



Health Care Workers Communication on Diabetes Mellitus Management in Hospital and Community Health Center

Sholihatul Maghfirah^{1✉}, Rohmadi²

¹Faculty of Health Sciences, Ponorogo Muhammadiyah University, Indonesia

²Faculty of Islamic Studies, Ponorogo Muhammadiyah University, Indonesia

Article Info

Article History:
Submitted October 2017
Accepted June 2018
Published July 2018

Keywords:
communication,
diabetes management,
health care worker

DOI
<https://doi.org/10.15294/kemas.v14i1.11755>

Abstract

Diabetes Mellitus (DM) patients require DM management for life. Research proved that good quality self-care behavior of DM patients in dr. Harjono Regional Public Hospital Ponorogo and in North Ponorogo Community Health Center were still low (28,6% in dr. Harjono Regional Public Hospital Ponorogo and 50% in North Ponorogo Community Health Center). Health care worker communication is related to self-care behavior of DM patients. Differences in hospital and community health center self-care behavior in the previous study results triggered a question on the differences in hospital and community health center workers communication. This study was conducted in 2017 and aimed to explain the difference of health care workers communication regarding DM management in hospital and community health center. This study used comparative research design with 32 respondents from dr. Harjono Regional Public Hospital Ponorogo and 31 respondents from North Ponorogo Community Health Center. The results showed that 78.1% of respondents in hospitals and 93.5% of respondents in community health center stated good health care workers communication. The Fisher's Exact test found p value of 0.148 which meant that there was no difference in communication of healthcare workers in hospital and community health center. Most patients in both places suffered from DM for 1-5 years and required the same health care workers communication, therefore there was no difference in the communication of health workers in both places.

Introduction

DM patients require lifelong self-management. Adequate information from health care workers plays an important role in successful self-management of DM patients. Communication of health workers about self-management of DM can improve DM patient's self-management (Kusniawati, 2011). Previous research suggested that patient's ability to understand information was needed to manage the disease. Efforts to improve patient's understanding through health literature sources are insufficient to improve adherence

to treatment. Therefore, education regarding self-management for DM patients is needed (Gracia-Perez et al, 2013). Perkeni (2015) stated that DM patients in primary health care are patients without complications. If the patients experience complications, such as severe metabolic decompensation, the patients should be referred to secondary and tertiary health care. The hospital, as secondary and tertiary level health service, is obliged to provide education on advanced DM management. Meanwhile, community health center, as primary health service, is obliged to provide education about

✉ Correspondence Address:
Faculty of Health Sciences, Ponorogo Muhammadiyah University, Indonesia.
Email : mfira87@gmail.com

early management of DM ([Perkeni, 2015](#)).

According to International Diabetes Federation (IDF), in 2013, Indonesia ranks seventh in the world regarding the number of DM patients with age of 20-79 years which reach 8.5 million people. The prevalence of DM from 2013 Basic Health Research compared to 2007 Basic Health Research was increased from 1.1% to 2.1%. [Witasari et al., \(2009\)](#) stated that more than 90% of DM patient suffered from type 2 diabetes. [Endarti & Handito \(2016\)](#) stated that diabetes is one of five non-communicable diseases related to low quality of health life. Research in United Arab Emirates found that 31% of patients have poor DM knowledge, 72 patients had negative attitude towards the disease, 57% had high HbA1c levels which reflected poor glycemic control, only 17% reported having adequate blood sugar control, while 10% disobeyed their treatment ([Al-Maskari et al., 2013](#)). A study in dr. Soepraoen Hospital found that 60% of DM patients had enough knowledge and there was a relationship between diabetes knowledge and patient's lifestyle ([Alfiani et al., 2017](#)). A study by [Nuryani \(2013\)](#) found that in Parit H. Husin II Community Health Center Pontianak, 50% of respondents had good knowledge and 46.7% of respondents behave well about the management of DM. A study in Ponorogo Chronic Health Management Program (Prolanis), which was the first level of health services equivalent to community health center, found that more than half of the respondents (58.4%) had less knowledge about DM management, especially regarding foot care ([Purwanti & Nurhayati, 2017](#)). Previous study also found that 28.6% DM patient in dr. Harjono Regional Public Health Hospital Ponorogo had good self-care ([Maghfirah et al., 2015](#)). Meanwhile, there were 50% patients which had good self-care behavior in North Ponorogo Community Health Center ([Maghfirah, 2015](#)).

Factors which affect communication process in communicator's point of view were physical and mental states, knowledge, skills, experience, media proficiency, materials, and environment. In communicant's point of view, factors which support communication were nature of openness, knowledge, and physical and mental health ([Nugroho, 2009](#)).

Good health care personnel would bring good impact to their clients ([Hutagaol & Agustin, 2012](#)). [Sweileh, et al., \(2014\)](#) found that patient's compliance to DM management was influenced by belief and knowledge. The patient's knowledge of his illness was related to medication adherence and blood sugar control ([Al-Qazaz et al., 2011](#)). [Kusniawati \(2011\)](#) found that the communication of health care worker had significant correlation with DM self-care behavior (self-care diabetes). Poor level of knowledge could cause bad management of DM which resulted in uncontrolled blood sugar levels. This will led to the emergence of acute and chronic complications of DM ([Risnasari, 2014](#)).

Differences in characteristics of patients in hospitals and community health centers must be considered by health care workers when performing health communication. Patients with complications would certainly had different treatments compared to patients without complications, therefore the method of communication would also be different ([Perkeni, 2015](#)). Patient's compliance to treatment could be improved by improving communication between health care workers and patients. Nowadays, sophisticated technology could become a new ways to improve communication between healthcare workers and patients ([Gracia-Perez et al., 2013](#)). The proper communication medium could improve someone's understanding of the obtained information. Media that could be used as communication methods were printed media (booklets, leaflets, flip charts, posters, etc) and electronic media ([Notoatmodjo, 2007](#)). A brief message from health care workers to remind people to take their medication could improve DM patient's compliance to treatment ([Susanto et al., 2017](#)).

Methods

This study used comparative research design with 32 respondents from dr. Harjono Regional Public Hospital, Ponorogo and 31 respondents from North Ponorogo Community Health Center. We used purposive sampling technique with the following sample criteria: patients which had been diagnosed with DM for at least 1 year and had been treated by health care worker. We used questionnaire from a

study by [Kusniawati](#) (2011) as instruments which consisted of 12 questions with Likert scale. The questionnaire contained questions regarding how often health care workers explain about DM management which included diet (type of food which can be consumed and should be restricted), physical exercise (it's benefit, type, and recommended frequency for DM patients), drugs (the importance of taking medication and rules in taking DM medication), blood glucose monitoring (the importance of blood sugar monitoring and it's recommended frequency), and foot care (the purpose of foot care, it's procedures, and early signs of foot injuries). The scores for each alternative answers were 0 for never, 1 for rarely, 2 for often, and 3 for always. The value for each answers were accumulated and categorized. Good category was given when the score was $\geq 50\%$ and poor category was given when the score was $< 50\%$. The results were tested with Fisher's exact test to know the difference of health care worker's communication between hospital and community health center workers.

Results and Discussion

Table 1 showed that in dr. Harjono Regional Public Hospital, Ponorogo, most of the respondents (62.5%) were female. Almost half (40.6%) of the respondents' were between 46 to 55 years old. Most of the respondents' educational background (34.4%) were elementary school and most of them (37.5%) had occupation in private sector. Most of the respondents' salary (56.2%) were less than Rp 1,388,900,-. Meanwhile, in North Ponorogo Community Health Center, most of the respondents (51.6%) were male. Almost half (41.9%) of the respondents were between 46 to 55 years old. Most of the respondents' education (29%) were elementary school. Almost half (41.9%) of the respondents' occupation were private. The respondents' salary were almost entirely (80.6%) less than Rp. 1,388,900,-.

Table 2 showed that in dr. Harjono Regional Public Hospital Ponorogo, almost half of the respondents (43.8%) had DM for 1-5 years. Most respondents (59.4%) had no complications. The percentage of respondents

Table 1. Characteristics of Respondents from dr. Harjono Regional Public Hospital, Ponorogo and North Ponorogo Community Health Center

Characteristics of Respondents	Hospital (n=32)		Community Health Center (n=31)	
	Frequency	%	Frequency	%
Gender				
Male	12	37.5	16	51.6
Female	20	62.5	15	48.4
Age (Years)				
26-35	1	3.1	1	3.2
36-45	3	9.4	2	9.7
46-55	13	40.6	13	41.9
56-65	9	28.1	11	35.5
>65	6	18.8	3	9.7
Education				
None	1	3.1	1	3.2
Elementary School	11	34.4	9	29.0
Junior High School	7	21.9	8	25.8
Senior High School	5	15.6	7	22.6
University	8	25	6	19.4
Job Status				
Jobless	4	12.5	5	16.1
Civil Servants	6	18.8	7	22.6
Private	12	37.5	13	41.9
Others	10	31.2	6	19.4
Salary				
< Rp. 1,388,900,-	18	56.2	25	80.6
\geq Rp. 1,388,900,-	14	43.8	6	19.4

Source: Primary Data, 2017

Table 2. Respondent's History of Diabetes Mellitus in dr. Harjono Regional Public Hospital, Ponorogo and North Ponorogo Community Health Center

History of DM	Hospital (n=32)		Community Health Center (n=31)	
	Frequency	%	Frequency	%
Duration of the Disease				
1-5 Years	14	43.8	23	74.2
6-10 Years	7	21.9	7	22.6
>10 Years	11	34.4	1	3.2
Complications				
Present	13	40.6	16	51.6
Not Present	19	59.4	15	48.4
Last Blood Glucose Concentration				
<200 mg/dL	15	46.9	12	38.7
≥200 mg/dL	15	46.9	17	54.8
Unknown	2	6.2	2	6.5

Source: Primary Data, 2017

Table 3. Specific Data and Statistical Test Results of Health Care Worker Communication in dr. Harjono Regional Public Hospital, Ponorogo and North Ponorogo Community Health Center

Location	Health Care Worker Communication		Total
	Good	Poor	
Hospital	25 (78.1%)	7 (21.9%)	32 (100%)
Community Health Center	29 (93.5%)	2 (6.5%)	31 (100%)
Total	54 (85.7%)	9 (14.3%)	63 (100%)

Fisher's Exact Test $p=0.148$

Source: Primary Data, 2017

which had last blood sugar concentration <200 mg/dL and >200 mg/dL were the same (46.9%). Meanwhile, in North Ponorogo Community Health Center, most of the respondents (74.2%) had DM for 1-5 years. Most of the respondents (51.6%) had complications and most of them (54.8%) had last blood sugar concentration >200 mg/dL.

From Table 3, we can concluded that most of the respondents in dr. Harjono Regional Public Hospital, Ponorogo (78.1%) stated that the communication of health care workers was good and the rest of the respondents (21.9%) stated otherwise. Meanwhile, almost all of respondents (93.5%) in North Ponorogo Community Health Center stated that the communication of health workers was good and there was only a small proportion of respondents (6.5%) which stated otherwise. Fisher's Exact Test found p value of 0.148 which was more than α (0.05). Therefore, it can be concluded that null hypothesis was accepted which meant that there was no difference between communication of health workers in hospital and community health center.

Most of the respondents (78.1% in hospitals and 93.5% in community health center) stated that health care workers had good communication. In dr. Harjono Regional Public Hospital, health care workers who educate the patients regarding diabetes management were specialists and assisted by nurses and nutritionists. Meanwhile, in North Ponorogo Community Health Center, health care workers who educate the patients regarding diabetes management were general practitioners and nurses. This study was different from a study by [Hutagaol & Agustin \(2012\)](#) which found that the community, which were represented by patients, cadres, and community leaders, had negative perception regarding the communication of health care workers in Integrated Service Post (Posyandu) of Muara Siberut Community Health Center, Mentawai. The negative perceptions were conveyed by informants because health care workers' method of communications did not have good effects and the workers often used improper words. One factor which affect health communication was sociocultural factor. Socio-

cultural factor affects the way of communication (Nugroho, 2009). A study in Malaysia found that the barrier to insulin treatment provision was the inability of health care workers to provide effective communication in accordance with the patient's cultural and religious background (Lee et al., 2012). This study was conducted in Ponorogo, East Java Province which had majority population of Javanese. In North Ponorogo Community Health Center, health care workers communicated with mixed languages, mainly Indonesian and Javanese. Previous studies showed that there were different expressions of emotion between tribes in Indonesia. The most expressive tribe were Minangkabau, followed by Batak, Javanese, and Malay (Suciati & Agung, 2016). The harsh words of health care workers in Mentawai who had the majority of Minangkabau ethnic group were a form of emotional expression from the more expressive Minangkabau tribe. This difference in level of expression might causes the respondents of North Ponorogo Community Health Center said that the health care worker communication was good whereas in Muara Siberut Community Health Center, Mentawai, the health care worker communication was perceived negatively by participants.

A small proportion of respondents in hospital (21.9%) and in community health center (6.5%) stated that health care worker communication was poor. Both hospitals and community health centers did not provide any communication media such as leaflet, poster, or booklet regarding DM and its management. One factors which was related to communication was media. The media could serve as mean to convey information to DM patients. The existence of media would facilitate the acceptance of health messages to DM patients (Notoatmodjo, 2007). If hospital and community health center provided communication media, DM patients could receive the information more easily. Hopefully, when the provided information was accepted, the compliance rate towards DM self-management could be increased and the patient's blood sugar could be more controlled. This had been proved by Bohanny et al., (2013) which found that the higher the knowledge, the self-efficacy of DM patients and their self-care behavior would also be higher. Triana et al.,

(2014) also found that respondents with high level of knowledge had 7 times more chance to be obedient in DM diet management. A study in North California found that poor health care worker communications were associated with low DM patient compliance in taking oral hypoglycemic drugs (Ratanawongsa et al., 2013). A study by Gracia-Perez et al., (2013) found that one of the factors which influence DM patient's compliance to therapy was good communication from health care workers.

Fisher's exact test analysis showed that there was no difference in communication of health care workers between hospitals and community health centers. According to Perkeni (2015), education about diabetes was divided into two categories, namely early level education and advanced level education. Primary health care was tasked to provide early level education while secondary and tertiary health care were tasked to provide advanced level education. Early level education discussed about DM, how to manage DM, and how to use health facilities. Advanced level education discussed about acute and chronic complications of DM, treatment of DM with comorbidities, treatment of DM in special conditions such as fasting and pregnancy, foot care, and latest knowledge about DM. Community health center as primary health service was authorized to provide early level DM education. While dr. Harjono Regional Public Hospital as a secondary health service was authorized to provide advanced level DM education. This study discussed the communication of health care worker about DM management which included DM diet, physical exercise, medication, blood vessel monitoring, and foot care. This material was included as early education. However, there was no significant difference between the results of two facilities which indicates that early-stage education were conducted in both health care facilities.

Almost half of the respondents (43.8%) in dr. Harjono Regional Public Hospital and most of the respondents (74.2%) in North Ponorogo Community Health Center suffered from DM for 1-5 years. Most of the respondents (59.4%) in dr. Harjono Regional Public Hospital did not have any complication whereas

most of the respondents (51.6%) in North Ponorogo Community Health Center had DM complications. Early level education was also given in dr. Harjono Hospital because most of the respondents which suffered from DM for 1-5 years in this hospital did not have DM complications. This early level education was related to advanced level education particularly regarding prevention of DM complications.

Prevention of DM complications could be performed with good DM management. A study by [Risnasari](#) (2014) found that there was a significant relationship between DM diet compliance with rising in complications. A study by [Sihombing et al.](#), (2012) found that most respondents with good foot care had normal sensory foot sensation. Decreased sensory sensation was a risk factor for diabetic ulcers. A study by [Putri & Isfandiari](#) (2013) found that there was a relationship between four pillars of controlling type 2 diabetes with average blood sugar levels. The four pillars were education, eating arrangements, exercise, and medication compliance. Based from those studies, the authors concluded that increase in DM patient's compliance towards self-management would cause lesser occurrence of DM complications.

Conclusions

Nearly all respondents (78.1%) stated that the communication of health care workers in dr. Harjono Regional Public Hospital, Ponorogo were good. Almost all respondents (93.5%) stated that the communication of health workers in North Ponorogo Community Health Center were good. We suggest the health care workers to provide communication media regarding diabetes such as leaflet, poster, or booklet and to schedule regular health education about diabetes.

Acknowledgements

We would like to express our gratitude to Ministry of Research, Technology, and Higher Education which provided funding for this study. We also thank Ponorogo Muhammadiyah University Institute for Research and Community Service (LPPM) which facilitated this study process. We would also thank the Head of dr. Harjono Regional Public Hospital, Ponorogo, the Head of North Ponorogo Community Health Center, all respondents,

and all individuals which were involved in this study for their assistance and cooperation in the implementation of this study.

References

- Al-Maskari, F., El-Sadig, M., Al-Kaabi, J.M., Afandi, B., Nagelkerke, N., & Yeatts, K.B., 2013. [Knowledge, Attitude and Practices of Diabetic Patients in the United Arab Emirates](#). *PLoS ONE*, 8(1), pp.1–8.
- Al-Qazaz, H.K., Sulaiman, S.A., Hassali, M.A., Shafie, A.A., Sundram, S., Al-Nuri, R., & Saleem, F., 2011. [Diabetes Knowledge, Medication Adherence and Glycemic Control among Patients with Type 2 Diabetes](#). *International Journal of Clinical Pharmacy*, 33(6), pp.1028–1035.
- Alfiani, N., Yulifah, R., & Sutriningsih, A., 2017. [Hubungan Pengetahuan Diabetes Mellitus dengan Gaya Hidup Pasien Diabetes Mellitus di Rumah Sakit Tingkat 2 Dr. Supraoen Malang](#). *Nursing News*, 2(2), pp.390–402.
- Bohanny, W., Wu, S.F.V., Liu, C.Y., Yeh, S.H., Tsay, S.L., & Wang, T.J., 2013. [Health Literacy, Self-Efficacy, and Self-Care Behaviors in Patients with Type 2 Diabetes Mellitus](#). *Jurnal for American Association of Nurse Practitioners*, 25(9), pp.495–502.
- Endarti, A.T., & Handito, A., 2016. [The Relationship between Non-Communicable Diseases History and Health-Related Quality of Life](#). *Jurnal Kesehatan Masyarakat*, 12(1), 120–130.
- Gracia-Perez, L.E., Alvarez, M., Dilla, T., Gil-Guillen, V., & Orozco-Beltran, D., 2013. [Adherence to Therapies in Patients with Type 2 Diabetes](#). *Diabetes Therapy*, 4(2), pp.175–194.
- Hutagaol, E., & Agustin, H., 2012. [Komunikasi Interpersonal Petugas Kesehatan dalam Kegiatan Posyandu di Wilayah Kerja Puskesmas Muara Siberut Kabupaten Mentawai](#). *Jurnal Kesehatan Masyarakat Andalas*, 6(2), pp.104–112.
- Kusniawati, 2011. *Analisis Faktor yang Berkontribusi Terhadap Self Care Diabetes pada Klien Diabetes Melitus Tipe 2 di Rumah Sakit Umum Tangerang*. Universitas Indonesia.
- Lee, Y.K., Lee, P.Y., & Ng, C.J., 2012. [A Qualitative Study on Healthcare Professionals' Perceived Barriers to Insulin Initiation in A Multi-ethnic Population](#). *BMC Family Practice*, 13(28).
- Maghfirah, S., 2015. *Psikososial dan Perilaku Perawatan Diri pada Pasien Diabetes Mellitus*. Penelitian tidak dipublikasikan Ponorogo: Universitas Muhammadiyah Ponorogo.
- Maghfirah, S., Sudiana, I.K., & Widyawati, I.Y.,

2015. [Relaksasi Otot Progresif terhadap Stres Psikologis dan Perilaku Perawatan Diri Pasien Diabetes Mellitus Tipe 2](#). *Jurnal Kesehatan Masyarakat*, 10(2), pp.137–146.
- Notoatmodjo, S., 2007. *Promosi Kesehatan dan Ilmu Perilaku*. Jakarta: Rineka Cipta.
- Nugroho, W., 2009. *Komunikasi dalam Keperawatan Gerontik (1st ed.)*. Jakarta: EGC.
- Nuryani, S., 2013. [Gambaran Pengetahuan dan Perilaku Pengelolaan Penyakit Diabetes Melitus pada Penderita Diabetes Melitus di Puskesmas Parit H.Husin li Pontianak Years 2011](#). *Jurnal Mahasiswa PSPD FK Universitas Tanjungpura*, 2(1).
- Perkeni, 2015. *Konsensus Pengelolaan dan Pencegahan Diabetes Melitus Tipe 2 di Indonesia 2015*. Jakarta: PB Perkeni.
- Purwanti, L.E., & Nurhayati, T., 2017. [Analisis Faktor Dominan yang Mempengaruhi Kepatuhan Pasien DM tipe 2 dalam Melakukan Perawatan Kaki](#). *Jurnal Ilmiah Kesehatan*, 10(1), pp.44–52.
- Putri, N.H.K., & Isfandiari, M.A., 2013. [Hubungan Empat Pilar Pengendalian DM Tipe 2 dengan Rerata Kadar Gula Darah](#). *Jurnal Berkala Epidemiologi*, 1(2), pp.234–243.
- Ratanawongsa, N., Karter, A.J., Parker, M.M., Lyles, C.R., Warton, E.M., & Schillinger, D., 2013. [Communication and Medication Refill Adherence](#). *JAMA Internal Medicine*, 173(3), pp.210–218.
- Risnasari, N., 2014. [Hubungan Tingkat Kepatuhan Diet Pasien Diabetes Mellitus dengan Munculnya Komplikasi di Puskesmas Pesantren Kota Kediri](#). *Efektor*, 1(25), pp.15–19.
- Sihombing, D., Nursiswati, & Prawesti, A., 2012. [Gambaran Perawatan Kaki dan Sensasi Sensorik Kaki pada Pasien Diabetes Mellitus Tipe 2](#). *Student E-Journal Unpad*, 1(1), pp.1–14.
- Suciati, R., & Agung, I.M., 2016. [Perbedaan Ekspresi Emosi pada orang Batak, Jawa, Melayu dan Minangkabau The Difference of Emotion Expression on Ethnic of Batak, Jawa, Melayu and Minangkabau](#). *Jurnal Psikologi*, 12(2), pp.99–108.
- Susanto, Y., Alfian, R., & Rusmana, I., 2017. [Pengaruh Layanan Pesan Singkat terhadap Kepatuhan Konsumsi Obat Pasien DM Tipe 2 di Puskesmas Melati Kabupaten Kapuas](#). *Jurnal Ilmiah Manuntung*, 3(1), pp.34–42.
- Sweileh, W.M., Zyoud, S.H., Abu, R.J., Deleq, M.I., & Enaia, M.I., 2014. [Influence of Patients' Disease Knowledge and Beliefs about Medicines on Medication Adherence: Findings from a Cross-sectional Survey among Patients with Type 2 Diabetes mellitus in Palestine](#). *BMC Public Health*, 14(94), pp.1–8.
- Triana, R., Karim, D., & Jumaini, 2015. [Hubungan Tingkat Pengetahuan Pasien Diabetes Mellitus tentang Penyakit dan Diet dengan Kepatuhan dalam Menjalankan Diet Diabetes Mellitus](#). *Jurnal Online Mahasiswa Program Studi Ilmu Keperawatan*, 2(1), pp.606–611.
- Witasari, U., Rahmawaty, S., & Zulaekah, S., 2009. [Hubungan Tingkat Pengetahuan, Asupan Karbohidrat dan Serat Dengan Pengendalian Kadar Glukosa Darah pada Penderita Diabetes Mellitus Tipe 2](#). *Jurnal Penelitian Sains & Teknologi*, 10(2), pp.130–138.