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The quality of life, symptoms of depression and coping with stress among individuals with type 2 diabetes – preliminary study

Dorota Kalka

Department of Applied Psychology SWPS Branch Faculty in Sopot
Head: prof. dr hab. K. Drat-Ruszczak

Summary

Aim. To compare quality of life, symptoms of depression and strategies of coping with stress among individuals with type 2 diabetes and healthy individuals in their middle age, and also to verify the correlation of the aforementioned variables.

Methods. 87 persons took part in the study: 42 persons with type 2 diabetes and 45 healthy persons. There were used 4 questionnaires with recognized psychometric properties.

Results. The results showed significant differences in the level of global quality of life, satisfaction with health and physical domain, symptoms of depression, and also in terms of reactive coping with stress, which focuses on emotions and avoidance.

Conclusions. Individuals with diabetes have lower global perceived quality of life and satisfaction with health and physical domain. In this group, the intensity of depressive symptoms is higher. Both groups use a task-oriented style with the same frequency in times of stress. Persons with diabetes use an emotion-oriented style more often than healthy persons, whereas the latter use an avoidance-oriented style. Both groups use various proactive coping strategies with the same frequency.

Key words: diabetes, quality of life, symptoms of depression, coping with stress

Introduction

The number of people suffering from civilization diseases, also known as chronic noncommunicable diseases, has been recently rising [1]. They influence considerably a sick person's global perceived quality of life as well as satisfaction with its various aspects [2], being the main cause of death worldwide at the same time [1]. One of these diseases is diabetes. In 2010 there were 285 million diabetics worldwide and this number is estimated to increase to 439 million by 2030 [3]. According to International Diabetes Federation, the percentage of people suffering from diabetes in Poland in 2011 was 10.6 % of the population, about 1/3 of which was undiagnosed

[4]. Diabetes is considered to be one of the main health care problems these days, both in medical and socioeconomic terms [1,5]. It affects people no matter of their race or place they live in. The results of the most recent international research on attitudes, wishes and needs connected with treatment of diabetes (Diabetes Attitudes, Wishes and Needs 2 – DAWN2) reveal that in Poland 19,2% of the sick may suffer from depression, and 56,7% live under intense emotional pressure related to the disease and its complications [6]. Therefore, coping with these difficulties is of a crucial importance. Personological approach is particularly useful "in a longer term and taking into account long-term consequences such as health" [7]. The selection of the used strategies depends on a situation an individual is in, his personal traits [8], and demographic characteristics such as age, sex, education and individual's current psychophysical state [9]. While coping with stress, a person may apply reactive strategies, which show the way an individual deals with an ongoing stressful situation, as well as proactive ones, which aim at avoiding or reducing stress and preventing development of difficulties in an early stage of their occurrence [10] or which give possibilities to personal development, enhance creation, and strengthen resources helpful in reaching own goals [11,12]. Recently, the importance of the strategy of the second type has been underlined. Anticipating and preparing for difficult situations has influence on tension reduction and increases readiness to cope with them, it helps to use and reinforce the resources before experiencing a difficult situation instead of eliminating stress-inducing factors after they occur [13]. The research results show that various proactive strategies are linked with an increase of satisfaction with life [11].

The purpose of this study was to compare quality of life, symptoms of depression, and ways of coping with stress among individuals with type 2 diabetes and healthy individuals in their middle age, and also to verify the association of the aforementioned variables.

Materials

87 persons took part in the research: 42 persons with type 2 diabetes and 45 healthy persons. Mean age in the examined groups was very much the same: 51,7 (SD=9,14) in the diabetes group and 48,46 (SD=9,32) in the control group, whereas median disease duration was 5,9 years (SD=3,22). The selection of individuals to the criterion group was based on the snowball sampling technique [14]. Quality of life in physical, psychological, social and environmental domain, as well as general level of satisfaction and satisfaction with health was measured in this study with World Health Organization Quality of Life Instrument (WHOQOL-BREF) [15]. Depression and exacerbation of its symptoms was measured with Beck Depression Inventory (BDI) [16]. Coping Inventory for Stressful Situations by Endler and Parker (CISS) was used to measure reactive strategies of coping with stressful situations [17]. This questionnaire measures three styles of coping with stress: task-oriented, emotion-oriented and avoidance-oriented. The latter can have two dimensions: engaging in a substitute

task (distraction) and seeking out other people (social diversion). Proactive strategies were measured with the use of The Proactive Coping Inventory (PCI) by Greenglass, Schwarzer and Taubert [21]. This questionnaire includes 7 strategies: proactive, reflective, strategic planning, preventive, instrumental support seeking, emotional support seeking, and avoidance coping.

Statistical analysis was made with the use of SPSS 20.0.

Results

Table 1 shows the results of statistical analysis in terms of group differences. Statistically significant differences in terms of global perceived quality of life and satisfaction with health-related and physical issues were found. No critical differences in regard to satisfaction with psychological, social and environmental area were found.

Table 1. **Comparison of average results regarding perceived quality of life**

	Diabetes	Control group	t	p
General level of satisfaction	3,02	3,55	-2,681	0,009
Satisfaction with health	2,81	3,78	-5,756	0,001
Physical domain	3,62	4,03	-3,868	0,001
Psychological domain	3,57	3,44	1,458	0.149
Social domain	3,64	3,84	-1,409	0,162
Environmental domain	3,46	3,47	0,158	0,875

Table 2 shows comparison results of the obtained data concerning symptoms of depression and coping styles. Both groups differ in the intensity of depressive symptoms. Substantial differences appeared in terms of two reactive styles of coping with stress: emotion-oriented and avoidance-oriented (especially in terms of socializing). There are no differences between individuals with type 2 diabetes and healthy individuals in the level of using proactive coping strategies.

Table 2. **Comparison of average results concerning symptoms of depression, reactive and proactive coping strategies**

	Diabetes	Control group	t	p
Symptoms of depression (BDI)	12,45	7,08	-3,082	0,003
Task – oriented Coping (r)	3,48	3,49	-0,006	0,945
Emotion – oriented Coping (r)	3,09	2,65	3,313	0,001
Avoidance – oriented Coping (r)	2,98	3,28	-2,490	0,015

table continued on the next page

Distraction (r)	2,63	2,88	0,063	0,245
Social diversion (r)	3,38	3,85	-2,286	0,025
Proactive Coping (p)	2,59	2,56	0,438	0,664
Reflective Coping (p)	2,83	2,73	1,178	0,242
Preventive Coping (p)	2,61	2,5	0090	0,269
Strategic planning (p)	2,72	2,63	0,978	0,331
Instrumental Support Seeking (p)	2,57	2,72	-1,331	0,187
Emotional Support Seeking (p)	2,59	2,77	-1,422	0,159
Avoidance Coping (p)	2,30	2,49	-1,817	0,730

(r) – reactive, (p) – proactive

Further analyses concerned an association between perceived quality of life, symptoms of depression and ways used to deal with difficult situations in the examined groups. As regards diabetics, there was found a significant negative relation between satisfaction with health ($r=-0,273$, $p<0,05$) and social domain ($r=-0,405$, $p<0,01$) and exacerbation of depression symptoms. There was observed a significant positive relation between satisfaction with physical ($r=0,325$; $p<0.05$), social ($r=0,422$; $p<0.01$) and environmental ($r= 0,343$; $p<0,01$) areas and proactive strategy of emotional support seeking, as well as between satisfaction with social ($r=0,392$; $p<0,01$) and environmental ($r=0,365$; $p<0,01$) areas and proactive strategy of instrumental support seeking. A relation between quality of life indicators and reactive ways of dealing with difficult situations was not found. There was observed a negative correlation between depressive symptoms exacerbation and instrumental support seeking ($r=-0,363$; $p<0,01$). In the healthy group, a substantial negative correlation was found between satisfaction with health ($r=-0,459$; $p<0,01$), environmental domain ($r=-0,366$; $p<0,05$) and a reactive task-oriented style. A positive correlation concerned satisfaction with health ($r=0,311$; $p<0,05$) and engaging in substitute tasks. Satisfaction with health ($r=0,306$; $p<0,05$) and physical area ($r=0,460$; $p<0,01$) correlated with reflective coping. There was a correlation between quality of life in psychological area and all proactive strategies apart from reflective and preventive coping: proactive coping ($r=0,551$; $p<0,01$), strategic planning ($r =0,301$; $p<0,05$), instrumental support seeking ($r=0,417$; $p<0,01$), emotional support seeking ($r=0,470$; $p<0,01$), and avoidance ($r=-0,402$; $p<0,01$). Satisfaction with social area correlated with instrumental support seeking ($r=0,590$; $p<0,01$) and emotional support seeking ($r=0,693$; $p<0,01$). No correlation between exacerbation of depression symptoms and other variables was found in this group.

Discussion

By collecting the results, it is possible to establish that individuals with diabetes are characterized by lower global perceived quality of life in comparison to healthy people, lower perceived quality of life in health-related and physical areas connected to everyday life activities, energy level, mobility, possibility to rest and sleep, as well as ability to work. These results were in accordance with the results available in the literature [19,20,21,22]. Lowered perceived quality of life is associated to a large extent with limitations and complications implied by a chronic disease, negative tension and emotions generated in the areas related to health and independence, concomitant diseases as well as with a need to change one's lifestyle. The results of this research show that the diabetics are the least satisfied with health area. The level of satisfaction with health is moderate in the healthy group, whereas satisfaction with physical area is the highest. The level of satisfaction with appearance, feelings, self esteem, spirituality, and cognitive area remained at the similar level in the examined groups. The same applies to personal relationships, social support, home or physical environment (pollution, noise, traffic, climate). In their study, Koligat et al. [20] established, that social participation, strong family bonds and good living conditions have positive influence on perceived quality of life. Studies found in the literature show, however, that diabetes which lasts for many years may influence quality and quantity of social contacts (family and friends may not be able to support the sick person in a way he needs it, and even the sick people themselves may withdraw from social life) [21] and satisfaction with psychological domain, which lowers quality of life in this sphere at the same time [22]. It is worth noting that the lower level of the sense of quality of life is also the case with other chronic diseases such as obesity [23] or diseases of the cardiovascular system [24].

Own researches reveal that people with diabetes show greater intensification of depression symptoms in comparison to healthy people. This result corresponds with those available in the literature [5,25,26]. It should be underlined that these are reactive states [5], because a causal relation between type 2 diabetes and endogenous depression, with a reverse correlation at the same time, was not confirmed [27]. People with concomitant depression are more prone to problems of emotional nature [28], have difficulties with sticking to a diet, taking medicines, performing physical activities [29,30] and have more serious health problems than in case of each of these diseases separately [31], which definitely has an influence on quality of life. These findings can be confirmed by a negative relation between exacerbation of depression symptoms and satisfaction with life. Moreover, there was found a negative correlation between satisfaction with social relationships and depression symptoms. This result is in accordance with the already mentioned DAWN2 results, which show that 23,9% of diabetics in Poland consider themselves discriminated because of their disease and do not find social support sufficient in their situation [6].

While coping with current stress, individuals with diabetes, similarly to healthy people, choose most frequently a style depending on scheduled problem solution,

show tendency to make efforts, which help to handle a difficult situation by its cognitive conversion or change. They less often apply various ways of diminishing emotional pressure by activities such as concentrating on themselves, fantasizing and wishful thinking, and the least often they choose engaging in substitute tasks and seeking out other people in order to avoid stressful experience. Other Polish studies regarding a task-oriented style revealed the same results [32,33,34]. This style is considered to be optimal for human functioning [32], especially in terms of positive behaviors related to health. The same results regarding frequency of choosing emotion- and avoidance-oriented styles were found by Kowalska-Wojtysiak [34], whereas the opposite by Kurowska and Frąckowiak [32]. In case of people with diabetes, the evaluation of a coping style can be used in the treatment process – especially while choosing an insulin delivery device in the early stage of insulin therapy. [35]. Healthy persons, just as often as focusing on a task-oriented approach, use avoidance (especially in terms of socializing), whereas they concentrate on emotions much less often. Predominance of a task-oriented style and a rare use of an emotion-oriented style at the same time was shown also in Huber's studies [36] in a group of people over 25. The level of perceived quality of life together with depression and exacerbation of its symptoms among persons with diabetes are not connected with reactive ways of coping. On the other hand, studies by Mućko, Kokoszka and Skłodowska [37] reveal that in case of diabetics, focusing on a task and seeking the best solution is connected with a decrease of anxiety and depression level, whereas focusing on emotions and passivity, with its increase. The specificity of the examined groups may be the reason for such a divergence between the results.

In the healthy control group, satisfaction with physical environment decreases along with focusing on problem solving. The same concerns satisfaction with health, which starts to increase in situations where confrontation with difficulties is avoided by engaging in substitute tasks. As it was already mentioned, a task-oriented style is regarded to be the most optimal [32], thus, the results from the healthy group turn out to be surprising. It may be the case that healthy persons by focusing on the current stressful situation assess their global situation and health more critically and because of that, their perceived quality of life decreases.

There are no differences between individuals with type 2 diabetes and healthy individuals in terms of using proactive coping strategies, which are oriented on the reduction of potential anticipated stress. This may be due to the fact, that proactive coping strategies are associated with sense of control and creation of competence resources in a situation of normative as well as disease-related stress [38]. Certain differences regard, however, strategies used within the groups. In the diabetes group a strategy based on pondering over various action possibilities and their effectiveness was used most frequently, whereas the least frequently chosen strategy was related to distancing oneself from future stressful situations. According to Thoolen et al, in case of newly diagnosed patients with type 2 diabetes, interventions aimed at teaching proactive coping by considering potential limitations and disease-related difficulties, as well as

making effective plans of action for the future together with trying them out conduces to preparation for life with the disease and more effective self-control [39]. Healthy people similarly often apply all proactive strategies. As it was already mentioned, proactive strategies are related to higher life satisfaction [11].

Individuals with diabetes who, in case of anticipating difficulties, more frequently reveal their emotions to the others, are more satisfied with everyday activities concerning the disease, social relationships or physical environment. The level of satisfaction with social and physical environment increases together with the frequency of using strategies related to seeking advice and support from the others. Both strategies rely deeply on significant persons. Thus, it can be assumed that when facing difficult situations, the supporting role of family and friends is extremely important. In their studies on the group of disabled persons, Sęk and Pasikowski [38] revealed the importance of proactive strategies in time of illness to satisfaction with life (no relation between satisfaction and avoidance strategy was observed in this research). It is worth noticing that diabetics, who while preparing for difficult situations seek advice and support from the others, are characterized by a lower level of depression symptoms exacerbation. Again, this confirms the significance of social support for people with diabetes.

Healthy individuals, who frequently use strategies which involve support also have higher level of satisfaction with social relations. Individuals who more often ponder over acting possibilities and their effectiveness are more satisfied with life in terms of health and daily activities. Of no importance to the level of satisfaction with psychological area in the healthy group is the frequency, with which the latter strategy and a strategy based on anticipating potential stressful situation are used.

The results of this study are preliminary. In further research, a group of examined persons should be increased, which will allow to apply advanced statistical analyses, verify the results shown in the article, and generalize the conclusions of the research. It would be advisable to control a few variables, which have not been taken into account in this study: sex [40], diagnosis age and disease duration [19, 40, 41], concomitant diseases, which occur as a consequence of a chronic disease [40, 41], and also a type of treatment [40, 41]. These variables are to a large extent connected to the process of adapting to a sick person's role, and thus crucial for perceived quality of life [42]. These are also the factors, which influence the process of developing a strategy of coping with difficult situations.

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Address: Dorota Kalka
Department of Applied Psychology SWPS Branch Faculty in Sopot
81-745 Sopot, Polna Str. 16/20