Quality of life and its relationship to the degree of illness acceptance in patients with diabetes and peripheral diabetic neuropathy

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Abstract

Purpose: Assessment of quality of life, especially from the psychological point of view, is likely to be strongly influenced by the degree of acceptance of one's own illness and the resultant negative emotional reactions associated with the illness itself. The aim of the present study was to determine the relationship between quality of life and the degree of acceptance of illness in diabetic patients with and without peripheral diabetic neuropathy.

Material and methods: 59 patients with diabetes were included in the study; they consisted of patients both with and without peripheral diabetic neuropathy. The degree of acceptance of illness was assessed using the Acceptance of Illness Scale (AIS) and quality of life (HRQOL – health-related quality of life) was measured using the SF-36v2.

Results: Quality of life in people with diabetes was reduced and related to their levels of illness acceptance. Factors affecting illness acceptance in patients with peripheral diabetic neuropathy included feelings of being a burden to their family and friends ($p \leq 0.05$) and the belief that people in their company are made anxious by the patient's illness ($p \leq 0.05$). These patients also defined their health status as being worse than that of diabetic patients without additional disease complications.

Conclusions: Quality of life and illness acceptance were found to be strongly related. In general, patients with chronic peripheral diabetic neuropathy express lower degrees of acceptance of their illness than diabetic patients without peripheral diabetic neuropathy. Their subjective assessment of health status is also significantly worse than that of diabetic patients without neuropathy.

Key words: diabetes, diabetic neuropathy, quality of life, illness acceptance.

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Introduction

Diabetes is a metabolic illness requiring regular medical care, education in order to improve self-care and ability on the part of the patient to monitor his/her own condition. It is also a condition that has a significant influence on quality of life for those suffering from it [1].

The notion of illness acceptance is considered to manifest itself in a reduction in the strength of negative emotions associated with the current condition on the part of the patient. Lack of illness acceptance, on the other hand, results in submission to the limitations imposed by the illness, a decrease in self-sufficiency, feelings of dependence on other people and a diminished belief in one's sense of self-worth [2].

Health-related quality of life (HRQOL) is based on the notion that factors determining the assessment of quality of life are directly related to matters of health. Thus measurement of quality of life, and in particular its psychological aspects, are determined by strategies for coping with stress, social support and acceptance of one's own illness [2].

The aim of the present study was to determine the relationship between quality of life and degree of illness acceptance in diabetic patients both with and without peripheral diabetic neuropathy.

Material and methods

The study was carried out with the help of 59 patients with well controlled diabetes types I and II from the Department of

Table 1. **Quality of life and acceptance of illness in diabetic patients studied**

	Diabetic neuropathy N=22 (37.3%) Men=8 (13.6%) Women=14 (23.7%)		**Diabetes without neuropathy** N=37 (62.7%) Men=13 (22%) Women=24 (40.7%)	
	Mean ±SD	Max.-Min.	Mean ±SD	Max.-Min.
Age (in years)	60.5 ± 10.1	79-40	62.0 ± 13.6	81 - 24
Durtation of diabetes (yrs)	16.6 ± 11.3	42-3	13.0 ± 9.3	40 - 1
Physical Functioning (PF)	40.1±13.8	59.7-19.2	41.8±12,2	57-14.9
Physical Role Functioning (RP)	41.0±11.9	56.9-17.7	41.1±10.8	56.9-17.7
Bodily Pain (BP)	42.4±13.6	62.1-19.9	45.8±14.1	62.1-19.9
General Health (GH)	33.9±7.9	56.7-21.0	35.5±9.7	55.3-18.6
Vitality (VT)	44.9±10.1	61.5-24.0	45.6±7.5	64.6-33.4
Social Functioning (SF)	44.6±12.4	56.8-18.7	40.6±11.4	56.9-13.2
Emotional Role Functioning (RE)	44.7±11.6	55.9-20.9	41.7±11.4	55.9-20.9
Mental Health (MH)	39.6±11.0	58.5-16.2	39.8±8.1	58.5-24.7
Physical Functioning (PCS)	39.2±10.8	61.9-23.6	42.2±9.7	58.2-23.3
Mental Functioning (MCS)	44.5±9.4	60.6-19.2	41.5±9.3	63.5-23.7
Acceptance of Illness Scale (AIS)	26.6±8.4	40-13	29.6±8.1	40-10
AIS (Q.5)*	3.6±1.6	5-1	4.2±1.2	5-1
AIS (Q.8)*	3.8±1.4	5-1	4.4±1.2	5-1
Subjective assessment of health (Q.1, SF-6v2)**	3.5±0.9	5-1	4.0±0.8	5-1

* $p<0.05$ for Q.5. "As a result of my illness I am a burden to my family and friends"; for Q.8. "I think that people in my company are frequently made to feel anxious as a result of my illness"; ** $p<0.05$ for Q.1. "In general, would you say your health is: excellent, very good, good, fair, poor"

Table 2. **Pearson correlation coefficients for Acceptance of Illness Scale and different domains of Quality of Life (QoL) as measured on the SF-36v2**

QOL SF-36v2	**Acceptance of Illness Scale (AIS)**
Physical Functioning (PF)	0.409**
Physical Role Functioning (RP)	0.519**
Bodily Pain (BP)	0.431**
General Health (GH)	0.307*
Vitality (VT)	0.526**
Social Functioning (SF)	0.481**
Emotional Role Functioning (RE)	0.499**
Mental Health (MH)	0.616**
Physical Functioning (PCS)	0.451**
Mental functioning (MCS)	0.568**

* $p<0.05$; ** $p<0.01$

Endocrinology, Diabetes and Internal Medicine of the Medical University of Białystok, Poland. There were 11 (18.3%) patients with type I and 48 (81.7%) patients with type II diabetes. Of these, 37 (62.7%) did not have additional polyneuropathy, while the remaining 22 (37.3%) had developed complications in the form of chronic peripheral diabetic neuropathy. The mean disease duration for the group of patients without neuropathy was 13 years and for those patients with peripheral neuropathy it was 16.6 years.

The degree of illness acceptance was measured using the Acceptance of Illness Scale (AIS) which consists of statements describing the negative consequences of ill-health [2,3]. Health related quality of life (HRQOL) was assessed with the aid of the SF-36v2, which consists of 8 subscales designed to measure the following dimensions of quality of life: physical functioning (PF), social functioning (SF), physical role functioning (RP), emotional role functioning (RE), bodily pain (BP), general health (GH), vitality (VT) and mental health (MH). The SF-36v2 is constructed so as to allow a conglomerate measure to be constructed for two dimensions of functioning: physical functioning (PCS) and psychological or mental functioning (MSC) [4]. Data analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 12.0 for Windows. Correlations between variables were determined using Pearson's correlation coefficients and in order to test hypotheses concerning the differences between the two groups of patients, with and without neuropathy, the student's t test for independent samples was used. Levels of $p<0.05$ were accepted as being statistically significant values. Permission for carrying out the research was obtained from the Bioethics Committee of the Medical University of Białystok.

Results

Basic demographic data for the two groups of diabetic patients with and without peripheral neuropathy are shown in *Tab. 1*. The groups were well matched for age, sex and duration of illness. The health related quality of life (HRQOL) scores for each of the eight domains measured by the subscales of the SF-36v2 and the Acceptance of Illness Scale (AIS)are also shown in *Tab. 1*. For both the SF-36v2 and the AIS, lower scores indicate a greater impairment in HRQOL and illness acceptance respectively. The Pearson correlations between scores on the AIS and the individual domains of HRQOL are shown in *Tab. 2*. It can be seen that illness acceptance is associated with all domains of the HRQOL.

For the purposes of statistical analysis, comparisons were made between the two groups of diabetic patients with and

without peripheral diabetic neuropathy with respect illness acceptance and different aspects of quality of life as measured by the SF-36v2. Although there was a tendency for patients with peripheral diabetic neuropathy to express lower rates of illness acceptance, there were no significant differences between two groups with regard to the overall measure of illness acceptance as given by the Acceptance of Illness Scale (AIS). The groups differed, however, with respect to two of the items on the scale. It was found that patients with diabetic neuropathy were more likely to express the view that they were a burden to their family and friends ($t=-1.99$; $df=56$; $p\leq0.05$) and felt that people who spent a lot of time in their company were made anxious as a result of their illness ($t=-2.01$; $df=56$; $p\leq0.05$) (see *Tab.1* for comparison of mean values).

No differences between the groups were found for reported quality of life as measured by the SF-36v2. However, patients with peripheral diabetic neuropathy described their own health as being significantly worse than patients without neuropathy ($t=-1.934$; $df=57$; $p\leq0.05$).

Overall with reference to normative data for SF36v2 [4], it may be inferred from the results of the present study that diabetes reduces quality of life across all the dimensions of HRQOL measured. The patients examined in this study demonstrated difficulties in adaptation to diabetes as an illness and to its long-term complications in the form of peripheral diabetic neuropathy. The results obtained show a close relationship between illness adaptation and health related quality of life.

Discussion

It has been suggested that the consequences of failing to accept one's own illness include submitting to the limitations imposed by the illness, a decrease in self-sufficiency, feelings of dependence on other people and a diminished belief in one's sense of self-worth [2]. The results of the present study confirm these suggestions, particularly in the group of diabetic patients with peripheral neuropathy, who demonstrated greater difficulties in accepting their illness than diabetic patients without additional complications. Juczyński [2] found even lower rates of illness acceptance among the diabetic patients they studied. As a result of the illness, the social situation of patients frequently deteriorates as they are forced into a situation of greater dependency on others [5]. Evidence for this was also found in the present study where diabetic patients with peripheral neuropathy reported that they consider themselves to be a greater burden to their family and friends as a result of the illness. They were also concerned that their illness caused people who spent time with them to be more anxious.

Several studies have shown that foot-related complications in diabetic patients have a significant impact on their quality of life [6,7]. Benbow et al. have shown that diabetic patients with peripheral neuropathy reported lower levels of quality of life in comparison to other patients with uncomplicated diabetes and a normal control group [8]. Moreover, reduced levels of quality of life were reported by diabetic patients in general in comparison to a normal control group [8,9] a finding that is confirmed by the results of the present study. Overall, it appears that the differences between the two groups of diabetic patients, with and without peripheral neuropathy, are strongest in relation to patients' subjective evaluation of their health status as an indicator of their quality of life. Subjective assessment of health status has been noted to be of importance in relation to functioning in a range of chronic illnesses [10]. The psychological well-being of patients has a major impact on virtually all aspects of therapeutic and nursing care; an extremely important role for members of the therapeutic team is in helping patients develop a sense of mastery of their own illness and enabling them to create and maintain coping styles which are oriented towards solving the problems associated with living with diabetes.

Conclusions

Patients with peripheral diabetic neuropathy express lower levels of illness acceptance in relation to concerns about being a burden to their family and friends, as well as fearing that their illness causes people in their company to experience heightened levels of anxiety, in comparison to diabetic patients without neuropathy. These patients also define their health status as being overall worse than that of diabetic patients without additional disease complications. These results suggest that different aspects of quality of life may mirror various manifestations of diabetes at different stages of the illness. They provide support for the notion that chronic and progressive conditions are likely to follow a dynamic course in which the patient's adjustment to the illness will vary accordingly and thus require different types of therapeutic and nursing support at different stages of the illness. Future work needs to address this problem requiring that interventions are tied more specifically to the course of the illness.

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