PJN
ISSN 1680-5194

PAKISTAN JOURNAL OF NUTRITION

ANSInet
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorpjn@gmail.com

OPEN ACCESS Pakistan Journal of Nutrition

ISSN 1680-5194
DOI: 10.3923/pjn.2018.207.213

Research Article
Assessment of Counselling Outcomes on the Improvement of Health-related Quality of Life (HRQoL) among Patients with Type 2 Diabetes Mellitus in Makassar, Indonesia

Sri Syatriani

Postgraduate Program of Faculty of Medicine, Hasanuddin University, Makassar, Indonesia

Abstract

Background and Objective: The prevalence of diabetes mellitus continually increases in Indonesia and has shown an ascending trend in the last five years, as indicated in several Indonesian basic health survey reports. It increased from 1.5% in 2010 to 2.1% in 2013 and rose to 5.8% in 2014 and 9.1 million cases in 2015. This study aimed to assess counselling outcomes on the improvement of health-related quality of life (HRQoL) among patients with type 2 diabetes mellitus in the coastal areas of the Makassar municipality. **Methodology:** The study used a non-randomized pre-test and post-test control group design. The samples assessed in this study were patients with type 2 diabetes mellitus who were from the coastal areas of the Makassar municipality, leading to a total sample size of 80 respondents. Data from the sample were processed and analysed using a paired t-test. **Results:** The results of the assessment indicated that the health intervention involving counselling could improve HRQoL in patients with type 2 diabetes mellitus. There was a statistically significant difference before and after the intervention in patients with type 2 diabetes mellitus ($p = 0.000$). The number of patients affected by type 2 diabetes mellitus showed that poor HRQoL could be improved, as shown by the mean value of 21.77. **Conclusion:** A health intervention involving counselling could improve HRQoL in patients with type 2 diabetes mellitus from the coastal areas of the Makassar municipality.

Key words: Counselling, health-related quality of life (HRQoL), diabetes mellitus type 2, demographic characteristics, social relationship

Received: July 17, 2017 Accepted: February 23, 2018 Published: April 15, 2018

Citation: Sri Syatriani, 2018. Assessment of counselling outcomes on the improvement of health-related quality of life (HRQoL) among patients with type 2 diabetes mellitus in Makassar, Indonesia. Pak. J. Nutr., 17: 207-213.

Corresponding Author: Sri Syatriani, Postgraduate Program of Faculty of Medicine, Hasanuddin University, Makassar, Indonesia Tel: +628124122230

Competing Interest: The author has declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

Counselling for type 2 diabetes mellitus is an important part of improving health-related quality of life (HRQoL), as this disease can reduce physical, mental and social well-being, as well as aggravate glycaemic conditions over the short- and long-term. The global prevalence of patients with type 2 diabetes mellitus regularly shows an ascending trend every year and the predicted number of patients with type 2 diabetes mellitus derived from global diagnoses will be 439 million cases in the year 2030[1].

The estimated prevalence of type 2 diabetes mellitus in Indonesia will reach 21.3 million by 2030 [1]. However, the actual prevalence of diabetes mellitus has continually increased in Indonesia over the last 8 years, as reported by National Basic Health Research. In 2007, it was 1.1%[2] and showed a persistent, regular increase from 1.5% in 2010 to 2.1% in 2013[3]. In 2014, the prevalence of diabetes mellitus slightly increased to 5.8%[4] and rose to 9.1 million cases in 2015[5].

At the provincial level, the prevalence of diabetes mellitus cases in the South Sulawesi province has clearly shown an increasing trend over the last 6 years and reached 0.8% in 2007[2]. In 2013, the prevalence of diabetes mellitus in this province accounted for up to 3.4% for people $\geq$15 years of age. Additionally, this province had the third highest number of diabetes mellitus cases of all the provinces in Indonesia[3].

The prevalence of diabetes mellitus in the South Sulawesi province has shown a regular increase over the last 3 years, with 14,067 cases in 2012, which increased to 14,604 cases in 2013 and 21,452 cases in 2014 [6]. Health-related quality of life in patients with diabetes mellitus is affected by several factors such as gender, age, race, socioeconomic factors, psychosocial factors, obesity, physical exercise, consumption of alcohol, smoking habits, disease complications, poor control of diabetes mellitus, inadequate health management, solitude, social support and diet/eating habits[7].

Continuous counselling improves the health of patients, creates a positive impact on therapeutic outcomes, enhances healthy lifestyles of patients and boosts good social relationships between patients and other individuals. This was confirmed in a study conducted by Adepu and Madhu[8] in India, wherein the overall mean scores of health-related qualities of life in patients with diabetes mellitus improved in the intervention group compared to the control group after pharmacists provided counselling ($p<0.05$)[8]. Recently, the studies in Indonesia focusing on adherence to medication and its correlation to quality of life[9]. Studies on the impact of counselling on the quality of life of diabetes mellitus patients do not exist yet. Based on the background described above, this study aimed to assess the outcome of counselling on the improvement of HRQoL among patients with type 2 diabetes mellitus in the coastal areas of the Makassar municipality.

MATERIALS AND METHODS

Data collection: The research design used in this study was a non-randomized pre-post-test control group design. Data were collected from three community health centres (Puskesmas), namely Pattingaloang Community Health Centre, Tabaringan Community Health Centre and Barombong Community Health Centre. The study samples were divided into 2 groups, namely, the control group and the intervention group. A total number of 80 study participants enrolled during this study (40 respondents in each group) were selected by using purposive sampling. The study participant criteria, namely diabetes mellitus type 2 at least within a year, living in the coastal area in Makassar municipality and consuming diabetic oral drugs. The recruiting procedure was preceded by requesting a willingness to be study participant through informed consent.

Counselling materials including, concept of diabetes mellitus management, concept of healthy eating index and concept of quality of life among diabetic patients. These materials have been given for 1 month. The initial intervention step was performed by compiling demographic and baseline cohort data and it was followed by conducting both interview and intervention sessions. The period of intervention consisted of three sessions, i.e., an intensive counselling session for 1 week, a reinforcement session for 1 month and a diabetes self-supervision session for 1 week. After the intervention period, the HRQoL data among respondents with type 2 diabetes mellitus were processed and analysed using a statistical test. The HRQoL was measured by using quality of life questionnaire issued by WHO (WHO-QoL). All data were collected through interview of developed questionnaire. Counselling was delivered by visiting the respondent's home, providing health advice and performed focus group discussions.

Statistical analysis: Health-related quality of life (HRQoL) was measured using a paired sample t-test to compare the improvement in HRQoL between the control group and the intervention group after receiving counselling. For both groups, the correlation of HRQoL between before and after counselling was measured and using significant value ($p = 0.05$).

RESULTS AND DISCUSSION

Demographic and baseline characteristics of the cohort: The demographic and baseline characteristics of the stratified cohort in this study consisted of age, gender, level of education, occupation and marital status. Based on age, the highest number of respondents affected by type 2 diabetes mellitus was observed in 54-59 years olds, which amounted to 19 respondents (23.8%). The least number of respondents was observed in 78-83 years olds, which amounted to only 1 respondent (1.2%), as shown in Fig. 1. With regard to the category of gender, there were 60 respondents (75%) with type 2 diabetes mellitus in the female group, which was higher than the 20 respondents (40%) in the male group, as indicated in Fig. 2. In the category of educational level, the highest number of respondents with type 2 diabetes mellitus was 52 (65%) with a primary education level and the least number of respondents was 5 (6.2%) with a university education level, as depicted in Fig. 3. In the category of occupation, the highest number of patients with type 2 diabetes mellitus was in the housewife group, which amounted to 52 respondents (65%) and the least number of patients with type 2 diabetes mellitus was in both the unskilled labourer and private employee groups, which amounted to 1 respondent (1.2%) each, as indicated in Fig. 4. In the category of marital status, 70 respondents (87.55%) were categorized as being married, as shown in Fig. 5.

The results of the assessment in this study indicated that health-related quality of life (HRQoL) improved among respondents affected by type 2 diabetes mellitus, as shown by statistically significant differences for all respondents between before and after counselling intervention ($p<0.001$) (Table 1). This was indicated by a reduction in poor health-related quality of life (HRQoL) among respondents, as shown by the

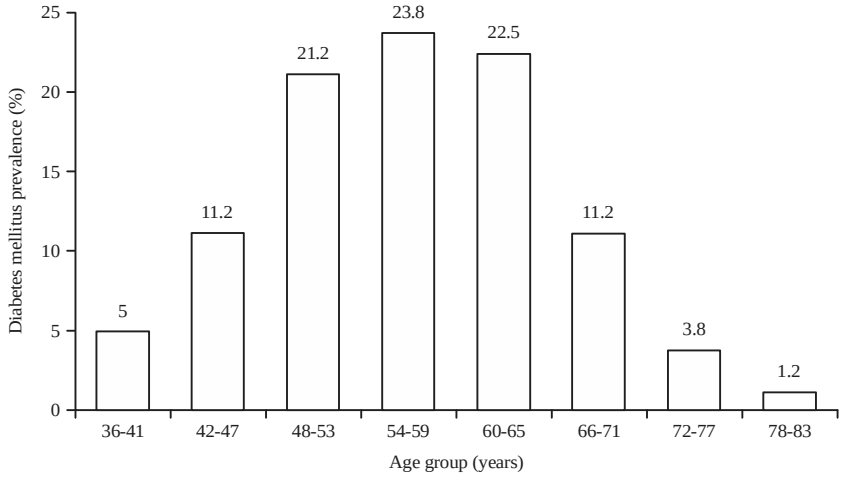

Fig. 1: Age categories of respondents affected by type 2 diabetes mellitus

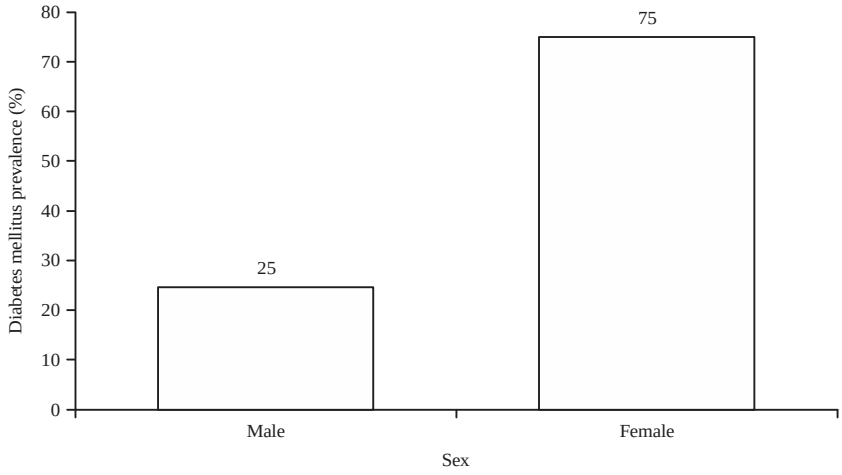

Fig. 2: Gender categories of respondents affected by type 2 diabetes mellitus

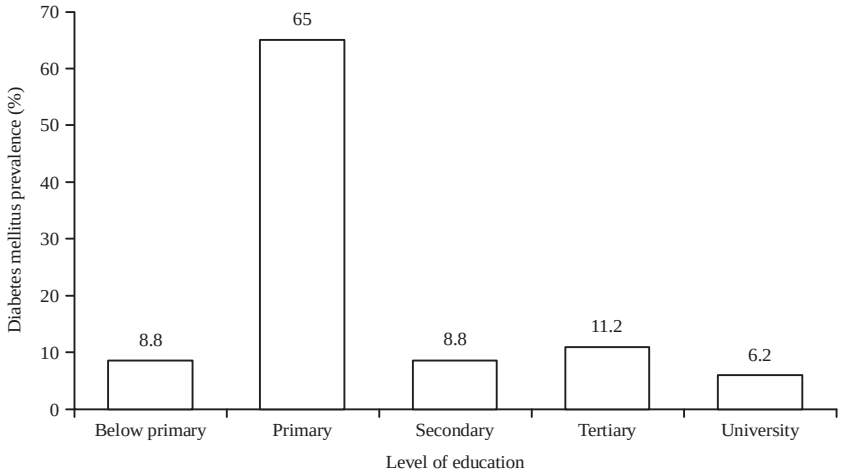

Fig. 3: Educational level categories of respondents affected by type 2 diabetes mellitus

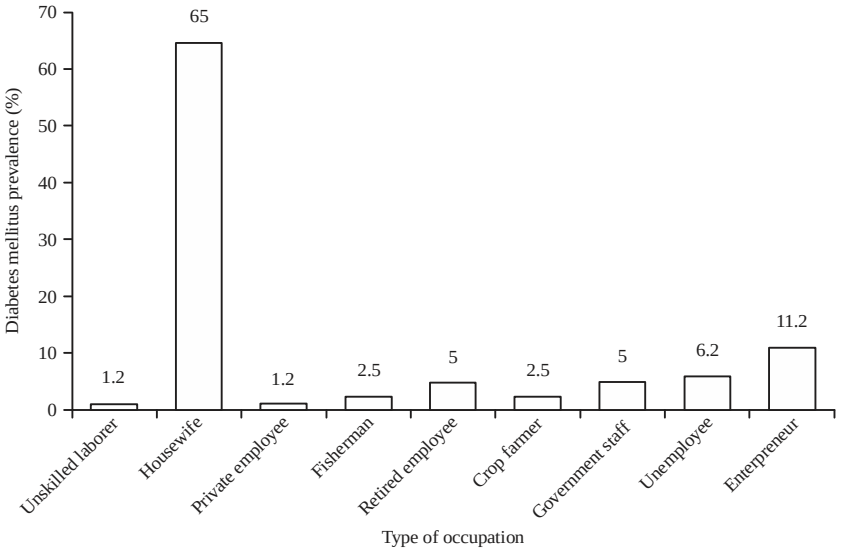

Fig. 4: Occupational categories of respondents affected by type 2 diabetes mellitus

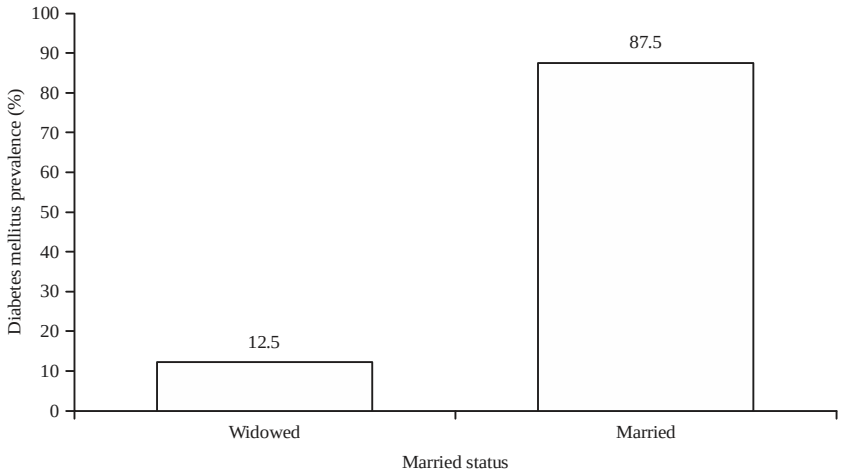

Fig. 5: Marital status categories of respondents affected by type 2 diabetes mellitus

Table 1: Differences in mean scores of health-related quality of life (HRQoL) among respondents before and after the intervention (n = 80)

Groups	Before intervention (Mean±SD)	After intervention (Mean±SD)	Difference	p-value
Intervention	66.47±9.9	88.25±4.7	21.77	0.000
Control	86.82±9.8	82.27±7.0	4.50	0.015
p-value				0.000

Source: Primary data, 2016

Table 2: Significant differences in each domain of health-related quality of life (HRQoL) among respondents before and after the intervention (n = 80)

	Before intervention		After intervention	
Domains	n	%	n	%
Physical health				
Poor	44	55.0	28	35.0
Improved	36	45.0	52	65.0
Physiological condition				
Poor	44	55.0	25	31.2
Improved	36	45.0	55	68.8
Social relationship				
Poor	57	71.2	31	38.8
Improved	23	28.8	49	61.2
Social environment				
Poor	50	62.5	23	28.8
Improved	30	37.5	57	71.2

Source: Primary data, 2016

overall mean score of 21.77. Before the intervention, the overall number of respondents categorized as having poor HRQoL score merely 40 respondents (50%) and a month after the intervention, the number of respondents who showed poor health-related quality of life (HRQoL) was decreased, as shown by an improvement in health-related quality of life (HRQoL) from 11 respondents (13.8%) to 29 respondents (46.2%).

Each domain of health-related quality of life (HRQoL) for all respondents showed improvement after the intervention. Before the intervention, 44 respondents (55.0%) were categorized in the poor physical health domain and this number was reduced to 28 respondents (35.0%) after the intervention. Forty-four respondents (55.0%) were categorized in the poor physiological health domain and this number was reduced to 25 respondents (31.2%). Fifty-seven respondents (71.2%) were categorized in the poor social relationship domain and this number decreased to 31 respondents (38.8%) after the intervention. In addition, 55 respondents (55.0%) were categorized in the poor social environment domain and this number was reduced to 23 respondents (28.8%) after the intervention (Table 2).

Outcome of counselling on the improvement of health-related quality of life (HRQoL) among type 2 DM patients: Counselling for diabetes mellitus is a health counselling activity involving how to shape patient's diet or eating habits properly, giving regular medication, blood glucose monitoring and diabetes self-management assisted by public health employees, mothers or other family members.

Diabetes is a cultural and family-inherited disease that is associated with all outcomes of behaviour and thought related to healthy lifestyles. In addition, each family member may possibly be at risk of being affected by this disease, as it is more closely related to the healthy lifestyle of an individual raised in a family since childhood. Accordingly, the appropriate solution to tackle diabetes mellitus is counselling involving all family members as private health care advisers[8,10].

Health-related quality of life (HRQoL) was assessed in respondents with type 2 diabetes mellitus who received counselling in this study, which involved the participation of their family members as private health care advisers who suggested and reinforced the respondents in maintaining their diet/eating habits, routinely checking their blood glucose, taking regular medication and engaging in sports or physical exercise.

The results of this study revealed that counselling significantly improved health-related quality of life in patients with type 2 diabetes mellitus ($p<0.001$). The results showed that this approach improved the health-related quality of life (HRQoL) of patients from 66.47-88.25 after the intervention. Furthermore, this improvement not only affected the overall domains but also for each domain, such as physical health, physiological conditions, social relationships and social environment, which improved after the intervention.

The results of the counselling approach in this study were related to those of a study conducted by Adepu and Madhu[8] in India in which the overall mean score of health-related quality of life in patients with diabetes improved after pharmacists provided counselling ($p<0.05$) based on a comparison between a control group and intervention group. Continuous counselling improves the health of patients, increases the positive impact on therapeutic outcomes, enhances the healthy lifestyle of patients and boosts good social relationships between patients and other individuals[8].

This study also corresponds to another study by Mahant[11] in India in which health-related quality of life in patients with diabetes mellitus improved after counselling provided by public health employees. This demonstrated the long-term improvement on metabolic control and diabetes self-management based on the results of a statistical test at $p<0.05$[11].

In addition, the results of this study correspond with a study conducted by Faria *et al.*[12] in Brazil that implemented an educational programme with the participation of family members and the overall mean quality of life scores of patients with diabetes mellitus clearly improved ($p<0.05$). The mean score before the intervention was 63.96 and the mean score after the intervention was 70.59[12].

Familial support (husband/wife) encourages the well-being of patients with diabetes mellitus and reduces depression. Either the husband or wife can adopt an active role by providing physical and moral support to the patient with diabetes mellitus. This was confirmed in a study at the Trucuk Community Health Centre in the Klaten District in which physical and moral support provided by family members noticeably had a significant effect on the reduction of depression in patients with diabetes mellitus[13].

The implementation of counselling in patients with type 2 diabetes mellitus aims to maintain health by monitoring blood glucose and delaying the development of complications. An active social role through the involvement of family members is imperative for supervising and monitoring their relatives affected by diabetes mellitus to achieve success in diabetes mellitus management. Social support derived from family members can make patients with diabetes mellitus feel peaceful and protected. As such, they do not feel isolated and are willing to cooperate with and follow health advice[10].

Family members can assist in the health counselling of patients with type 2 diabetes mellitus by helping them adhere to dietary guidance by the HEI 2010, such as eat well, order and take their medicine, check their blood glucose and participate in regular physical exercise. This requires families to constantly supervise and provide advice to the patients as well as to ensure that they adhere to rules of a healthy lifestyle. In addition, family members, including their wife, husband, children, or parents, should inspire and motivate patient to experience basic self-acceptance to improve their quality of life and reduce the risk of complications. Such efforts assist in the management of diabetes mellitus because adequate health counselling maintains good health. This study is confirmed by Kurniadi and Nurrahmani[13] in which good social support and motivation provided by the social environment and consciousness of self-acceptance despite suffering from diabetes mellitus improved healthy lifestyles of patients with diabetes mellitus.

Health counselling conducted by health professionals and the assistance of family members is an appropriate health intervention that can increase health-related quality of life (HRQoL) in patients with type 2 diabetes mellitus through the supervision and monitoring of healthy lifestyles of patients. This intervention assists public health employees in managing diabetes mellitus. In fact, health services provide to the diabetes mellitus patients are not able to perform optimally because lack of capacity of employee to fulfil the health services.

CONCLUSION

This study indicated that counselling provided by public health employees significantly improved the health-related quality of life (HRQoL) of patients with type 2 diabetes mellitus among the coastal communities of the Makassar municipality. In addition, family members should be involved in providing diabetes education along with professional healthcare staff in their supervisory and training role among patients with type 2 diabetes mellitus.

ACKNOWLEDGMENT

The authors would like to express gratitude to their mentors for their invaluable discussions. This study was supported by the Makassar School of Health Sciences in the Makassar Municipality of the South Sulawesi Province of Indonesia and Hasanuddin University in Indonesia.

REFERENCES

1. Alfian, S.D., H. Sukandar, K. Lestari and R. Abdulah, 2016. Medication Adherence contributes to an improved quality of life in type 2 diabetes mellitus patients: A cross-sectional study. Diabetes Ther., 7: 755-764.
2. National Basic Health Research, 2007. National health survey report. National Institute of Health Research and Development, Ministry of Health of the Republic of Indonesia, Jakarta, Indonesia.
3. National Basic Health Research, 2013. National health survey report. National Institute of Health Research and Development, Ministry of Health of the Republic of Indonesia, Jakarta, Indonesia.
4. IDF., 2014. Diabetes: Facts and figure. International Diabetes Federation, Brussels, Belgium.
5. Rudijanto, A., 2015. [Diabetes patients predicted achieve 9.1 million cases in Indonesia]. 8 August 2015, http://www.bisnis.com/, (In Indonesian).
6. Regional Health Department of Makassar Municipality, 2014. Health profile of South Sulawesi province, Makassar. Regional Health Department of Makassar Municipality, Indonesia.

7. Morewitz, S.J., 2006. Chronic Diseases and Health Care: New Trends in Diabetes, Arthritis, Osteoporosis, Fibromyalgia, Low Back Pain, Cardiovascular Disease and Cancer. Springer, USA., ISBN-13: 9780387287782, Pages: 376.
8. Adepu, R. and S. Madhu, 2011. Influence of post discharge counseling on health outcomes in diabetic and hypertensive patients. Asian J. Pharmaceut. Clin. Res., 4: 28-33.
9. Shaw, J.E., R.A. Sicree and P.Z. Zimmet, 2010. Global estimates of the prevalence of diabetes for 2010 and 2030. Diabetes Res. Clin. Pract., 87: 4-14.
10. Miller, T.A. and M.R. DiMatteo, 2013. Importance of family/social support and impact on adherence to diabetic therapy. Diabetes Metab. Syndrome Obesity: Targets Ther., 6: 421-426.
11. Mahant, S., 2013. Evaluating the impact of counseling on quality of life in type-2 diabetes mellitus patients. Int. J. Pharm. Archive, Vol. 2, No. 6.
12. Faria, H.T.G., V.S. Veras, A.T. da Franca Xavier, C.R. de Souza Teixeira, M.L. Zanetti and M.A. dos Santos, 2013. Quality of life in patients with diabetes mellitus before and after their participation in an educational program. Revista Escola Enfermagem USP, 47: 348-354.
13. Kurniadi, H. and U. Nurrahmani, 2014. [Prevent as Early as Possible! Symptoms of Cardiovascular Disease, High Cholesterol, Diabetes Mellitus and Hypertension]. Istana Media, Yogyakarta, Indonesia, (In Indonesian).