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**UPPSALA
UNIVERSITET**

Department of public health and caring sciences

**QUALITY OF LIFE IN DIABETIC
PATIENTS AND NON-DIABETES
PEOPLE IN
DAR ES SALAAM TANZANIA**

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CERTIFICATION

I have read the research report and approved it for submission of an award for the degree of Master of Medical Science Program of the Uppsala University Sweden.

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DECLARATION

I declare solemnly that the whole part of this work has not been submitted for any award in any other University.

Candidate's signature.....*AM Saha*.....

Date.....*2nd July 2002*.....

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ABSTRACT

The study was to investigate
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DEDICATION

Dedicated to

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Husband Mr. Cyril Luka Msoka

and

my children

ABSTRACT

Aim

The aim was to investigate quality of life in a group of diabetic patients and to make a comparison with a group of non-diabetes people living in the same area.

Method

Sixty-eight adult diabetic patients attending four diabetes clinics in Dar es Salaam region were compared with sixty adult people not having diabetes. This control group included student nurses and hospital workers employed at Muhimbili National Hospital and three district hospitals. All respondents filled in the generic health related quality of life questionnaire SF-36, the Swahili version. They also answered two open questions, namely "what is the definition of quality of life" and "what does quality of life mean to you."

Results

Diabetic patients reported poorer health in all eight SF-36 health domains when compared with the group of non-diabetes people. In all but one this difference was significant. The open question regarding the definition of quality of life showed that almost half of the answers stated from the diabetic patients were "the satisfaction with basic needs" while in the control group this was answered by approximately one quarter of the respondents. The question "what does quality of life mean to you" generated few answers from the diabetic patients. Anyhow economical factors were mentioned by approximately half the group and many related this to that the life then could be better. In the group of diabetic patients also the demand for more education was expressed.

Conclusion

Diabetic patients seemed to perceive a poorer health measured by the health questionnaire SF-36 than the group of people not having diabetes.

Furthermore economical factors seemed to have a greater importance in the diabetic patients, which might be a consequence of that this group of people had to spend much economical resources to buy anti diabetes drugs and to buy proper food.

Keywords: Quality of life, diabetes, SF-36, diabetes in Tanzania.

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DEFINITIONS

Esteem	Family based, usually high evaluation of one self and self respect
Hierarchy	Status from the lowest to the highest
Life style	Manner of living
Quality of life	Is a degree of worthiness, a degree of perfection and infinite improvement in health.

ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BMI	Body Mass Index (kg/ m ²)
DCCT	Diabetic Control and Complications Trial
Govt	Government
HbA1C	Glycosylated haemoglobin
HRQOL	Health related quality of life
IDDM	Insulin dependent diabetes mellitus
LGA	Local Government Authority
MNH	Muhimbili National Hospital, previously known as Muhimbili Medical Centre (MMC)
NIDDM	Non- insulin dependent diabetes mellitus Type II
TDHS	Tanzania Demographic Health Survey
UKPDS	United Kingdom Prospective Diabetes Study
VOL/RL	Voluntary and Religious Agency
WHO	World Health Organization.

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Appendix II: Map of Dar es Salaam Region

Acknowledgement

The diabetes disease

Diabetes mellitus is characterized as a disease with glycaemic disorder. Mellitus means honey and diabetes means something that is running through. There are two types of diabetes; Type I previously known as insulin dependent diabetes mellitus (IDDM) and Type II previously called non-insulin dependent diabetes mellitus (NIDDM) (Pickup and Williams, 1997).

Diabetes research in Africa has been carried out during the past 30 years. Mostly specific medical problems have been investigated. Information about patients self-perceived health is rare. Gill (Gill et al., 1997) has stated that the goal of good diabetes care should be both a good self-perceived health and a good glycaemic control.

In assessing diabetes care medical measurements such as HbA1c (glucosylated haemoglobin) should be combined with measures concerning the patients' health (DCCT, 1993; Landerson et al., 1985; Reichard et al., 1993).

Diabetes in Tanzania

In the early 1980s the prevalence of diabetes mellitus was investigated in 3145 people living in the urban and two rural areas in Northern Western Tanzania. The overall diabetes prevalence in the three populations was reported to be 0.7% despite different geographical variations (Ahren and Corrigan, 1984). The rural population exclusively has a prevalence of 0.9 % among people aged 15 years and above. However, the prevalence of diabetes among Asians in Dar es Salaam has been reported to be ten times higher than

in other races. In Tanzania awareness of diabetes is limited. Patients may refer their symptoms to conditions such as old age, intestinal worms or just sickness (McLarty et al., 1997). Other patients may present with the classical symptoms of diabetes but believe it is the "The new disease" (AIDS). This makes the patients to become afraid, believing that nothing can be done (Chitakaka and Khare 1998). Others may live and die without the diagnosis of diabetes ever being made (Ahren and Corrigan, 1984; McLarty et al., 1989).

Diabetic patients who attend health facilities are supposed to get free anti-diabetes drugs. Unfortunately due to non-availability of such drugs in the health facilities, they are often obliged to buy from private pharmacies (Chale et al., 1992). Patients traveling to a referral hospital for the purpose of collecting drugs consume a lot of money as they had to buy insulin as well (Chitakaka and Khare, 1998; McLarty et al., 1997).

Diabetes is a life long condition, which requires careful control. The person having diabetes has to live with the disease every day, year after year. A diabetic person could never "take a day off" as it might result in problems. This means that the person with diabetes has to consider balanced diet, doing physical exercises regularly, and also attending diabetes clinics for control of the disease. A lot of strains are put on the patients and different people might experience different problems. Sometimes they may find that there are no drugs available and sometimes maybe there are other obstacles hindering them to get proper treatment. The question then could be considered what might be most important to the patients, to have a good metabolic control measured by the blood glucose test or perceiving a good quality of life. Hopefully most patients should have a

good metabolic control as well as perceiving a good health. In ensuring this, patients are reminded of the four important points in diabetes care, namely; balanced diet, regular exercises, taking control of the own life and to have a good life and also to seek medical advice (Diabetes Bulletin, 2000) (appendix 1).

Tanzania the country

Tanzania is one of the 58 African nations. It has approximately 30 million inhabitants. The biggest hospital in Tanzania is Muhimbili National Hospital (MNH) previously known as Muhimbili Medical Centre (MMC). It is situated in Dar es Salaam, the biggest city in the country. Table 1 shows general information about Tanzania.

Table 1. General information about Tanzania.

General information	Figures
Inhabitants	30 millions
Under 15 years population	45.8%
Annual population growth rate	2.8%
Doctor/ inhabitants	1/ 27000
*Medical doctors	286
*Specialist Doctors	92
Health workers in the country	5550
Life expectancy at birth	50 years
Literacy in adult population	90%
*Nursing officer	1133
* Nurse Tutors	266
*Trained Nurses (B)	3590
<i>Religions:</i>	
Christians	33%
Muslims	33%
Native	33%
Others	1%

Source: Population census 1988, National Bureau of statistics. Dar es salaam 1991.

TDHS 1996.

*Health statistics abstract 1999.

Dar es Salaam and its districts

A district is an administrative area with clearly defined boundaries and population. A district in Tanzania has an average population between 100, 000 and 500, 000 (table 2). However, districts vary in size, physical features and climate, as at 2000, there were 109 districts, which fall under 20 administrative regions in Tanzania mainland. There are 114 LGA (council) in the country indicating that there may be more than one council in one district.

District health system

A district health system consists of a large variety of interrelated elements, which interact to influence the health status of the population in the district. The key elements are the population, resources, health care delivery and other health related sectors and output being within the health sector (Ministry of health module one 2001).

Table 2. Inhabitants in the three districts : Kinondoni, Ilala and Temeke (1995- 2001)

District	Population
Kinondoni*	1 202 545
Ilala	636 539
Temeke	711 869
TOTAL	2 450 954

Source: Health statistics abstract 1999. * Where Mwananyamala is situated.

Health facilities of Dar es Salaam region are presented in Table 3 – 6. These elicit the physical facilities available in the districts, where the study was conducted. In Dar es Salaam city the private dispensaries are 308 and those belonging to the government are 56 only. Private laboratories are 147 while those of the government are 12 only.

Table 3. Health facilities in Dar es Salaam city.

Facility type	G	P	V/R	P
Consultant/specialised	1	0	0	0
Regional hospital	0	0	0	0
District hospital	3	0	0	0
Other hospital	0	1	0	12
Dispensaries	56	31	16	308
Specialized clinics	5	0	0	20
Nursing homes	0	0	0	0
Private laboratories	12	0	0	147
Private x-ray unit	3	0	0	14

Source: health statistics abstract 1999.

G = government; P = parastatal; V/R = voluntary/religious; P = private.

Kinondoni has 121 private dispensaries while those of the government are 20 only.

Table 4. Health facilities in Kinondoni.

Facility type	G	P	V/R	P	O
Consultant/specialised	0	0	0	0	0
Regional hospital	0	0	0	0	0
District hospital	1	0	0	0	0
Other hospitals	0	0	0	7	1
Health centers	2	1	0	3	0
Dispensaries	20	4	4	121	3
Nursing homes	0	0	0	1	0
Private laboratories	0	0	0	1	0
Private x-ray unit	1	0	0	7	1

Source: health statistics abstract 1999.

G = government; P = parastatal; V/R = voluntary/religious; P = private; O = other.

Ilala district has 99 dispensaries while those of the government are only 17. It has 146 private laboratories while those of the government are only 12.

Table 5. Health facilities in Ilala district.

Facility type	G	P	V/R	P	O
Consultant/specialised	1	0	0	0	0
Regional hospital	0	0	0	0	0
District hospital	1	0	0	0	0
Other hospitals	0	0	0	5	0
Health centers	1	1	0	4	0
Dispensaries	17	18	0	99	0
Specialized clinics	5	0	0	20	0
Nursing homes	0	0	0	0	0
Private laboratories	12	0	0	146	0
Private x-ray unit	2	0	0	7	0

Source: health statistics abstract 1999.

G = government; P = parastatal; V/R = voluntary/religious; P = private; O = other.

Temeke has 88 dispensaries and those of the government are 19. It has no laboratories.

Table 6. Health facilities in Temeke district's

Facility type	G	P	V/R	P	O
Consultant/specialised	0	0	0	0	0
Regional hospital	0	0	0	0	0
District hospital	1	0	0	0	0
Health centers	1	1	0	0	0
Dispensaries	19	9	12	88	0
Specialized clinics	0	0	0	0	0
Nursing homes	0	0	0	0	0
Private laboratories	0	0	0	0	0
Private x-ray unit	0	0	0	0	0

Source: health statistics abstract 1999.

G = government; P = parastatal; V/R = voluntary/religious; P = private; O = other.

Diabetes clinic at MNH in Dar es Salaam

The Muhimbili Diabetes Clinic at MNH was opened in June 1981. The number of patients registered was 1250. Patients were classified according to insulin and non -insulin requirements. The diagnosis of diabetes "not requiring insulin" was considered likely based on factors such as blood glucose value, glucosuria, increased age, long duration of symptoms, obesity and occurrence of ketonuria (Swai et al., 1990). The diabetes clinic operates once per week. During 1995 there were 373 (male 216 and female 157) new cases. The reattendance rate was 1411 (male 786 and female 625). In 1996 there were 345 (male 231 and female 114) new cases, in which reattendance rate was 1304 (male 719 and female 585) (MNH medical records data 1995/96.)

Organisation of the manpower at MNH diabetes clinic

There were mostly three doctors, one diabetes nurse and one nurse auxiliary. They attended approximately 45 diabetic patients per clinic day (Diabetes clinic report 1999).

Change of diabetes care organisation in Dar es Salaam

In 1996 to 1997 the diabetes clinic at MNH (MMC) was reorganized and patients were referred to their respective district hospitals namely; Mwananyamala, Temeke and Ilala (see map at

appendix 2) as a measure to decrease overcrowding at MNH (MMC). This was previously the only hospital caring for diabetes patients in Dar es Salaam.

INTRODUCTION

Health

It has been reported that evaluation of persons' self perceived health is a personal judgment and some feel poor health in the face of a chronic disease whereas others feel sick without any disease or illness (Stewart and Ware, 1992).

In western countries, HbA1c is commonly used as an important measure of long-term glucose control. This test is supposed to be regularly tested in both patients with type I and type II diabetes. Anyhow HbA1c evaluates diabetes care mainly from a medical perspective (Coates and Boore, 1998). It has also been demonstrated that the better patients manage their self-care, the better blood glucose value (Peyrot et al., 1991). However in Tanzania it is mostly only in private clinics that patients are tested regarding HbA1c value. This is most probably due to the costs.

It is important to consider both the value of strict medical measurements such as the blood glucose value as well as asking patients about their own perceptions concerning their health (Wikblad et al., 1996). WHO has defined health as: "a state of complete physical, mental and social well being and not merely the absence of diseases or infinity" (WHO, 1998). This definition is broad in its perspective and it has a multidimensional approach. It consists of three core domains; physical, social and psychological well-being. Also, health is more than just the absence of pain or discomfort. Good health encompasses dynamic relationship between the

individual, friends, family and the environment within which peoples live and work (Ministry of Health, 2001).

Health indicators can also be related to Rogers (1991) who introduced "self theory" which focuses on the individual's self-perception and personal view of the world. People develop self-concept through experience, interaction and through what he is told by others. This is applicable to individuals, as they need to take time to relax with friends and family. It is also vital in reducing stress levels and hence reducing factors leading to the development of diabetes. Besides it should help people with diabetes to take control of their own condition.

In Tanzania also morbidity and mortality rates have been used as health indicators (Wyss et al., 1997).

Domains with special emphasis on well-being

The physical life domain covers overall bodily health and specific sickness impact. The psychological life domain relates to satisfaction with well being in general and intellectual functioning. The social life domain focus on social contact in general and is specifically related to family and social life. The behavioral/activity life domain covers capacity of self-care, work and mobility. The structural life domain covers the religious dimension. The material life domain covers the individuals' personal economical status. It is primarily the individual's own perception of satisfaction within the different life domains and well-being that determines quality of life and not his/her perception of relatives or health personnel (Hornquist, 1982).

Quality of life

Quality of life can be perceived by a diabetic patient when experiencing care in terms of biochemical care, in his/her well-being and cost effectiveness of the received tests and care. Quality of life in a person not having diabetes can be looked upon as a state of being alive in a degree of goodness; while diabetic patients might experience the opposite when exposed to tiredness, weakness, loss of weight, and they might also be unable to meet their daily tasks effectively.

Hanestad and Albrektsen (1992) reported that quality of life is concerned with the individuals' experience of his own life situation; either in general or in relation to different life domains including physical status, functional disabilities, psychological status, well-being and social interactions.

Another view of quality of life is that it has to do with the individual's experience of living a "good or bad" life. It has also been associated with perceived satisfaction with life rather than objective conditions of living. This emerged in the political discussions in America in the 1960s. Abbey and Andrew (1985) said that quality of life is a subjective phenomenon therefore it is not easy to define, since no standard definition exists as to what a good life is. This resulted in different definitions of quality of life. Quality of life encompasses the individual's subjective evaluation of his/ her situation, therefore quality of life can be defined and operationalized in a number of different ways (Fowlie and Berkely, 1987; Naess, 1997). The definitions present different concepts and are composed of satisfaction, happiness, morale, positive and negative feelings, affect subjective and psychological well-being (Hornquist, 1982; 1989).

Another way of describing quality of life has been presented as recognized needs and functional satisfaction within six fundamental life domains. Quality of life was related to indicators of health by Maslow (1995) through the so-called hierarchy of basic needs that tend to be satisfied in a given order. The basic physical needs are food, drinks, shelter, warmth, sleep and exercises. One feels safe when his/her needs towards belonging, security and protection are fulfilled. Socially one is compelled to have affectionate relationship with people so as to avoid feeling of loneliness, been rejected by the society. Lastly one has to have the feeling of self-esteem. (Oakland, 1995). This feeling is supposed to be low in diabetic patients. The individuals with diabetes and their family members in our multi-family group relationship play an important role in the management of type I diabetes. Quality of life is fragile and must be developed within the context of supportive personal and professional relationship (Schafer and Lowaine, 2000).

The health related SF-36 questionnaire

This questionnaire was developed within the Medical Outcome Study (MOS) in Boston (Ware et al., 1993). It is based upon the WHO definition of health (Stewart and Ware, 1992). It includes questions within eight different health domains (Table 8).

In western countries the SF-36 has been used in many studies (DCCT, 1993; Sullivan et al., 1995; Bullinger, 1995). It has been reported in studies from USA (Ware et al., 1993) and Sweden (Sullivan et al., 1995) that the SF-36 has distinguished between people with and without diabetes.

In Tanzania an investigation regarding the health status in different areas of the country was performed in the late 1980s. The areas included were: Dar es Salaam, Morogoro and Kilimanjaro. It was a WHO project and Tanzania was invited to join this interhealth project,

called Adult Morbidity and Mortality Project (AMMP). One of the aims with the project was to study the frequency of diabetes and associated risk factors in the different areas. The project was also interested in investigating the quality of life. Contacts had been taken with the MOS research group in Boston and the SF-36 was translated into Swahili and included in the AMMP project (McLarty, 1993).

The SF-36 was also used in a study performed at MNH in 1990s. It was found that diabetic patients (n=518) had significantly poorer health when compared with the population living in the same area. Anyhow it was also reported that the reliability using Cronbach's alpha was unsatisfactory in the general health domain (Smide et al., 1999).

Literature review

The literature review is based upon search at the medical database, MEDLINE and on manual search in different scientific journals. Specifically articles dealing with diabetes and quality of life in African countries were looked for. These articles are included in the literature review below. Also studies performed in countries outside Africa regarding diabetes and quality of life were included.

Studies conducted in industrialized countries

In a study performed in Sweden in Primary Health care settings in Stockholm, (Wandell and Tovi., 1997) it was reported that diabetic patients in primary health care had a markedly lower health related quality of life (HRQOL) compared with a general population. It was reported that elderly type II diabetic patients with long duration of their disease experienced a poorer HRQOL than people in the control group with regard to the physical functioning health domain.

Furthermore they reported that no relationship was found between quality of life and glycaemic control.

Nevertheless in another study by Glasgow et al., (1997) it was found that other factors related to low quality of life. These were reported as less education, lower income, older age, being female, type of health insurance one had and number of diabetes complications.

On the other hand, Brown et al., (2000) showed that the health state or the diabetes disease as such had a significant effect on patients; especially the quality of life was affected. This indicated that the presence of diabetes complications and dependence on insulin appeared to decrease quality of life. In this association, Hanninen et al., (2001) showed that impaired mental health was the highest detected risk in diabetes related factors, which may be due to anxiety, distress, dietary restrictions and the need to monitor blood glucose at home.

The study by Hanestad et al., (1992) investigated the impact of diabetes disease in patients with diabetes type I. Patients were categorized into two groups based on perceived greater impact of the disease on their daily life. The results indicated that patients who experienced a greater impact of the disease on daily life reported reduced quality of life.

However, Watkins et al. (2000) suggested that dietary adherence may negatively affect quality of life by increasing the level of perceived diabetes related burden. It was perceived that people with diabetes are often restricted in the amount, types and timing of food consumption (e.g. meals at certain times or waiting for insulin effect before eating and between meals to have snacks). It was also known that the restrictions might negatively affect individual's perceptions of quality of life and interactions with other people. Improved blood glucose control in patients

with diabetes was associated directly with improvement in several qualities of life. Short-term benefits included patient's mood, affection, sense of well-being and alertness. On the other hand, cognitive representation constructs related to increased diabetes, specific health behaviors, decreased sense of burden and positive quality of life. Individuals' levels of understanding the diabetes disease and their perceptions of control of the disease were the most significant predictions of outcomes. It seemed also that diabetes specific health behavior was related to an increased sense of burden that was negatively associated with quality of life.

Acceptable glycaemic control (mean HbA1c 7.3 %) had the highest quality of life ratings while good glycaemic control (mean HbA1c 6.3 %) had lower ratings among diabetics when a health related quality of life questionnaire was used (Wikblad et al., 1996).

The well known United Kingdom Prospective Diabetes Study (UKPDS, 1999) showed that allocated therapies were neutral in effect with neither improvement nor deterioration in quality scores for mood, cognitive mistakes, symptoms, work satisfaction or general health (UKPDS, 1999).

A report by Jayant et al., (2000) showed that diabetic persons who faced long-term complications had to deal with the uncertainties of life while among well regulated diabetics, the coping tasks focus on adjusting to both daily life and self-care demands. Similarly, Aalto et al., (1997) also showed that diabetes-related psychosocial factors might modify the health-related quality of life among diabetic patients, particularly the role of self-efficacy, patients feelings of personal competence in dealing with the demands of diabetes is important. Besides it was reported that diabetes education and counseling might enhance patient's feelings of self-efficacy in the management of diabetes.

Aalto (1997) expressed the importance of physical functioning, perceived adequacy of social support and diabetes related psychosocial factors as modifiers of HRQOL. Old age was related to poorer HRQOL. Women reported slightly more difficulties in role functioning than men. To be unmarried was related to more frequent problems in social functioning and to a lower level of mental health. On the other hand, education was associated with poorer HRQOL in the health domains, mental health, social functioning, role functioning, and pain. It was also found that physical functioning was the strongest single prediction for health perception, role functioning, social functioning and pain, and it was also related to mental health. Having complications was related to poorer perceived health, mental health and role functioning while poor glycemc control and duration of diabetes were not related to any of the HRQOL health domains. Patients with perceived adequacy of social support were associated with better HRQOL in all domains, except role functioning and pain. Studies conducted in San Louis, USA about perceived quality of life in a bi-ethnic population, showed that persons with diabetes type II rated their personal quality of life as significantly lower than the control subjects (Caldwell et al., 1998). A study conducted on elderly people in Northern Finland in 1994 and 1995 revealed that the greater proportion of the previously diagnosed diabetic patients reported to have problems on physical mobility items and half of the pain items compared to the subjects with undiagnosed diabetes. Hence previously diagnosed patients had a poorer quality of life (Sullivan, Karlsson, and Ware, 1995).

Caldwell et al., (1998) showed that metabolic control and treatment strategies should reflect an understanding of the impact the diabetes disease had on social functioning leisure activities, physical, and mental health.



Education program has been shown to have significantly improved control of the disease resulting to lower direct and indirect health care costs and enhanced quality of life (Burton and Connerty, 1998). Likewise, Philips (1998) reported on economic implications of implementing evidence based diabetes treatment strategies. He argued that extra costs incurred by switch in therapy were likely to be cost effective as it might reduce the episodes of care. In addition he mentioned that evidence existed that such a switch is cost effective in generating additional life years for diabetic patients.

Improved diabetes knowledge and good metabolic control since early in the course of disease would most probably improve the health related quality of life. Diabetic patients seemed to show lower responses on the scales of the SF 36 questionnaire than did subjects without chronic conditions (Gulliford and Mahabir, 1999). The higher the socioeconomic status for some of the diabetics the higher was some of the SF-36 scale means (Wyss et al., 1997).

African studies about quality of life

Very few studies have been found reporting about quality of life in African diabetic patients. Outside Tanzania, a longer version of SF-36, the MOS questionnaire has been used by Elbagir (1997). This version consists of 68 different items, while the SF-36 includes 36 items. In this longer version also questions about sexuality, sleep and family functioning are included (Stewart and Ware, 1992). Elbagir (1997) found that the overall quality of life in diabetic patients Type I was low. Furthermore it was reported that patients free from late diabetes complications reported to have better quality of life than patients with complications.



In connection with studies about HIV/AIDS in Kenya questions about quality of life has been included (Nzioka, 1997). Anyhow it has also been reported that there are limitations in finding the equivalent terms for quality of life in local languages (Allen et al., 1997).

Statement of the problem and rationale of the study

At the diabetes clinic at MNH, testing blood glucose level mostly monitors diabetic patients. Anyhow it is not enough to assess diabetes care only using a medical test. In order to get a holistic picture of the outcome of diabetes care it is important to measure the patient's own perception about his health. It is most important to evaluate the diabetes care both from a medical perspective as well as from how the patients themselves perceive their health.

The SF-36 questionnaire had previously been used in diabetic patients attending the MNH diabetes clinic. However some problems had been found regarding the general health domain. SF-36 was created for use in western countries with a different culture. It might be that further translation procedures have to been done. Also it could be questioned whether the SF-36 questions cover the concept health related quality of life.

The main interest in doing this study was to further explore the concept quality of life. In view of the above, the focus in the current study was to compare the quality of life in two groups of people; namely in diabetic patients participating in a follow-up study regarding diabetes and in a group of people not having diabetes. The intention was to use both the well-known international questionnaire, SF-36, with its specific questions and open questions about quality of life.

AIMS.

The overall aim of the current study was to investigate and compare quality of life in a group of diabetic and a group of non-diabetes people in Dar es Salaam

Research questions

1. Did diabetic patients and non-diabetes people score their self-perceived health the same?
2. How did people having diabetes define the concept quality of life?
3. How did people not having diabetes define the concept quality of life?
4. How did people having diabetes perceive their personal (or own) quality of life?
5. How did people not having diabetes perceive their personal quality of life?
6. What differences were there between people having and not having disease regarding the quality of life definition?
7. What differences were there between people having and not having diabetes disease regarding their perceived quality of life?

METHODS

Study design

The study had a descriptive, quantitative and qualitative design and two groups were compared regarding their perceived health using an international known questionnaire. Besides, the respondents in both groups answered open questions about quality of life.

Participants

Background to the current sample

In 1995, 150 Tanzanian patients seen at the MNH clinic were investigated regarding their diabetes self-care and self-perceived quality of life. The results from this study are reported elsewhere (Smide, 2000).

The current study sample

The group of people having diabetes

Out of those 150 Tanzanian patients investigated in 1995, 68 persons were traced for a second follow-up investigation regarding this quality of life investigation. Thus the current sample consisted of 68 Tanzanian diabetic patients investigated at two occasions two years apart.

The group of people not having diabetes

In the current study also people not having diabetes (n=60) were included and this group of people was called the control group. This group (n=60), 13 male and 47 female, aged eighteen years and above, were student nurses of Muhimbili School of Nursing and some were hospital workers of MNH, Mwananyamala, Temeke, and Ilala. They were kindly approached regarding being included in the study and whether they could participate as a control group (non - diabetes). Demographic and diabetes related data for both groups are presented in table 7.

Differences between the two groups

In the current study the quality of life was the main focus. Nevertheless also the HbA1c value was investigated in the control group. This was done as no investigation was found concerning glycosylated haemoglobin in non-diabetes people in Tanzania. Out of the 60 people included in the control group we managed to get HbA1c results from 56 persons. The results are presented in Table 7.

Drop-out analysis

There were difficulties in tracing the patients to come for the second follow-up investigation. Out of the eligible patients (=150) three (3) had moved away from Dar es Salaam and 8 had died, thus 139 patients remained to be approached for a follow-up investigation. All these patients were informed through advertisements in local newspaper, local radio stations and by patients list on the notice board at the different diabetes clinics. Out of the remaining 139 patients, 70 patients (50.4%) were investigated a second time regarding self-care and perceived health using the SF-36 health questionnaire. However, 2 patients did not fill in the open questions regarding quality of life and were excluded, thus 68 persons were included.

Those patients who did not come for the second investigation were traced for another year to explore what had happened to them. The nurse tutors, who had participated in the data collection, checked all patient hospital records in order to find an explanation for why the patients had not returned for the follow-up study. It was then found that 2 patients had visited the diabetes clinic in autumn 1997, and another 7 in 1998. The other remaining patients were not found to have visited the clinic and no reasons were found regarding this.

Table 7. Characteristics and diabetes related data in diabetic patients and non-diabetes people.

Variables	Diabetic patients n=68	Non diabetes people n=60
Sex (M/F)	36/32	13/47
Age (mean SD)	45.0±12.2	32±10
BMI	24.5±4.6	25.0±5.1
Blood sugar	11.5±6.2	4.5±7.6
HbA1c	7.5±2.8	4.0±1*
Diabetes duaration	8.4	NA
Age at onset of diabetes	38.7	NA
Diabetes treatment		
On insulin	44 %	NA
Oral/diet	56 %	NA
Education years	6.9±3.9	6.8±1.1
Economical status		
Good	11 %	3%
Neither/nor	72 %	40%
Poor	17 %	57%

*Results based on data from 56 persons. NA _not applicable.

Settings

The first part of the study was conducted at MNH in 1995. However, in 1996 diabetes care in Dar es Salaam area was re-organized and the majority of the patients were transferred to the three district hospitals within Dar es Salaam, namely, Mwananyamala, Ilala and Temeke, which are about 10 km, 10 km and 15 km away from MNH respectively (appendix 2).

In all hospitals the diabetic clinics are situated in connection with other clinics, for medical and surgical conditions in the outpatient department. The clinics have waiting areas which were small but it was where the patients were seated waiting for services during clinic days. The examination rooms for the patients were small. There was no privacy when the patients were waiting in the same room, as the doctor examined other patients. The data collection at MNH took place in the diabetes out patient clinic. At the three district hospitals special areas for the research was used.

General procedure

Student nurses and nurse teachers who were trained on how to conduct the interviews using the questionnaires participated in the data collection. Diabetes clinic nurse in charge at each clinic respectively informed the patients about the study.

Interviews were conducted at the waiting areas of the diabetes clinics. The student nurses and nurse teachers assisted the diabetic patients and the non-diabetes people to fill in the questionnaire. To the illiterate patients the questions were read out orally and the interviewers filled in the patients' answers.

Measures

All respondents answered questions about their self-perceived health. A structured questionnaire, SF-36, and a questionnaire with two open questions about quality of life were used. Questions about demographic data were included. When applicable diabetes data were collected. Also weight and height were measured. Blood glucose- and HbA1c values were tested.

The questionnaire SF- 36 .

SF-36 is a generic standardized questionnaire and it is intended to measure physical and mental health dimensions. It includes eight health domains namely; Physical functioning (PF), Role physical (RP), Bodily pain (BP), General health (GH), Vitality (VT), Social functioning (SF), Role emotional (RE) and Mental health (MH). The questions are of Likert-type and some with yes/no responses. For each SF-36 health domain, variable item scores were coded, summed and transferred to a scale from 0 (poorest health status) to the maximum score 100 (best health status). The recommendations in the SF-36 manual were adapted (Ware et al., 1993). The different items and response alternatives are presented in table 8.

Table 8

Items and response alternatives included in the eight SF-36 health domains

Health domain/items	Response alternatives
*Physical functioning (PF) Participate in traditional dances Fetch water, wash clothes Carry a bag with potatoes or maize during half an hour Walk up a hill Walk down a hill Bending, kneeling Walk for half an hour Walk for 15 min without rest Cross a football ground Bathing, dressing	"Limited a lot – limited a little – not at all"
Role physical (RP) Due to physical health Cut down time for work Accomplishing less Limited in kind of work Difficulty performing work	Yes/No
Bodily pain (BP) Bodily pain Interference with work	"None-very mild-mild-moderate-severe-very severe" "Not at all-a little bit-moderately-quite a bit-extremely"
General health (GH) General health Getting sick easier As healthy as anybody else Expect health to get worse Excellent health	"Excellent-very good-good-fair-poor" "Definitely true-mostly true-don't know-mostly false-definitely false"
Vitality (VT) Full of pep Lot of energy Feel worn out Feel tired	During the last 4 weeks have had the feeling: "all of the time-most of the time- a goof bit of the time- some of the time- a little of the time- none of the time"
Social functioning (SF) Interference of social activity Time of interference	Any perceived limitations: "not at all-slightly-moderately-quite a bit-extremely"
Role emotional (RE) Due to emotional problems Cut down time for work Accomplishing less Not work as careful as usual	Yes/No
Mental health (MH) Nervous Felt down in the dumps Calm, peaceful Downhearted and blue Happy	Positive and negative feeling during the last 4 weeks: "all of the time-most of the time-a good bit of the time-some of the time-a little of the time-none of the time"

* Adapted to Tanzanian culture

In the current study a Swahili version of the SF-36 questionnaire was used (Wyss et al., 1997). All items (table 8) had been translated from American English into Swahili using translation back-translation procedure (Smide, 2000). The items concerning the physical functioning health domain were modified to match with the Tanzanian culture (McLarty,1993).

One questionnaire included two broad open questions, namely “what is the definition of quality of life” and “what does quality of life mean to you?”

Questions about Demographic and diabetes related variables

All respondents were asked about sex and age.

BMI, patient's weight was taken and divided by height (m^2). People were told to undress the shoes and stand by the wall having measurements in metric system; a board was applied on top of the head touching the wall on the marked area and the investigator reads the nearest exact height in centimeters.

Weight were checked using a bathroom scale, prior to the weighing procedure the scale was adjusted to zero.

People with a BMI below 20 kg/m^2 were regarded as underweight; BMI $20\text{-}24.9 \text{ kg/m}^2$ as normal weight; $25\text{-}30 \text{ kg/m}^2$ as overweight and BMI $>30 \text{ kg/m}^2$ was classified as obese (Swai et al., 1990).

Blood glucose examination

Blood was examined for glucose by using a portable Glucometer (11 Boehringer – Mannheim, Germany). This was used to test the blood glucose value. This test was used prior the introduction of the new WHO diagnosis criteria. The reference value applied using this method was $<6.7 \text{ mmol/L}$

HbA1c (glycosylated haemoglobin)

It was measured in capillary blood using filter papers (HbA1c via Post, Boehringer-Mannheim). The normal reference for the method is 4.0 – 5.2 %. These samples were brought to Sweden and were examined through a method called ion exchange chromatography. During examination days the test samples were kept in cooler bags and at the end of the day all samples were put in a deep freezer.

Ethical consideration

The medical research committee at MNH approved the study design. At the district hospitals, the medical officer was informed about the aim of the study and how it would be conducted. The diabetic patients had been informed through advertisements in local newspapers, through radio and via pamphlets on the notice boards on each diabetes clinic. Patients who had been reached by this information and who were willing to come for a second check-up turned up. When coming to the clinic they were again informed that it was a research project they participated in.

Prior to meeting the nurse students, the head at the School of Nursing was contacted and permission was given to ask the students. They got the information in the classroom when their teachers were present. They also got information about the study as such, and that all participation was voluntarily. Anyhow all students found it very exciting and all wanted to be included in the study.

The two nurse teachers who did the data collection informed the medical staff at the three district hospitals about the study. All respondents, both the diabetic patients and the non-

diabetes people were informed about the study and were asked whether they wanted to participate. All respondents agreed to be included.

Statistics and analysis

Results are presented as means \pm SD. Paired t-tests were used for group comparisons on interval levels. We considered differences significant at $p < 0.05$. When calculating the comparisons regarding the SF-36 scoring between diabetic patients and non-diabetes people, the effect size was used, which is the quotation between the difference and the weighted standard deviation (Ware et al., 1993).

The answers regarding the two open questions about quality of life were independently read by two nurse teachers several times. After each teacher had gone through the answers there was a discussion about the different answers and the meaning of them. After the first categorization was done there was a 95 % agreement between the two teachers. This was followed by a new discussion regarding the discrepancies till a 100 % agreement was reached. There was an agreement about how to label the different categories. Eight categories emerged and were labeled for the questions dealing with the definition of quality of life. Five categories were labeled for the questions about what quality of life meant to the individual person. After having done this, all respondents' answers were read again and the answers were clustered under each category. This procedure was done by both teachers. The categories that emerged from all the respondents' answers about the two questions "Definition of quality of life" and "What is quality of life for you" are presented in table 9 and 10 respectively. Also examples concerning how the answers were clustered are presented. The categorization was based upon 351 answers concerning quality of life and 437 concerning what quality of life means to each individual person.

Table 9. Categories of the definition of quality of life and examples of respondents' answers.

Category	Examples of respondents answers
1. Satisfaction with basic needs	To get food, to get every thing, clean water, Eat well, good enough food, Needs to be met on time, have clothes, Shelter for protection (good house, good place to sleep), good environment and hygiene and good place to live, ventilation, diabetic diet
2. Quality of life satisfaction	To get the necessary, body requirements Have enough money and education Proper treatment, needs to be met on time Take care of her/himself, to afford what to eat Good production, living well with society Having happy life, financial capability in purchasing ones needs
3. Health factors	Free from diseases, get proper treatment Have good health, being well Health family, able to take care of herself Access to health facilities
4. Economical burden	Low socio-economical status, standard of living Affected economically
5. Striving for better conditions	Afford what to eat, to make good income Struggle for a good education, to have a good income
6. Educational factors	Good education, educate children, good level of Education, education for a good education To have knowledge,
7. Importance of employment	Earn good salary, having enough money, having good income
8. Participation in social factors	Traditional activities, have a good and happy family, participate in domestic activities. Good interaction with other people, enjoy with friends, being with family and friends, to be with family, some one to care for him/her, live in piece, good social life, interactions with others, work free without being disturbed, to be respected as human being

Table 10. Categories of the meaning of the quality of life to each individual person and examples of the respondents' answers.

Category	Examples of the respondents' answers
1. Health factors	To be cared, to be well, to eat diabetic diet, able to work, live in a good way, free from diseases, being well in health status, healthy life, free from danger, physical fit, proper health care, good facilities in hospital.
2. Satisfaction with basic needs	Get food easily, meet daily needs, enough food to eat, meet essential needs, good place to sleep, eat what I want, have a house, daily requirements, free from problems, get drugs, clothes and food, good diet, good life, good dressing and clothes, good housing shelter, good environment, good place to live
3. Economical factors	Get money to buy food, to buy clothes, to have a house, to do something to earn money, to afford good food, able to get diabetic diet, able to feed family good diet, to afford good education, to have good income, to afford daily activities, wealth
4. Social factors	Happy with family, missing her husband, unable to move freely, uncomfortable, having a good happy family, health family.
5. Educational factors	Good education, educating children, level of education, educate children, educate mother in MCH clinic, health education to the community

RESULTS

Self-perceived health measured by SF-36

Diabetic patients scored significantly lower in seven of the eight health domains, thus indicating poorer health than people not having diabetes. The exemption was the social functioning health domain (SF), although diabetic patients reported poorer health than non-diabetes people. The scoring in both groups is presented in table 11. The highest scores in diabetic patients were found in the Physical functioning (PF) domain while the poorest health was reported in the general health (GH) domain.

Table 11

Mean values (\pm S:D) and effect size for SF-36 health domains in diabetic and non-diabetic patients.

SF-36 health domains	Diab pat n=68	Non diab people n=60	Mean difference	Effect size	P-value
PF	78 \pm 23	92 \pm 12	- 14	0.80##	<0.0001***
RP	61 \pm 44	86 \pm 28	- 25	0.69##	0.0002***
BP	58 \pm 30	76 \pm 25	- 18	0.65##	0.0032***
GH	49 \pm 19	66 \pm 17	- 17	0.47##	<0.0001***
VT	62 \pm 19	71 \pm 18	- 9	0.47##	0.0047**
SF	74 \pm 25	80 \pm 19	- 6	0.27#	0.1299
RE	66 \pm 40	83 \pm 29	- 17	0.49##	0.0140*
MH	69 \pm 20	77 \pm 15	- 8	0.46##	0.0188*

All scales 0 – 100. A high score indicates better health.

Significance levels: * P<0.05; **P<0.01; *** P<0.001.

Effect size: #=small (\geq 0.2 - <0.4); ##=moderate (\geq 0.4. <0.8).

Quality of life defined by people having diabetes

The answers regarding the definition of the concept quality of life included many different answers. Eight categories were labeled. All diabetic patients had given some example that labeled under the category "satisfaction with life." This meant that the respondents considered basic needs most important. Many had highlighted the need of having enough food and good food. Especially many also mentioned food for diabetic people. Nineteen patients had included answers like having a happy life, living well within the society. Also economical aspects were

answered and put in relation to many other aspects. One example was; “financial capability in order to be able to care for the family.” Four persons mentioned answers that were labeled under the category “striving for better conditions”. The answers in relation to each category are presented in table 12.

Quality of life defined by people not having diabetes

Fifty out of the 60 people included in this group gave answers, which were labeled under the “satisfaction with basic needs” category. Thirty-nine persons had given answers, which were labeled under the category “Satisfaction with life”. Only 2 persons had included “importance of employment” to be considered in the quality of life definition. The labeling of the different answers in this group is presented in table 12.

Table 12. Number and percentages of answers totally (351 answers) given by diabetic patients and non-diabetes people regarding definition of quality of life.

CATEGORIES	150 answers given by 68 diabetic patients	201 answers given by 60 non diabetes people
<i>Satisfaction with basic needs</i>	68 (45 %)	50 (25 %)
<i>Quality of life satisfaction</i>	19 (13 %)	39 (19 %)
<i>Educational factors</i>	17 (11 %)	7 (5 %)
<i>Economical burden</i>	14 (9 %)	17 (8 %)
<i>Importance of employment</i>	10 (7 %)	2 (1 %)
<i>Health factors</i>	10 (7 %)	22 (11 %)
<i>Participation in social factors</i>	7 (5 %)	33 (16 %)
<i>Striving for better conditions</i>	4 (3 %)	31 (15 %)

In table 12 the percentage is calculated on the total number of answers given in each group.

Personal perception regarding quality of life in diabetic patients

Most obvious among the answers in the group of diabetic people was the importance of economical factors. Specifically many patients brought up the problems to be able to buy food

suitable for the diabetes disease. Also many mentioned that the income was too little. Out of the 244 answers given 108 concerned economical factors. The category "basic needs satisfaction" included 83 answers. Under the category "social factors" 6 answers were gathered. The different categories and how the patients' answers were labeled are presented in table 13.

Personal perception regarding quality of life in people not having diabetes

Totally 193 answers had been given regarding the question "What does quality of life means to you?" When scrutinizing these answers five categories had emerged. Most answers were given under the category labeled economical factors. No answer was given categorized as social factor. The different answers are presented in table 13.

Table 13. Number and percentages of the totally 437 answers given concerning the question "what does quality of life means to you?"

Categories	244 answers given by 68 diabetic patients	193 answers given by 60 non diabetes people
<i>Economical factors</i>	108 (44%)	66 (34%)
<i>Satisfaction with basic needs</i>	83 (34%)	58 (30%)
<i>Health factors</i>	33 (14 %)	53 (28%)
<i>Educational factors</i>	14 (6%)	16 (8%)
<i>Social factors</i>	6 (2 %)	- (0%)

In table 13 the percentage is calculated on the total number of answers given in each group.

Totally diabetic patients had given 244 answers and non- diabetes people 193 answers. One person might have given more than one answer categorized under the heading of one category. Besides the above categories some respondents had made a judgment regarding their own quality of life. Sixteen answers in the group of diabetic patients had considered their quality of life being average while 2 in the other group had judged their quality of life to be average.

Differences between the two groups regarding the concept quality of life

In the group of diabetic patients more people had given answers categorized under the label "satisfaction with basic needs" while in the other group 50 out of the 60 non-diabetes people had expressed something labeled to this category. Furthermore the non-diabetes group had given more answers labeled as health factors. Four diabetic people answered striving for better conditions while in the other group, 31 persons answered this. The different answers are presented in table 12.

Differences between the two groups regarding the perceived quality of life

Fifty-one more answers had been given by the diabetic patients group. A great difference was seen between answers about health factors. The answers given in both groups are presented in table 13.

DISCUSSION

General discussion

The overall aim in the current study was to investigate quality of life in a group of diabetic patients and to compare the results with non-diabetic people. The generic health questionnaire SF 36 was used for asking people about their self-perceived health. The group of diabetic patients reported their health to be poorer than people not having diabetes in eight health domains, although the differences were significant in seven out of the eight domains. The results from the open-ended questions showed that the expressed satisfaction of basic needs was more expressed by the diabetic patients. The answers about striving for better conditions were more obvious in people not having diabetes.

Self perceived health measured by SF-36

Many researchers in many different countries have used the questionnaire SF-36. In the current study the same results were found as have previously been shown in a study performed at MNH (Smide et al., 1999). Especially low scorings, indicating a poorer health, were found in both groups in the general health (GH). These were the findings also in Smides study, (2000) and there might be a language problem in this health domain. Maybe the different questions asking about the patients' health could be misunderstood. Further studies might get an answer about this phenomenon. Poorer health in diabetic patients was also reported by (Aalto et al., 1997) who found lower scorings in diabetic patients having complications. The Swedish study by (Wandell and Tovi, 2000) also reported about poorer health in diabetic people than the general population.

An interesting view is whether the questions included in SF -36 are understood and interpreted in the same way by Tanzanian people as people living in other developing countries or in Europe. Using this questionnaire someone has to think of Tanzanian culture in relation to health.

The open-ended questions

Definition of the concept quality of life

All diabetic patients had given some examples, which were categorized under the heading satisfaction. Fewer people in the non- diabetes group had done so. This finding might give some indications about that diabetes patients are very concerned about what they eat. This means that it is most important to consider what Maslow, (1995) has stated namely that basic needs must be met before reaching the highest need. Quality of life satisfaction expressed in the definition was more to the non- diabetes people than diabetic patients; the same reported in USA by (Brown et al., 2000) who found that the presence of diabetic complications and dependence upon insulin appear to decrease quality of life. Hanestad et al., (1992) stated that diabetic patients with diabetes type I who perceived greater impact of diabetes disease in their daily life reported reduced quality of life experience. Another finding was that health needs were in correspondence to factors that has been indicated in the Diabetes Bulletin (2000), which states that health factors are of importance for quality of life. Other studies have experienced the same that quality of life to healthy individuals involves the possibility of perfection and infinite improvement where a higher degree of excellence towards healthy lifestyle is achieved. Aalto et al., (1997) showed physical functioning to be by far the most important factor for perceived health. Rogers, (1991) had same impression that health indicates a state of well-being and absence of illness or diseases. Economical factors were more highlighted by diabetic patients compared to the non-diabetes. This was supported by Watkin et al., (2000) who stated that

people with diabetes are often restricted in the amount, types and timing of food consumptions (e.g. meals at certain times, waiting for insulin effect before eating and between meal snacks). These restrictions may negatively affect individuals' perceptions of life quality and interactions with others.

Jayant, et al., (2000) showed that improved blood glucose control in patients with diabetes mellitus is associated directly with improvement in several quality of life measures where short term benefits have been demonstrated in patient's mood, affect and sense of well-being and alertness.

Opinions perceived individually in relation to striving for better conditions were expressed more by the non-diabetes people than the burden that was negatively associated with quality of life in diabetic patients facing long-term complications and have to deal with uncertainties of life (Watkins et al 2000). Nevertheless among well-regulated diabetes, the coping tasks focus on adjusting to both daily life and self care demands hence patients experienced diabetes specific health behaviors which were related to an increased sense of burden.

In the current study diabetic patients showed interest on educational issues compared to the non-diabetes people. This might indicate that the diabetic patients needed knowledge about how to cope with their disease. The same was reported by Aalto et al., (1997) who stated that patients' feelings regarding personal competence in dealing with the demands of diabetes are important.

The importance of employment was highlighted more by the diabetic patients. This might be a consequence of that this group needed income in order to be able to buy drugs (Chitakata and

Khare, 1998). From the individual opinions, participation in social activities was expressed more by the non-diabetes than diabetic patients. This is supported by the study conducted by Aalto et al., (1997) which indicated the importance of physical functioning, perceived adequacy of social support and diabetes related psychosocial factors as modifiers of HRQOL (Health related quality of life). This is also supported by Hanestad, (1992) who stated that living with diabetes needed to be considered in a psychosocial context (Bradley and Marteau, 1986).

More diabetic than non-diabetes people expressed that they regarded their own quality of life being average. The same answers had not been given in the group of non-diabetes people. This might be explained by the fact that the group of non-diabetes people did not consider whether their quality of life was average or not. Furthermore it could be interpreted as that the many diabetic patients wanted to indicate that the diabetes disease did not influence their lives. Further studies are needed to explore this interpretation.

The personal perception of quality of life

Health factors were found to be less mentioned among diabetic patients than among the non-diabetes people. Similar observations were made in USA (Caldwell et al, 1998) and in Sweden (Wandel and Tovi., 2000). Satisfaction with the basic needs were mentioned by more diabetic than non-diabetes people. It might be that in Tanzania, being a developing country the basic needs are so fundamental. People regarded this as very basic and without these needs being satisfied people do not consider other problems. This finding is in concordance with Maslow's theory about basic needs (1995).

It is primarily the individual's own perception of satisfaction within the different life domains and well-being that determines quality of life (Gleitman, 1995). The current study also indicated

that the diabetic patients were to some extent satisfied with their lives despite their disease. Economical factors were perceived more by the diabetic patients than the non-diabetes people. Similar observations were expressed by diabetic patients who most probably could not afford to purchase drugs to control their sugar levels hence they had to remain with elevated sugar levels for long periods (Eastman et al 1997).

Even the previous study conducted in Tanzania showed that diabetic patients had poor standard of living since diabetic treatments consume the total annual income of a peasant, including traveling long distances to buy the drugs (Chale et al., 1992). A study conducted in USA showed the same, namely that lower income led to poor quality of life (Glasgow et al., 1997) and that treatment is cost-effective for those with longer glycaemic exposure (Philips, 1998).

Social factors were perceived by very few diabetic patients in comparison with none of the non-diabetic people. This is also applicable to Hanninen et al., (2001) who found out that distress, anxiety, dietary restrictions and need for monitoring blood sugar levels, mentally affected diabetic patients. educational issues were more or less equally expressed in the two groups. In this regard diabetic patients preferred the knowledge as it enabled them to understand changes that takes place in their body and good compliance with disease management (Aalto, et al., 1997).

Comparing SF-36 health domains and the respondents answers

The SF-36 questionnaire included eight different health domains. The answers regarding the open questions generated many opinions. Eight and five categories respectively emerged from the answers. Satisfaction with basic needs and economical factors were obvious in the answers. None of these factors were included in the SF-36. Most probably the different health domains

included in the SF-36 questionnaire should be expanded for use in developing countries. Also the general health (GH) domain need to be further investigated, as studies so far being done, has showed so low scores, indicating a poor perceived health, both in diabetic and non diabetes group of people.

Methodological discussion

The diabetic patients had two years earlier participated in the study performed at MNH. The same researchers had done that investigation. It is difficult to know whether there were any effects due to the earlier participation in a study. Also it could be supposed that those few patients who came for the second follow up were those who best cared for their diabetes disease. This raises the question whether a new study could explore more information about the diabetic patients perceptions.

The people included in the control group were nurse students and staff working in the hospitals. It is difficult to say whether a group of people not attached to hospital environment would have given the same answers. Also the group of students was dominant in the control group and there might have been different answers given whether another group had been asked the same questions.

In qualitative studies there are always discussions how to categorize the respondents answers. Two nurse teachers scrutinized all answers in the current study. They knew the culture in the country very well and a hundred percent agreement was reached about the different answers. Further studies might include more teachers in doing the categorizations.

Limitation of the study

Diabetic patients, who were just to go in the consultation room for their turn, had no time to express themselves. This could have led to low coverage of the sample size: to avoid hurried interview the researcher had to wait until consultation was through. The control group may not perceive the seriousness of expressing their feelings on quality of life; as a result they could have just given pleasing answers to the researcher. In order to counteract this, the researcher took time to inform the respondents on the importance of the study, and hence the need for giving true expressions.

Conclusions and recommendations

Diabetic patients perceived a poorer health than people not having diabetes when the generic health questionnaire SF-36 was used. Diabetic patients also gave more answers regarding educational factors thus indicating a wish to learn more, many patients had also expressed the need to learn more about the diabetes disease. These outcomes give some hints about that diabetic patients might be very interested to learn more about the disease. They are not satisfied with their current knowledge. It could be recommended that further detailed study is needed to explore what patients want to learn. As very few patients turned up for the second investigation it is most important that the staff at different clinics really get the patients to understand the importance of regular clinic attendance.

Recommendation for further studies

This study could be seen as a base for further studies to be planned to explore quality of life in other groups of people:

- * Secondary School
- * People attending masses in church

* People in the living compounds

It is also important to enquire about one's health status when giving care to our patients.

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