all the care givers including nurses, physicians, social and community workers, that must consistency develop and implement an adaptive strategy and inclusive practice relating to health behavior.

This study has not found a difference between different levels of education in the perception of the disease and management of self-care. This result is contrary to the results of Sikron and Banderley [4] who found that the higher the level of education, the better self-care and awareness of the disease is. Additionally, no gender differences were found between the self-perception of the disease and self-care management. This result is contrary to the results of Chiu and Wray [26], who investigated if there were gender differences, and how these gender-related variables explained the gender-functional limitations relationship in adults with T2DM. They found a difference between men and women in self-care perception and management; i.e., women had better diet and blood glucose self-monitoring behaviors than men did.

### Implication for the nursing profession

Health promotion related to T2DM, is a relevant issue and a public health issue, and therefore nurses should continue to explore it in subsequent experiments, preferably based on larger and more diverse sample sizes, which include patients from all over the

country in order to better understand the impact of culture on the wellbeing and life satisfaction of T2DM patients, and to promote behavior that encourages understanding of the disease and how to treat it effectively. Abubakari, et al. [19] who investigated ethnic differences in diabetes-specific knowledge, illness perceptions, self-management, and metabolic control among black-African, black-Caribbean, and white-British populations with type 2 diabetes, found that disease (diabetes) knowledge-perception variation between different ethnic groups in the UK may partly influence overall disease outcome. It is plausible to recommend screening, identifying, and dispelling misconceptions about diabetes among ethnic minority patients by health care professionals as well as emphasizing the importance of self-management in managing chronic diseases such as diabetes. Self-control and strict adherence to the healthcare recommendations can prevent or slow down the development and complications of diabetes. Diabetes self-management education and support can improve outcomes and reduce costs. That is why it should be tailored to the patient's cultural background.

## Recommendations

Further research should be performed about the impact of culture on other ethnicities in Israel such as Ethiopian immigrants, Israeli Arabs, Druze, etc., to examine whether their self-management of treatment and perception of diabetes is lower than that of native Israeli Jews. In addition, self-efficacy is a significant characteristic that sometimes has a vital impact on the individual's behavior, and it would be very interesting to see if there is a connection in this case. The study's questionnaires did not include investigating the influence of the self-efficacy variable, which was found to play a central role in diabetic Turkish patients [33]. Cosansu and Erdogan [33] claimed that strengthening psychosocial factors such as self-efficacy may contribute to better adjustment to the diabetes disease. That is why it is recommended to research this issue. It is a very relevant issue, and it is most important to increase awareness among these populations in order to strengthen effective, culturally-sensitive diabetes self-management that can prevent or limit complications.

Investments should be made in resources such as educational tools (like newsletters and lectures) and the language and the contents of the lecture should be adjusted to the audience's ethnicity, with an emphasis on culture, language and its values, so that people feel comfortable and experience a sense of belonging. Information leaflets, printed in several languages, should be easy for the patient to read without having to struggle with the Hebrew language. It is also important to research the connection between the diabetes patient's self-efficacy and his/her culture, in regard to perception and disease management, in order to achieve better behavioral goals. In addition, the author recommends

creating training programs adapted to different populations coming from different cultures and speaking different languages. These programs are supposed to be performed in groups as well as customized individually. It is also very important to conduct regular monitoring and follow-up of the success of the process.

## Limitations

The present study has several limitations. The study sample is relatively small and includes only 200 participants and the sample is a convenience sample. In addition, we did not check the influence of the impact of socioeconomic status on the patient's self-management and perception of the disease, although there may be a link between these two variables.

## Conclusions

An individual's illness representation can change based on analyzing the outcomes and using different coping strategies with his/her illness such as diabetes. Some health behaviors may be affected by social or cultural factors, and we must be aware to it. We must apply methods that help us to help patients deal better with the disease and manage its treatment well. All this is for the purpose of improving and promoting the state of health and providing health welfare for the individual and the entire community. Activities should be aimed at developing awareness of this issue - ethnic diversity, offering the patients a chance to acquire and exercise proper illness perceptions and self-managements and providing them tools that they can reuse when exposed to any health change that may occurred.

In summary, it is most important for nurses to be alert to the diversity of the patients and to promote the quality of the nursing care. Therefore, it is essential to address each patient according to his or her culture, and make sure that he/she understands the meaning of the disease and the importance of DSMES.

## Ethical Consideration

The protocol for the research project was approved by a suitably constituted research ethics committee of the Academic Institution. The patients participated on a voluntary basis, and their rights to anonymity and confidentiality were ensured.

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