Impact of Pharmacist Mediated Brief oral counseling and remainder motivation via text messaging (SMS) on.

By Akrom

Impact of Pharmacist Mediated Brief oral counseling and remainder motivation via text messaging (SMS) on…

Conference Paper · September 2015

CITATIONS	READS
0	8

1 author:

Akrom Akrom
Ahmad Dahlan University
29 PUBLICATIONS   **7** CITATIONS

Some of the authors of this publication are also working on these related projects:

Project   Development of Nigella sativa oil as immunomodulator and antioxidant for metabolic syndroms patients
View project

Project   Nigella sativa as chemopreventive and immunomodulator View project

Impact of Pharmacist Mediated Brief Oral Counseling And Remainder Motivation Via Text Messaging (SMS) on Quality of Life in Ambulatory Hypertensive Patients at Dr.H.Moch. Ansari Saleh Banjarmasin Hospital, South Kalimantan, Indonesia

Herda Ariyani[1], Akrom[2], Riza Alfian[3]

[1]Post Graduate Program in Clinical Pharmacy Ahmad Dahlan University Indonesia
[2]Drug Information Center, Faculty of Pharmacy Ahmad Dahlan University, Yogyakarta
[3]Academy of Pharmacy ISFI Banjarmasin
Correspondence author : herdaariyani29@gmail.com

ABSTRACT

Projections show that by 2030, prevalence of hypertension will increase 7,2% from 2013 estimates. The hypertension prevalence in South Kalimantan in 2013 is 30,8%. Hypertension is associated with impaired quality of life due to complications or co-morbidities, awareness of the diagnosis and adverse effects from anti-hypertensive medications. The aim of this study was to evaluate the quality of life after giving brief oral counseling and remainder motivation via short text messages (SMS) by a pharmacist. This study were conducted with quasi-experimental design. The ambulatory hypertension patients data were collected prospectively during the period of April until Juni 2015. A total samples of 68 patients were divided into 2 groups, 34 (50%) patients were received counseling and short text messages (SMS) (intervention group) and 34 (50%) patients were not received intervention (control group). Quality of life was scored before (initial folow-up), and after study (first follow-up and second follow-up). Exclusion criteria were a deaf, pregnant, illiterate, and have not hand phone. Data collection were conducted by doing interview and completion of SF-36 questionnaire. Outcomes measured is quality of life domain in hypertensive patients. The results showed that brief oral counseling intervention and remainder motivation via short text messages (SMS) could improve the quality of life in intervention group in comparison to the control group. At final follow up intervension group patients had significantly (p=0,000) higher average scores of quality of life. The comparison of the two group with Mann-Whitney test and Independent Sample t-test showed that there were a significant difference between control and intervention group in general health (p=0,000), physical functioning (p=0,467), role physical (p=0,000), role emotional (p=0,000), social functioning (p=0,004), bodily pain (p=0,000), vitality (p=0,016), and mental health (p=0,000). This study concludes that a pharmacist can play an important role in improving the quality of life of patients with hypertension.

Key words : *Quality of life, hypertension, short text messages (SMS), brief oral counseling*

INTRODUCTION

Worldwide, raised blood pressure is estimated to cause 7,5 milion deaths, about 12,8% of the total of all deaths. This accounts for 57 million disability adjusted life years (DALYS) or 3,7% of total DALYS. Raised blood pressure is a major risk factor for coronary heart disease and ischemic as well as hemorrhagic stroke. Across the WHO regions, the prevalence of raised blood pressure was highest in Africa, where it was 46% for both saxes combined. In Indonesia, the percentage of adult population with raised blood pressure increased from 8% in 1995 to 32% in 2008. Ageing population, rapid urbanization and transition from agrarian life to a wage-earning, modern city life are reported as major contributors to increased blood pressure in urban areas (WHO, 2010). Based on *Riset Kesehatan Dasar* (Indonesian Basic Research) 2013, the hypertension prevalence in South Kalimantan in 2013 is 30,8%.

Pharmacist have been encouraged to provide pharmaceutical care to identify, prevent, resolve drug therapeutic problems and mediate dialogue with patients and physicians (Junior *et al*, 2008). Pharmacist involvement in chronic disease management can make a positive impact on patients'health-related outcomes. Pharmacist counseling empower patients'knowledge and self-care skills to understand ways to cope with such a situation and can help them to achieve a better quality of life (Akhtar *et al*, 2014).

Globally, the mobile phone has become the most pervasive and accessible form of two-way communication technology (International Telecommunication Union, 2010). Mobile phone based interventions could address individual-level factors in health by facilitating timely patient acces to relevant health information and support, making patient-provider communication easier and providing context-specific support and prompts to action (Heron & Smyth, 2011).

The SMS Text-message Adherence suppoRt trial (StAR) is a pragmatic individually randomised three-arm parallel group trial in adults treated for hypertension at a single primary care centre in Cape Town South Africa. The StAR trial evaluating clinical interventionts using short message service (SMS) text-messaging systems have shown important outcomes (Bobrow *et al*, 2014). Two-phased study was to develop (Phase I) and test in a randomized controlled trial (RCT) (Phase II) a text message system, BPMED, to improve the quality of medication management has showed that text message medication remainders can improve hypertesion-related outcomes in Africa Americans (Buis *et al*, 2015). Over all, it is necessary to investigate the influence of oral counseling and remainder motivation via short text messages (SMS) on the quality of life of ambulatory hypertensive patients at Dr. H.Moch. Ansari Saleh Banjarmasin Hospital, South Kalimantan, Indonesia.

METHODS
Subject

The research was conducted prospectively to determine quality of life in ambulatory hypertensive patients at Dr. H.Moch. Ansari Saleh Banjarmasin Hospital, South Kalimantan Hospital, Indonesia. The study group included 68 patients. They were devided in to two groups as intervension and control group. The intervension group patients received counseling regarding hypertension and hypertension therapy and short message service (SMS) remainder and motivation, while the control group not received counseling and not received SMS. The follow up patients were done from baseline to final follow up. The subject of this research were adult (18-65 years old), male or female, which was cooperative and communicable with diagnosed to have levels I and II hypertension and got antihypertensive medication in their prescription. The exclusion criteria were deaf and pregnant patients. Duration of research was April to Juni 2015.

Data Collection

This study used the primary data which was obtained from the research subjects using SF-36 questionnaire. The questions were read by the researcher and filled based on the respondens answer, in order to help the responden if only felt difficult to answer by themselves, to make easier to unsterstand the questions and to eliminate the difference of perception.

Statistical Analysis

Microsoft Excel was using for the processing, interference and descriptive analyses of the data. The descriptive statistics analysis was to describe baseline characteristics of the participants in each group (sex, age, education level, job, payment, history of hypertension, smoking habit and exercise habit) using the *Descriptive Explore* analysis. The significance value between two group was calculated by the *Independent t test* for continuous variables and the *chi-square test* for categorical variables. The bivariate analysis was to identify the quality of life domain based on the visit time (1st, 2nd, 3rd). Statistical

analysis used normality test, if $p>0,05$ normally distributed; *Independent t-test* and paired t-test, whereas if $p<0,05$ distribution is not normal; *Mann-whitney* and *Willcoxon test* is used. A *p value less than* 0,05 was considered significant.

RESULTS AND DISCUSSION

The Patients' Characteristic

This study were conducted with quasi-experimental design that utilise a two (groups : control vs brief counseling and motivational remainders via SMS). The ambulatory hypertension patients data were collected prospectively during the period of April until Juni 2015. Sampling was done by consecutive sampling method, whereas all subjects came sequentially and met the selection criteria were included in the research until the number of the subjects required fulfilled. Of the 70 patients who participated in this research, only 68 patients who joined the research from the beginning to the end of the research. Two patients discontinued prior to the first and second follow-up (moving house). The socio-demographic and clinical data the subject can be seen on the table 1. In this research, the relationship of the various subjects'characteristics in two groups obtains a non-significant relationship (P>0,05) among age, education level, job, payment, history of hypertension, comorbid condition, smoking and exersice habit.

Table I. Socio-demographic Characteristic of hypertension patients

Patients characteristics	Control Group n(34)	%	Intervention Group n(34)	%	p
Sex					0,049
Men	10	29,41	18	52,94	
Woman	24	70,59	16	47,06	
BMI (kg/m²)					
<25	24	70,58	19	55,88	0,348
>25	10	29,41	15	44,11	
Age (years old)					0,795
<45	4	11,76	1	2,94	
>45	30	88,23	33	97,06	
Education level					0,143
0-9 years	18	52,94	12	35,29	
>9 years	16	47,06	22	64,70	
Levels of Employment					0,128
Low	23	67,65	14	41,17	
High	11	32,35	20	58,82	
Payment					0,698
General	1	2,94	1	2,94	
Askes	9	26,47	7	20,59	
BPJS	23	67,65	26	76,47	
Other insurance	1	2,94	0	0	
History of hypertension					0,183
Yes	31	91,17	22	64,70	
No	3	8,82	12	35,29	
Comorbid condition					0,249
Hypertension alone	11	32,35	9	26,47	
Hypertension and CKD	1	2,94	1	2,94	
Hypertension and hyperlipidemia with any other illnesses	8	23,53	14	41,17	
Hypertension with any other illnesses	14	41,17	10	29,41	
Smoking habit					0,132
Yes	6	17,65	2	5,88	
No	28	82,35	32	94,11	
Exercise habit					1
Yes	9	26,47	9	26,47	
No	25	73,53	25	73,53	

Based on the characteristic patients, it can be seen that the control group were dominated by male patients (52,94%) for intervension group and female patients (70,59%) for control group. Both of the intervension and control group were dominated by patients with the ages more than 45 years, each amounted to 33 (97,06%) in the intervension group and 30 (88,23%). The patients' education level dominates on educational age of less than 9 years in the intervension group (64,70%) and 0-9 years in the control group (52,94%). As for payment, Both of the intervension and control group were dominated by patients BPJS (Badan Penyelenggara Jaminan Sosial). In this study also evaluated the characteristic of smoking habits, exercise habits, the history of hypertension. Both in intervension and control groups, the majority of the patients did not have smoking habits (94,11, 82,35%) and also did not have exercise habits (73,53%, 73,53%).

The patients' antihypertensive agent dominates by ARBs (Angiotensin Receptor Blockers) class that is Candesartan, each amounted to 16 (47,06%) in the intervension group and 20 (58,82%). Either on the intervension group or the control group shows to have patients with hypertension level two, whereas 19 (55,88%) in the intervension group and 20 (58,82%). Both of the intervension and control group were dominated by patients with duration of illness on less than 1 year (Table 2).

Table 2. Clinical Characteristic of hypertension patients

Clinical Characteristic	Kontrol		Perlakuan	
	n(34)	%	n(34)	%
Antihypertensive agents				
Diuretik				
Sprinolakton	4	11,76	3	8,82
ACEI				
Lisinopril	1	2,94	0	0
Angiotensin Receptor Blockers				
Candesartan	20	58,82	16	47,06
Calcium Channel Blockers				
Amlodipine	12	35.29	9	26.47
Herbesser CD	1	2,94	3	8,82
Herbesser CD + Amlodipine	3	8,82	0	0
Nifedipine	5	14,70	9	26,47
Beta Blocker				
Bisoprolol	0	0	1	2,94
Degree of Hypertension				
Level 1	14	41,17	15	44,12
Level 2	20	58,82	19	55,88
Duration of illness				
<1 year	16	47,06	19	55,88
>1 year	18	52,94	15	44,11

The quality of life based on visit time

The International Pharmaceutical Federation (FIP), defined pharmaceutical care as the responsible provision of the drug therapy for the purpose of "achieving definite outcomes that improve or maintain a patient's quality of life" (Wiedenmayer *et al,* 2006). In this research, the patients' quality of life domain were measured using the SF-36 both on control and intervention group. The SF-36 is a general questionnaire for health assesment that has been applied in several studies and used for assesing several diseases by other investigators. It composed of 36 items, and it covers eight domains of health.

At baseline study, all patients received the quality of life questionnaire. After answered the questionnaire, the intervention group received a brief oral counseling and remainder motivation via short text messages (SMS) by a pharmacist, meanwhile the control group received an usual care in the hospital. Examples of the text messages contents are shown in table 3.

Patients in the intervention group received leaflets were useful in educating patients about hypertension, lifestyle modifications, the importance of adherence to diet and drug therapy, physical activity, and smoking cessation. In addition, patients were verbally counseled on the names of their antihypertensive medications, the respective indications, spesific instructions on the administration of medication, common adverse drug reactions (ADR) and drug interactions that may be encountered, ways to minimize them and action to be taken.

Table 3. Text message contents

Type of content	Example of content	Day of intervention that message was sent	Number of SMS text messages
Medication remainder	Asslamu'alaikum [first name], have you taken your medicine [name of antihypertension and regimen doses]?To keep healthy please keep on with your medicine, come on your clinic dates, exercise, eat healthy food and no smoking.	0-14 (sent daily)	14
		15-28 (sent every two days)	6
		29-42 (sent once a week)	2
Motivation	If you use just a small amount of salt when cooking, reduced consumption of salty foods and eat less high fat, you are helping your family to keep healthy blood pressure.	0, 7, 14, 28	4
	Smoking or exposure to cigarette smoke can increase blood pressure. Doing physical activity at least 30 minutes per day can lower your blood pressure and prevent diseases.	1, 8, 15, 29	4

In this research, based on the average of the general quality of life scores increase of the intervention group is greater than control group (fig.1). In this research, quality of life of patients in intervention group in which counseling and short text messages (SMS) was provided showed a significant increase from baseline (p=0,000) using analysis *Mann-Whitney Test.* The mean difference in QOL was greater for the intervention group when compared with the mean difference of control group from baseline to the last follow-up visit.
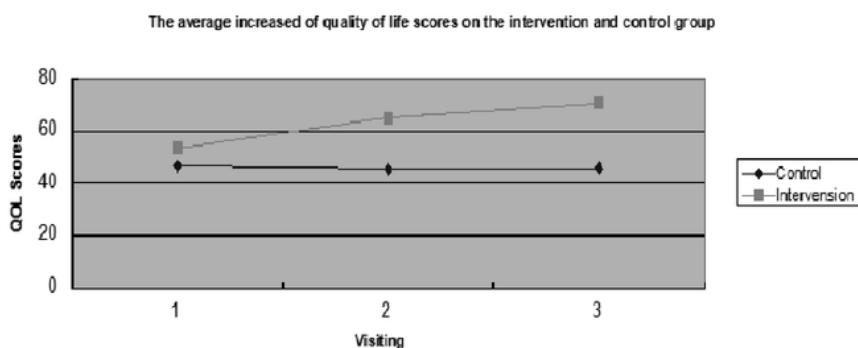
The average increased of quality of life scores on the intervention and control group

Fig I. The average increased of quality of life scores on the intervention and control group

At the end of this study patients received and answered the quality of life questionnaire again. The averages quality of life's domain scores of patients before and after intervention were compared betwen control group and intervention group (Table 4). Statistical comparison between SF-36 domains value in the control group and intervension group is done by testing the normality. In the initial visit, Kolmogrov Smirnov normality test result shows that the data of control group and the intervension group are not normally distributed; therefore, non-parametric Mann-Whitney test is conducted. Mann-Whitney test result shows that there is a significant difference between SF-36 domains scores in the control and intervension group.

Both of the first follow-up and second follow-up, the comparison of the two group showed that there were a significant difference between control and intervention group. At the final follow-up shows that intervention group has better quality of life than at the beginning of the research (initial visit), which in general health (p=0,000), physical functioning (p=0,467), role physical (p=0,000), role emotional (p=0,000),social functioning (p=0,004), bodily pain (p=0,000), vitality (p=0,016), and mental health (p=0,000).

Table 4. Quality of life domains scores of the intervention and control group based on visit time

Domain	Control Group N=34	Interven sion Group N=34	*p*	Control Group N=34	Interven sion Group N=34	*p*	Control Group N=34	Intervension Group N=34	*p*
	Initial visit	Initial visit		1st follow-up	1st follow-up		2nd follow-up	2nd follow-up	
	mean±SD	mean±SD		mean±SD	mean±SD		mean±SD	mean±SD	
General health	38,85±12,80	39,21±14,62	0,848	39,70±12,36	52,69±16,47	0,001*	40,56±14,59	63,23±17,48	0,000*
Physical functioning	56,62±27,26	54,12±25,18	0,671	51,91±22,39	58,82±24,03	0,820	49,56±25,38	60,29±23,61	0,467
Role Physical	25,00±40,36	41,92±37,29	0,042*	22,79±36,08	62,50±30,92	0,000*	23,82±37,76	68,38±30,34	0,000*
Role Emotional	35,29±44,90	57,84±35,11	0,020*	34,31±44,56	89,21±17,83	0,000*	34,31±44,56	95,09±11,98	0,000*
Social functioning	53,38±14,07	49,19±23,90	0,603	52,79±18,26	61,69±20,75	0,133	51,39±16,57	66,98±20,71	0,004*
Bodily Pain	48,53±15,62	53,31±22,25	0,126	45,95±17,86	60,66±18,75	0,001*	47,79±15,53	65,07±16,79	0,000*
Vitality	56,03±11,45	55,00±16,51	0,872	55,29±11,47	60,44±16,25	0,043*	57,55±10,67	80,73±102,84	0,016*
Mental health	59,88±22,59	77,88±13,76	0,002*	61,10±21,70	81,88±13,93	0,000*	61,53±20,72	84,35±11,20	0,000*

P value was calculated by *Mann-Whitney test (distribution is not normal; p<0,05)* and *Independent Sample t-Test   (distribution is normal; p>0,05)*

Poor quality of life may have important implications in the management of patients with chronic disease such as hypertension. Holt *et al* described poor quality of life as an important factor contributing to low antihypertensive medication adherence and Krousel-Wood *et al* reported worse blood pressure control and cardiovascular events. The goal of antihypertensive treatment is to reduce blood pressure without interfering in health-related quality of life (HRQL).

The patients with complications showed a decrease in bodily pain, vitality, and mental health component summary scores (Gusmao *et al*, 2009). Aydemir *et al* showed that hypertensive patients have a statistically significant decrease in all HRQL domains as assessed by the SF-36 when compared to normotensive patients. This study also showed that hypertensive patients with target-organ damage are those with the lowest emotional and physical aspect, vitality, and mental health component summary scores.

A recent systematic review of 20 studies indicated that hypertensive patients had a lower quality of life compared with normotensive people. The health related quality of life of hypertensive patients were significantly improved after pharmaceutical care intervention provided by pharmacist. HRQoL concerning physical functioning and general health is reduced in hypertensive patient who are aware of their condition, but not in patients who are unaware of their hypertension status (Trevisol *et al*, 2011).

In this research, the pharmacist counseling and remainder motivation via SMS can improve quality of life hypertensive patient. The result of a previous study by Shahina *et al* (2010) and Wal *et al* (2013), support these findings. In this research, the intervention group has received counceling only twice and an interval between the counceling and the post study relatively short time period. It can improved the general health, role physical, role emotional, social functioning, bodily pain, vitality, and mental health quality of life. The physical function were not improved significantly because to influence them need continuous and long time period counceling. Hypertension is a chronic disease and patients have been received therapy for long time ago, it was influenced quality of life patients especially the physical status.

CONCLUSION

Based on these research, it can be concluded that brief oral counseling and remainder motivation via short text messages (SMS) by a pharmacist to hypertensive patient were effective in improving the patients' quality of life. Succesful implementation of intervention has potential to increase patients' expectations that pharmacists will work on their behalf to assist them with their healthcare needs.

ACKNOWLEDGEMENTS

REFERENCES

Akhtar M.Masoom, A.Waheed, D. Sheikh, A. Hussain. Role of pharmacist in improving health related quality of life (HRQoL) in hypertensive patients in Pakistan. American Journal of Pharmacological sciences2.5B (2014) :17-22.

Aydemir O, Ozdemir C, Koroglu E,. 2005. The impact of comorbid conditions on the SF-36: a primary care based study among patients. Arch Med Res. 2005;36:136-41.

Buis, Lorraine R., Nancy T.Artinian, Phillip D.Levy. 2015.Text messaging to improve hyperension medication adherence in africa americans : BPMED intervention development and study protocol.JMIR Research protocols 2015 Jan-MAr; 4(1):e1.

Gusmao, J.Lima, Decio Mion, & Angela M.Geraldo Pierin,2009. Health-Related Quality of Life and Blood Pressure Control in Hypertensive Patients with and without Complications. Clinics (Sao Paulo). 2009 Jul; 64(7): 619-628.

Heron KE, Smyth JM : Eclogical momentary interventions : incorporating mobile technology into psychosocial and health behaviour treatment. *Br J health Psychol 2011*,15 :1-39

Holt EW, Muntner P, Joyce CJ, Webber L, Krousel-Wood MA. Health-related quality of life and antihypertensive medication adherence among older adults. Age Ageing. 2010;39(4):481-487.

International Telecommunication Union : Key Global Telecom Indicators for the World Telecommunication Service Sector, 2010. Available from: https://www.census.gov/compendia/statab/2012/tables/12s1391.pdf.

Junior, L., P.S. Marcellini, I.R.Pela. Effect of pharmaceutical care intervention on blood pressure of elderly outpatients with hypertension. Revista Brasileira de Ciencias Farmaceuticas, 2008. 44(3): p.451-457.

Krousel-Wood M, Thomas S, Muntner P, Morisky D. Medication adherence : a key factor in achieving blood pressure control and good clinical outcomes in hypertensive patients. Curr Opin Cardiol. 2004; 19(4):357-362.

Navee, B., Mahaboojan M., Padmanabha Y.R., Narayana. Impact of clinical pharmacist mediated patient counselling on health related quality of lifein hypertensive patients. Indian Journal of Pharmacy Practice, 2014; 7(1):34--40

Shahina, P.T., Revikumar, K.G., Krishnan, R., Jaleel, V.A., Shini, V.K., 2010, The Impact Of Pharmacist Intervention On Quality Of Life In Patients With Hypertension, *International Journal of Pharmaceutical Sciences Review and Research,* Volume 5:031

Trevisol DJ, Moreira LB, Kerkhoff A, Fuchs FD : Health-related quality of life and hypertension :a systematic review and meta-analysis of observational studies. J Hypertens 2011, 29(2): 179-188

Wal, Pranay., Ankita Wal, Awani K. Rai. Pharmacist involvement in the patient care improves outcome in hypertension patients. Journal Research in Pharmacy Practice 2013 Jul;2(3): 123-9.

Wiedenmayer,K, Summers RS, Mackie CA, Gaus AG, Everard M, Tromp D. Geneva: Worl Health Organization and International Pharmaceutical Federation; 2006. The definition of Pharmaceutical care in Developing pharmacy practice, A focus on patinet care. WHO, 2010, Global status report on noncommunicable diseases 2010. Geneva, World Health Organization, 2010.

Yeager, Valerie A. & Nir Menachemi, 2011. Text messaging in health care : A systematic review of impact studies. Biennial Review of Health ACre Management Volume 11 (January 1, 2011), page 235-261.

Impact of Pharmacist Mediated Brief oral counseling and remainder motivation via text messaging (SMS) on.

ORIGINALITY REPORT

14%

SIMILARITY INDEX

PRIMARY SOURCES

1 **dspace.nwu.ac.za**
   Internet   16 words — 14%

EXCLUDE QUOTES   OFF   EXCLUDE MATCHES   OFF
EXCLUDE BIBLIOGRAPHY   ON