



Home Blood Pressure Monitoring and Medication Adherence: Study on Hypertension Patients in East Madura

Muhammad Perdana Airlangga, Erlinda Prastiwi Septyana^(✉), and Sholihul Absor

Faculty of Medicine, University of Muhammadiyah Surabaya, Surabaya, Indonesia
erlindaprastiwi@gmail.com

Abstract. Hypertension systolic and diastolic blood tension where the value becomes higher than 140/90 mmHg. The incidence of hypertension in 2018 is the largest prevalence and makes hypertension cases in Indonesia the 3rd largest contributor to death cases. Home blood pressure monitoring (HBPM) is used to determine the blood pressure outside of checking in the health facility which is useful to control and detect blood pressure. HBPM is also a reminder of the patient's treatment process so that it can help achieve medication adherence. This study aimed to know the relationship of using home blood pressure monitoring on the medication adherence for hypertension patients in RSUD Dr. H. Moh. Anwar Sumenep. This research used observational analytics with a Cross-sectional design. The technique of data sampling used simple random sampling to 69 sample of hypertension patients. The data taken for the survey used a questionnaire by conducting data analysis using the Pearson Chi-Square test. The respondents of hypertension patients on this survey are 69 respondents. 56 hypertension patients used routine HBPM and 12 hypertension patients used non routine HBPM. 40 patients had low medication adherence, 19 patients had moderate medication adherence and 10 patients had high medication adherence. The analysis result of the Pearson Chi-Square test was no significant relationship between the use of HBPM and the medication adherence for hypertension patients ($p = 0.923$). This research is limited especially in Indonesia and there is no significant research evidence about this topic.

Keywords: hypertension · home blood pressure monitoring · medication adherence

1 Introduction

Hypertension is a condition of increasing blood tension chronically and will continue to exist in a person throughout their life. A sign of someone called hypertension is when the systolic-diastolic blood pressure values reach more than 140/90 mmHg [1]. The case of hypertension based on World Health Organization (WHO) explains that the prevalence of hypertension sufferers worldwide reaches 22% and to the data from RISKESDAS Indonesia, the prevalence of hypertension sufferers has increased in data until 2018

reaching 34.1% with the largest prevalence contributor the incidence of hypertension patients with age more than 60 years [2]. This makes hypertension cases in Indonesia the 3rd largest contributor to death cases [3].

Medication Adherence is the process of adjusting patients in using treatment therapy based on intervals and doses of use prescriptions and doctor's instructions [4]. Medication adherence can show how patient compliance is in taking medication [5].

Home Blood Pressure Monitoring (HBPM) is an activity of measuring blood pressure independently at home as a form of control and monitoring is carried out for diagnosis and one of a series of treatments that can be carried out in patients with hypertension [6]. Medication adherence in hypertensive patients is something that needs to be considered by patients to achieve good therapeutic goals. The use of HBPM can help diagnose hypertension so that it can be known whether blood pressure levels are controlled or not by detecting blood pressure randomly which can be done independently throughout the day so that self-awareness of the importance of medication adherence can be carried out achieved [7]. However, based on several studies conducted to date, there has been no strong evidence that shows the use of HBPM can increase medication adherence in patients with hypertension [8]. This finding makes researchers interested in knowing the relationship between the use of HBPM and medication adherence for hypertension patients in Dr. H. Moh Anwar Hospital Sumenep.

2 Method

This research used a cross-sectional method and was an observational analytic study. The population in this research were all patients who have hypertension in Dr. H. Moh. Anwar Hospital Sumenep. The samples used 69 respondents taken by simple random sampling technique and were taken in 2 departments, the cardiology department and internal medicine department in Dr. H. Moh. Anwar Sumenep Hospital Sumenep. The inclusion criteria were 18–70 years old patients who have a home blood pressure monitoring device. The exclusion criteria were hypertensive patients who have mental disorders. Data collection was taken using an MMAS-8 questionnaire (Morisky Medication Adherence Scale) then carried out data processing techniques using Pearson Chi-Square statistical data processing techniques and using IBM SPSS statistics 25 program.

3 Results

Based on the results on 69 sample hypertensive patients aged 18–70 years old, the majority were hypertensive patients with an age group above 50 years with a total of 57 patients (82.6%). Based on gender characteristics in this study the majority were female patients with a total of 40 respondents (58%). Based on the characteristics of the interpretation of the patient's blood pressure, the majority were patients with stage 2 hypertension, 51 respondents (73.9%) and the majority from Sumenep city as many as 48 respondents (69.6%).

Table 1. Medication adherence level

Medication Adherence Level	Frequency	Percentage (%)
Low	40	58.0%
Moderate	19	27.5%
High	10	14.5%
Total	69	100%

Table 2. Crosstab analysis

The Using of Home Blood Pressure Monitoring (HBPM)	Medication Adherence			
	Low	Moderate	High	Total
Routine	8	3	2	13
Non-Routine	32	16	8	56
Total	40	19	10	69

Contingency coefficient $p = 0,923$ ($p \leq 0,05$)

Notes: significance value based on p value < 0.05

Table 1 shows the analysis data of medication adherence levels of hypertensive patients on 69 sampels respondent. Level of medication adherence of hypertension patients in Dr.H. Moh. Anwar Hospital Sumenep is the majority have low medication adherence were 40 patients (58.0%). That is more than the moderate medication adherence were 19 patients (27.5%) and high medication adherence were 10 patients (14.5%).

Based on the Crosstab test table in Table 2 above, it was known that the use of routine Home Blood Pressure Monitoring at a low level of adherence found as many as 8 respondent (11.6%). Meanwhile, moderate level of adherence was found as many as 3 respondent (4.3%), and the high level of adherence were found as many as 2 respondent (2.9%). Then the used of Home Blood Pressure Monitoring was not routine at a low level of adherence among as many as 32 respondents (46.4%). Meanwhile, a moderate level of adherence was found in as many as 16 respondents (23.2%), and a high level of adherence was found in as many as 8 respondent (11.6%) can be seen in Table 2.

To know the relationship of using HBPM on medication adherence in hypertensive patients, the Pearson Chi-Square test was performed. Based on the Chi-Square test between the use of HBPM and the level of medication adherence in hypertensive patients, the Pearson Chi-Square p -value of 0.923 means it is greater than the 5% significance level (0.05). That result can be concluded that there is no significant relationship between the use of HBPM and the levels of medication adherence in hypertension patients.

4 Discussion

Based on this study, the use of HBPM by hypertensive patients in RSUD Dr. H. Moh Anwar Sumenep majority are patients who do not routinely perform blood pressure checks using HBPM and recording blood pressure to controlling hypertension as many as 56 people (81.2%) can be seen in the Table 2. In a study by Puswati, Yanti, and Yuzela (2021), non-routine hypertensive patients conducting blood pressure checks can be associated with stress levels and anxiety levels that arise in conducting examinations and recording blood pressure results at home which are carried out every day. Hypertensive patients only perform examinations a few times, especially if signs and symptoms occur [9].

Medication adherence in this study used the MMAS-8 questionnaire and obtained data in the form of the majority of hypertensive patients in this hospital have low medication adherence as many as 40 respondents (58%).

Blood pressure checks with home blood pressure monitoring or blood pressure checks in health facilities based on previous research, there is no significant evidence that proves that the examination will affect medication adherence in hypertension patients. This is due to uncontrolled hypertension and non-adherence medication to taking the same medication in hypertensive patients. The need for self-awareness and reminders to help patients control their blood pressure. However, the use of HBPM has benefits for adjusting medication adherence and improving lifestyle as stated by Uludag (2016) [8]. Okunade (2018) also stated that there was no significant relationship between uncontrolled hypertension and medication adherence. Although not related, the use of home blood pressure monitoring as an independent blood pressure check has benefits for patients who use it [10]. These benefits were described by Kinsara (2017), among others, hypertension sufferers are more flexible in the amount and free time, and it is easier to observe and evaluate blood pressure values during treatment therapy compared to just observing in health facilities, facilitating remote health monitoring with health workers, patients can be more aware of the importance of medication adherence to achieve better treatment goals and also help patients who fail to do self-monitoring of blood pressure at home [11].

5 Conclusion

Based on the results of the study and discussion, there was no significant relationship between the use home blood pressure monitoring (HBPM) with the medication adherence for hypertension patients in East Madura with a significance value >0.05 .

Acknowledgement. The researcher would like to thank the respondents and staff in RSUD Dr. H. Moh Anwar Sumenep and the lecturers who have supported and guided the writing of this literature.

References

1. Sudarsono EKR, Sasmita JFA, Handyasto AB, Kuswantiningsih N, Arissaputra SS. Peningkatan Pengetahuan Terkait Hipertensi Guna Perbaikan Tekanan Darah pada Pemuda di Dusun Japanan, Margodadi, Seyegan, Sleman, Yogyakarta. *J Pengabdian Kpd Masy (Indonesian J Community Engag.* 2017;3(1):26–38.
2. Tirtasari S, Kodim N. Prevalensi dan Karakteristik Hipertensi Pada Usia Dewasa Muda di Indonesia. *Tarumanagara Med J.* 2019;1(2):395–402.
3. Al-tabkha, M. M.; Sameer, F. T.; Saeed, M. H.; Batran, R. M.; Abougeazy NT. FAA. SCIENTIA Jurnal Farmasi dan Kesehatan Kepatuhan Minum Obat Pasien Hipertensi Di Rumah Sakit Umum. *J Pharm Bioallied Sci.* 2018;10(1):224–34.
4. Edi IGMS. Faktor-Faktor Yang Mempengaruhi Kepatuhan Pasien Pada Pengobatan. *J Ilm Medicam.* 2020;1(1):1–8.
5. Khomai A, Setiati S, Lydia A, Dewiasty E. Pengaruh Edukasi Terstruktur dan Kepatuhan Minum Obat Antihipertensi terhadap Penurunan Tekanan Darah Pasien Hipertensi Usia Lanjut: Uji Klinis Acak Tersamar Ganda. *J Penyakit Dalam Indones.* 2017;4(1):4.
6. Sharman JE, Howes FS, Head GA, McGrath BP, Stowasser M, Schlaich M, et al. How to measure home blood pressure: Recommendations for healthcare professionals and patients. *Aust Fam Physician.* 2016;45(1):31–4.
7. Muhammad J, Jamial MM, Ishak A. Home blood pressure monitoring has similar effects on office blood pressure and medication compliance as usual care. *Korean J Fam Med.* 2019;40(5):335–43.
8. Uludag A, Sahin EM, Agaoglu H, Gungor S, Ertekin YH, Tekin M. Are blood pressure values compatible with medication adherence in hypertensive patients? *Niger J Clin Pract.* 2016;19(4):460–4.
9. Puswati D, Yanti N, Yuzela D. Darah Pada Pasien Hipertensi Pada Masa Pandemi Covid -19 Di Puskesmas Lima Puluh Kota Pekanbaru. *Heal Care J Kesehat.* 2021;10(1):138–43.
10. Okunade K. January-March 2018 An Official Publication of The National Postgraduate Medical College of Nigeria. 2018;(January):19–26.
11. Kinsara AJ. Ambulatory blood pressure monitoring in daily practice. *Indian Heart J [Internet].* 2017;69(6):788–9. Available from: <https://doi.org/10.1016/j.ihj.2017.09.223>.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

