

The Effect of Counseling on the Adherence of Therapeutic Hypertension Patients

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ABSTRACT

Introduction: Failure of therapy is a result of lousy adherence medication. Non-adherence to therapy is a significant factor that is suspected to result in uncontrolled blood pressure in hypertensive patients resulting in more severe complications. Therefore it is essential to increase the adherence rate of treatment in patients with hypertension in the treatment process. For this reason, the need for interventions to improve adherence with several aspects that can be changed. **Method:** This study uses One Group Pretest-Posttest Design using 100 samples. Data derived from questionnaires containing 25 items of adherence to therapy, five items of knowledge, four items of trust, three items of motivation, ten items of family support with nonparametric statistical tests used were Mc Nemar test. Mc Nemar test results indicate that there is a significant difference between adherence at the pre-test and the post-test after counseling with a significance value ($p = 0,000$). **Results:** The results also showed that there was a difference in knowledge with a significance value ($p = 0,001$), motivation with a value ($p = 0,031$), and family support with a value ($p = 0,000$). Education with counseling about knowledge, trust, motivation, and family support is effective in increasing compliance. There are other changeable factors such as lifestyle education, patient-doctor relationships, and the use of smartphone applications for self-reported therapy can improve adherence in patients, thereby minimizing therapy failure. **Discussion:** Other educational methods that can be used besides counseling are counseling and dissemination of social media information.

Keywords— Counseling, Adherence medication, Hypertension

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INTRODUCTION

In 2016, around 71 percent of the causes of death in the world were non-communicable diseases (PTM), which killed 36 million people per year. About 80 percent of these deaths occur in middle and low-income countries. Non-communicable diseases currently cause 73% of deaths, 35% due to heart and blood vessel disease, 12% by cancer, 6% by chronic respiratory disease, 6% due to diabetes, and 15% due to other PTM (Kemenkes 2019). In Indonesia, itself currently discusses several problems in the pattern of diseases, namely infectious diseases and non-communicable diseases. Changing patterns from infectious diseases to non-communicable diseases is very different between changes in the environment, community protection, demographic transition, technology, economy, and social culture. An increase in the amount of money spent on unhealthy eating

patterns, lack of sensible eating, and smoking and alcohol. (Kemenkes 2019) One of the highest PTM is cardiovascular disease, which includes hypertension.

Therefore, in order to reduce the PTM rate, the Indonesian government implemented the Healthy Indonesia Family Approach Program (PIS-PK) as stipulated in the Permenkes, where there were 12 indicators, one of which was hypertension. Hypertension is a condition of high blood pressure. The definition of systolic blood pressure is ≥ 130 mm Hg and or diastolic blood pressure ≥ 80 mm. (Brent, 2018). According to the results of the Indonesian Health Research (Riskesdas) in 2018, the number of people with hypertension prevalence of high blood pressure in the population aged 18 years and over increased from 25.8% to 34.1%; (Kemenkes RI 2018)

Based on Kediri's health profile in 2017, there were 30,660 out of 222,814 people aged > 18 years who have been diagnosed with hypertension. Based on the health profile of Kediri Subdistrict, South Region, almost 50% of the population aged 18 years had hypertension, as many as 4518 people were diagnosed with hypertension with a population of 9,950. With this prevalence of hypertension sufferers in the Southern Region City Health Center was ranked first followed by Balowerti 48.68%, Pesantren 1 32.5%, Mrican 32.2%, Pesantren 2 19.8%, Campurrejo 14.3%, Kowilut 12, 5%, Sukorame 12.4% and finally the Ngeletih 11.2% In the annual data of the Southern City Health Center, hypertension also ranked first in the list of 20 most common diseases with a total of 461 visits.

Hypertension is a cardiovascular disease that causes 20-50% of the death rate. Failure of therapy is a result of adherence to medication that is not good. Non-adherence to therapy is a significant factor that is suspected to result in uncontrolled blood pressure in hypertensive patients resulting in more severe complications. Because of this, it is essential to increase the number of adherence and treatment in patients with hypertension. For this reason, the need for interventions to improve compliance with hypertension sufferers with several aspects that can be changed.

METHODS

This research was an experimental analytic study with One Group Pretest-Posttest Design. This research was undertaken in October 2019 in the working area of the Southern Region City Health Center, namely Ngronggo, Kaliombo, Manisrenggo, and Rejomulyo. The sample size obtained in this study amounted to 100 people. The sampling technique in this study uses simple random sampling. The inclusion criteria were as follows: 1) Willing to be a respondent, 2) Diagnosed with hypertension by a doctor 3) Taking at least 1 type of antihypertensive medication 4) Age > 18 years. While exclusion Criteria, 1) Not willing to be a respondent. 2) Having difficulty to communicate: vision and hearing disorders 3) Having cognitive impairment: dementia and mental disorders, 4) Not cooperative. The independent variable in this study is counseling, while the dependent variable is the level of compliance—this study using the McNemar test for the analysis.

RESULT AND DISCUSSION

Data obtained were primary data in which were taken through pre-test and post-test questionnaire measurements from samples that have met the inclusion criteria with 100

respondents. Based on the results of this study, age, sex, education, employment, and marital status as well as factors that influence therapeutic compliance such as trust, knowledge, motivation, and family support.

In this study, more women than men participated, 67% and 33% respectively. Most respondents were in a senior high school level of education (37%), at a range of 61-70 years old (39 %), were housewives (42%), and married (96%).

Table 1. Demographic Data

	Category	n	%
Gender	Men	33	33%
	Women	67	67%
Education	Magister	1	1%
	Bachelor	7	7%
	Senior High School	37	37%
	Junior High School	28	28%
	Elementry School	27	27%
Age	<=40 Th	3	3%
	41-50	12	12%
	51-60	38	38%
	61-70	39	39%
	>70	8	8%
Occupation	Housewives	42	42%
	Employed	10	10%
	Farmer	5	5%
	Laborers	10	10%
	Businessman	9	9%
	Retired	9	9%
	Pedicab driver	1	1%
	Seller	11	11%
	Government employed	1	1%
	Driver	1	1%
	Unemployed	1	1%
Marital Status	Married	96	96%
	Single	4	4%

Characteristics of respondent compliance in this study found ten people adhered to treatment, while 90 people did not adhere to treatment. Based on knowledge, some 88 people have tremendous knowledge, and 12 other people have in-depth knowledge, 100 respondents have high confidence in hypertension therapy. In this study, as many as 90 people were motivated to take hypertension therapy, and ten people were not. Besides, for respondents who had weak family support for hypertension therapy, 54 people were found while those with strong family support were four people.

In the compliance variable based on the Mc Nemar test, a significant result obtained was 0,000 ($p < 0.05$) after being given intervention with counseling. From these data, the results obtained were ten respondents complied with a compliant pre-test post-test, from obedient pre-test to non-compliant as many as 0 respondents. Those who

initially did not comply became as many as 18 respondents and remained non-compliant with pre-test and post-test of 72 respondents.

Table 2. Respondent characteristics

Variable	Category	Total	Percentage (%)
Compliance	Adherence	10	10%
	Non Adherence	90	90%
Knowledge	High	88	88%
	Low	12	12%
Believes	High	100	100%
	Low	0	0%
Motivation	Motivated	90	90%
	Unmotivated	10	10%
Family Support	High	46	46%
	Low	54	54%

Table 3. Mc Nemar Test Results

	<i>Pre Test</i>	<i>Post Test</i>		
		Compliance		Sig
		Adhere	Non-Adhere	
Compliance	Adhere	10	0	0.000
	Non Adhere	18	72	
Knowledge	High	88	0	0.001
	Low	11	1	
Believes	High	97	3	0.250
	Low	0	0	
Motivation	Motivated	90	0	0.031
	Unmotivated	60	4	
Family Support	High	45	1	0.000
	Low	24	30	

In the knowledge variable per the McNemar test, a significant result obtained, namely 0.001 ($p < 0.05$), the beginning of excellent knowledge remained high, there were 88 respondents, while those who were initially high then conducted a post-test became low were 0 respondents. Whereas initially low to high were 11 respondents, and those initially low remained low by one respondent. In the believes variable, it meant that the McNemar test results were not significant; that is, 0.250 ($p > 0.05$), with high pre-test and post-test results of 97 people. From the initial high to low as many as three respondents. From low to high, there were 0 respondents. Then the low remains low as much as 0 respondents.

In the motivation variable for the McNemar test results obtained a significant result of 0.031 ($p < 0.05$), the data that were initially motivated remained motivated by 90 respondents, while those who became unmotivated were 0 respondents. For those who were not motivated to be motivated by six respondents, those who remained unmotivated

were four respondents. In the family support variable, according to the McNemar test results obtained a significant result of 0,000 ($p < 0.05$), the initially robust data remained strong as many as 45 respondents, while those who became weak were one respondent. For those with weak pre-test, there were 24 respondents strong, 34 respondents remained weak.

From this study, the mean age of respondents was 59 years, which is per research conducted by Solomon, which stated that it was 45-64 years old (Asgedom, Atey, and Desse 2018). Ayodapo O in his study stated that the mean age of hypertension patients was below the European average, which was around 70 years old, this might be due to the early exposure of stress (Paralika S. 2018). On the contrary, Bandi's study resulted with 58,9% of the respondents were >60 years old (Bandi et al. 2017) The Other Characteristic in this study was based on the sex of the respondents, this study showed Most hypertensive respondents in this study were female. The result was in line with a similar study from Shaik, who found that 60.6% of respondents were female (Shaik et al. 2016). Another study also showed that more women than men as many as 246 respondents (Pan et al. 2019). Alefan's study explained that it is natural for women to be scared of their condition, as well as seeking help from Health care providers thus resulted in females recorded more than males in data (Alefan et al. 2019).

From occupational activities, which showed that most of the respondents were housewives and not working. The Same characteristic stated in Uchmanowicz's study, in which most respondents with lower adherence were also those who were not employed (Uchmanowicz et al. 2018). According to Teshome (2017), Hypertensive patients who lived in urban areas were two times as likely to adhere to their medication therapy as compared to those who lived in rural areas.(Teshome et al. 2017)

The current results showed that the educational status of most respondents is the level of high school education; this result is in line with Ioan's research, which states that the educational status of 302 respondents in the study is junior high/high school (Tilea et al. 2018). Inadequate management of hypertension and non-adherence to antihypertensive medication is likely to result in suboptimal clinical outcomes (Bosmans et al. 2019). In this research, it is shown that there was a significant impact of medication adherence, knowledge about hypertension, motivation, and family support of the respondent who got counseling ($p < 0.05$) while there was no significant impact on respondent believes ($p > 0.05$).

By given counseling, a significant result was obtained from the respondent's medication adherence with $p = 0.000$. This result is in line with the study conducted by Beigi, where after three months of counseling intervention, there was an increase in awareness of blood pressure, and the presentation of adherence to taking medication increased from 20% to 90% of hypertensive patients (Beigi et al. 2014). Dewanti also stated that counseling affects medication compliance, especially in taking medication for hypertensive patients after re-assessed with post-test the following one month since, $p = 0,000$. The result shows that counseling includes education about hypertension, and tips to reduce blood pressure will increase self-efficacy and patient motivation to be compliant in treatment (Dewanti, Andrajati, and Supardi 2015). (Ghembaza et al. 2014) also stated that knowledge of hypertension's complication was associated with good adherence. In the Kuria research, they stated that two most important factors could cause respondents not to adhere to their medication, firstly because the patient did not feel any

symptoms even though the blood pressure is high, and secondly because the patient has an understanding that the disease cannot be cured means they must consume antihypertensive drugs for life. These are what caused patient compliance in taking drugs decreases (Kuria et al. 2018). Some patients do not receive a diagnosis, which is a major obstacle to adherence. Although not denying the diagnosis, other patients may fail to feel the potentially severe impact of the current asymptomatic disease on future health risks, including symptomatic and life-threatening conditions, such as coronary heart disease, chronic heart failure, stroke, or dementia. If the patient considers that the prescribed drug is ineffective in controlling hypertension or tends to have major side effects, then compliance tends to have a negative impact (Burnier and Egan, 2019). Gupta states in his research that one of the factors that cause non-compliance is the number of drugs that must be consumed in a day (Gupta et al. 2017). The other factor that affects patient adherence stated by Adisa is the patient forgetfulness (Adisa, Ilesanmi, and Fakeye, 2018). Similar to research conducted by Akoko, where a significant value was obtained between the effect of adherence to forgetfulness ($p < 0.001$). (Akoko et al. 2017)

The current study showed that counseling significantly affects the knowledge of hypertensive patients, with $p = 0.001$, with 88% of respondents have high knowledge about hypertension. Knowledge is expected to be the basis for patients to comply as following Kim's research, that lack of knowledge causes many patients not to carry out the recommended physical therapy, such as smoking and physical activity (Kim and Andrade 2019). Knowledge about hypertension is positively correlated with adherence (Olowe and Ross, 2017). Education is important in increasing patient understanding of hypertension and contributing to improving medication adherence. Specific health education about antihypertensive drugs, including potential side effects, and investigations about the side effects that patients may experience and the use of drugs associated with fewer side effects can lead to increased adherence (Boima et al. 2015). The result was not in line with research conducted by Abbas, which states that there is no significant relationship between knowledge and treatment adherence to hypertensive patients with $p = 0.09$.

According to Abbas, knowledge alone cannot influence compliance, but the main factor is affecting it was weak patient memory. Previous research conducted by the Health Maintenance Organization in the United States of America also showed no significant effect between knowledge hypertension on adherence to hypertension treatment (Abbas et al. 2017). The same statement was also found in a study conducted by Kilic. In the Kilic study, showed that there was no relationship between knowledge of hypertension and patient adherence to control (Kilic, Uzunçakmak & Ede, 2016). Alqarni also mentioned that the level of adherence in patients who have higher education is weaker than those with moderate or low education (Alqarni, M., and Alhejaili 2018). In another study conducted by Pirasath showed a similar thing, where the most common cause of disobedient patients was weak or forgetful memories in 70 respondents (23.1) and dense daily activities in 45 respondents (17.5%) (Pirasath, Kumanan, and Guruparan 2017).

Meanwhile, according to Suhadi, the elderly who have less knowledge about hypertension have a greater proportion of obedient in the treatment of hypertension (73.3%) compared to the elderly who have good knowledge of hypertension (24.4%). (Suhadi 2011). Knowledge of disease causes, complications, and therapeutic methods will

increase patient encounters (Ashoorkhani et al. 2018) In line with research conducted by Hyo, shows that hypertensive patients who have knowledge of risk factors for cardiovascular disease (dyslipidemia and diabetes mellitus), or have a family history of cardiovascular tend to be more adherent to treatment (Choi et al. 2018)

There was also an insignificant result between counseling and patient believes, $p = 0,250$. The insignificant results in this study are likely due to the high number of respondents who have already got a good result in the believes question, while believes factor alone cannot influence compliance, other factors besides beliefs affect the compliance, which was the respondent's family history. This present study consistent with Osamor's research, which found no significant effect between patients' believes on medication adherence, with a value of $p > 0.05$. The beliefs examined in Osamor's research include the belief that hypertension can be prevented, can be cured, is a serious disease, can cause complications, complications can be prevented, and complications can make hypertension worse (Osamor and Owumi 2011). In another study conducted by Fatmah, patients who believe in antihypertensive drugs was not a significant predictor of medication adherence. Patient's knowledge of their health condition tends to determine their beliefs about treatment, and when health care providers fail to provide relevant information or educational support regarding hypertension, therapy will cause patients' beliefs about the need to take medication reduced (Fatmah, Ignacio, Xiang-Yu, 2015).

Research conducted by Alefan, who provided different results, which stated that one of the factors that influence adherence to treatment was the patients' believes. Whereas if the person had a good result in beliefs and knowledge, it would increase medication adherence and change the patient's lifestyle. Other causes that cause low compliance with patient treatment despite firm belief and knowledge include weak patient-doctor relationships, lack of social support or the patient does not comply with the doctor's advice or recommendations as appropriate (Alefan et al. 2019). Another study conducted by Wejdan showed that there was one study that reported a negative relationship between patients' beliefs about their control of the disease and medication adherence, this difference could be attributed to the fact that the patients in this study had several symptoms and negative emotional responses which are high in their illness. Different sample characteristics, such as household income, education level, or health services (places for control), may also contribute (Shahin, Kennedy, and Stupans 2019). In this present study, there was a change in the confidence data of one respondent after counseling.

From this current research, it can be estimated that the possibility of respondent-error may produce an answer's inconsistencies from the respondents. Also, respondents did not fill in the questionnaire carefully (inattentive). Kountur (2016) stated that Careless Responses might occur due to negative attitudes towards research, sensitive items or questions, lots of questions or lengthy surveys, and lack of clarity on the instructions on the questionnaire. Kountur stated in other studies if the respondent's attitude toward the survey was positive, but the possibility of a questionnaire that was too long could result in respondents becoming bored and giving random or random answers. Another cause is the personality of the respondents themselves who pay less attention (Kountur 2016).

The results of this study also showed that there was a significant influence between counseling with patient motivation in having medication, $p = 0.031$. These results are not in line with the (Bhadoria et al. 2017), which states that there is no relationship between a

patient's medication adherence to motivation. This result was due to the nature of hypertension disease, which is asymptomatic caused a lack of motivation, which indirectly affects medication adherence in hypertensive patients. Also, the possibility of bias in self-reported data filled out by patients may have an effect resulting in an insignificant relationship between motivation and compliance (Bhadoria et al. 2017). Meanwhile, according to Gerard, respondents' motivation to carry out treatment includes prescription drugs, physical activity, and recommended foods/diets (Reach 2011). Herrera, Moncada, and Defey (2017), who examined 51 hypertensive patients, found that 67% of respondents knew the benefits of compliance and were motivated to obey but did not change their behavior. The study shows that having information about the disease and its treatment is not enough to ensure compliance with treatment; other factors can influence (Herrera, Moncada, and Defey 2017).

The effect of providing counseling to family support it has shown a significant result ($p = 0,000$). This current study was in line with Paralikar's study, and it stated that family support was related to hypertension medication adherence by changing patients' lifestyles and providing moral support (Paralikar S. 2018). According to Zhang, his research stated that the role of the community as social support is significant in increasing adherence in hypertension therapy (Zhang et al. 2018). In contrast to what Osamor stated in his study, there was no relationship between family support and medication adherence. This statement was explained by the higher level of peer or friend support in terms of social support. This present study reflects the fact that most people in the community interact, tell stories, and discuss more with friends than their own family (Osamor and Owumi 2011). Quigley stated that while educating the patient into a better understanding of hypertension, it needs to be done with family around or involving the family in the process of comprehensive counseling; this will be useful for improving medication adherence (Legido-Quigley et al. 2019). Thus, knowledge, belief, motivation, and family support alone cannot be used as benchmarks for compliance with hypertension treatment, but there are still other factors that have not been examined in this study.

For example, the age of occupational sex, an education level (Yousif Awad et al. 2015), besides simplifying therapeutic regimens can increase adherence (Vrijens et al. 2017). In addition to these factors, according to Thi-Phoung-Lan states that adherence is influenced by age, where the older the patient's age, the more they take the drug following the doctor's recommendations (Thi-Phoung-Lan et al., 2017). Other studies conducted by M.M. Nashilongo et al., states that there are factors that can influence adherence to antihypertensive therapy and lifestyle, have social support, have regular visits and never miss a clinical appointment are significant predictors of adherence to antihypertensive drugs (Nashilongo et al. 2017)

According to Macquart, they found that several factors were significantly and independently associated with low adherence, including the use of traditional medicines and the patient's wealth index (de Terline et al. 2019). Also, Ahmed, in his study, said that factors affecting adherence of treatment were not only restricted to patients factor but also affected by an external factor such as Medical health providers and the community (Ramli, Ahmad, and Paraidathathu 2012). Quigley also stated that most patients in three countries have difficulty in accessing services. The main barriers to accessing health services, as reported by participants, are the scarcity and poor quality of existing

facilities, busy doctors, long transportation, long waiting times, and lack of drugs might also be the affecting factors (Legido-Quigley et al. 2019)

CONCLUSION

Education with counseling about knowledge, trust, motivation, and family support is effective in increasing compliance. Besides, there are other changeable factors such as lifestyle education, patient-doctor relationships, and the use of smartphone applications for self-reported therapy can improve adherence in patients, thereby minimizing therapy failure. Other educational methods that can be used besides counseling are counseling and dissemination of social media information.

The counseling method is expected to optimize counseling to the public about the importance of regular control and taking medication and to obey the doctor's advice. Organizing periodic counseling programs conducted by cadres or trained health workers, as well as adding ways of coping with stress due to chronic drug consumption, which can be carried out at posyandu the elderly or posbindu. For further research, it is advisable to conduct further research on factors inhibiting therapy adherence.

REFERENCES

- Abbas, Hanine, Mazen Kurdi, Myriam Watfa, and Rita Karam. 2017. "Adherence to Treatment and Evaluation of Disease and Therapy Knowledge in Lebanese Hypertensive Patients." *Patient Preference and Adherence* 11: 1949–56.
- Adisa, Rashaq, Olumide Ayodeji Ilesanmi, and Titilayo Oyelola Fakeye. 2018. "Treatment Adherence and Blood Pressure Outcome among Hypertensive Out-Patients in Two Tertiary Hospitals in Sokoto, Northwestern Nigeria." *BMC Cardiovascular Disorders* 18(1): 1–10.
- Akoko, Bentley Mbekwa, Peter Nde Fon, Roland Chefor Ngu, and Kathleen Blackett Ngu. 2017. "Knowledge of Hypertension and Compliance with Therapy Among Hypertensive Patients in the Bamenda Health District of Cameroon: A Cross-Sectional Study." *Cardiology and Therapy* 6(1): 53–67.
- Alefan, Qais, Dima Huwari, Osama Y. Alshogran, and Mohamad I. Jarrah. 2019. "Factors Affecting Hypertensive Patients' Compliance with Healthy Lifestyle." *Patient Preference and Adherence* 13: 577–85.
- Alqarni, Abdulelah Mohammed, Alhawiti Saleh Hammad M., and Mohammed Ahmed Alhejaili. 2018. "Assessment of Adherence to Hypertension Medications and Awareness of Hypertension Medications among People with Hypertension in Tabuk." *The Egyptian Journal of Hospital Medicine* 70(8): 1365–70.
- Asgedom, Solomon Weldegebreal, Tesfay Mehari Atey, and Tigestu Alemu Desse. 2018. "Antihypertensive Medication Adherence and Associated Factors among Adult Hypertensive Patients at Jimma University Specialized Hospital, Southwest Ethiopia." *BMC Research Notes* 11(1): 1–8. <https://doi.org/10.1186/s13104-018-3139-6>.
- Ashoorkhani, Mahnaz et al. 2018. "Understanding Non-Adherence to Treatment in Hypertension: A Qualitative Study." *International Journal of Community Based Nursing and Midwifery* 6(4): 314–23.
- Bandi, Priti et al. 2017. "Age-Related Differences in Antihypertensive Medication

- Adherence in Hispanics: A Cross-Sectional Community-Based Survey in New York City, 2011-2012.” *Preventing Chronic Disease* 14(7): 1–12.
- Beigi, Mohammad Ali Babae et al. 2014. “The Effect of Educational Programs on Hypertension Management.” *International Cardiovascular Research Journal* 8(3): 94–98.
- Bhadoria, Ajeet Singh et al. 2017. “Health-Care Utilization and Expenditure Patterns in the Rural Areas of Punjab, India.” *Journal of Family Medicine and Primary Care* 6(2): 169–70. <http://www.jfmpc.com/article.asp?issn=2249-4863;year=2017;volume=6;issue=1;spage=169;epage=170;aulast=Faizi>.
- Boima, Vincent et al. 2015. “Factors Associated with Medication Nonadherence among Hypertensives in Ghana and Nigeria.” *International Journal of Hypertension* 2015.
- Bosmans, Judith E. et al. 2019. “The Cost-Effectiveness of an Intervention Program to Enhance Adherence to Antihypertensive Medication in Comparison with Usual Care in Community Pharmacies.” *Frontiers in Pharmacology* 10(MAR): 1–10.
- Burnier, Michel, and Brent M. Egan. 2019. “Adherence in Hypertension: A Review of Prevalence, Risk Factors, Impact, and Management.” *Circulation Research* 124(7): 1124–40.
- Choi, Hyo Yoon et al. 2018. “Factors Affecting Adherence to Antihypertensive Medication.” *Korean Journal of Family Medicine* 39(6): 325–32.
- Dewanti, Sri Wahyuni, Retnosari Andrajati, and Sudibyo Supardi. 2015. “Pengaruh Konseling Dan Leaflet Terhadap Efikasi Diri, Kepatuhan Minum Obat, Dan Tekanan Darah Pasien Hipertensi Di Dua Puskesmas Kota Depok.” *Jurnal Kefarmasian Indonesia* 5(1): 33–40.
- Ghembaza, M.A., Y. Senoussaoui, M. Tani, and K. Meguenni. 2014. “Impact of Patient Knowledge of Hypertension Complications on Adherence to Antihypertensive Therapy.” *Current Hypertension Reviews* 10(1): 41–48.
- Gupta, Pankaj et al. 2017. “Risk Factors for Nonadherence to Antihypertensive Treatment.” *Hypertension* 69(6): 1113–20.
- Herrera, Pablo A., Laura Moncada, and Denise Defey. 2017. “Understanding Non-Adherence from the inside: Hypertensive Patients’ Motivations for Adhering and Not Adhering.” *Qualitative Health Research* 27(7): 1023–34.
- Kemendes. 2019. “Buku Pedoman Manajemen Penyakit Tidak Menular.”: 2.
- Kemendes RI. 2018. “Hasil Utama Riskesdas 2018.”
- Kilic, Mahmut, Tuğba Uzunçakmak, and Huseyin Ede. 2016. “The Effect of Knowledge about Hypertension on the Control of High Blood Pressure.” *International Journal of the Cardiovascular Academy* 2(1): 27–32.
- Kim, Hyun, and Flavia C.D. Andrade. 2019. “Diagnostic Status and Age at Diagnosis of Hypertension on Adherence to Lifestyle Recommendations.” *Preventive Medicine Reports* 13(November 2018): 52–56. <https://doi.org/10.1016/j.pmedr.2018.11.005>.
- Kountur, Ronny. 2016. “Detecting Careless Responses to Self-Reported Questionnaires.” *Eurasian Journal of Educational Research* (64): 307–18.
- Kuria, Ng’endo et al. 2018. “Compliance with Follow-up and Adherence to Medication in Hypertensive Patients in an Urban Informal Settlement in Kenya: Comparison of Three Models of Care.” *Tropical Medicine and International Health* 23(7): 785–94.
- Legido-Quigley, Helena et al. 2019. “Patients’ Experiences on Accessing Health Care Services for Management of Hypertension in Rural Bangladesh, Pakistan and Sri

- Lanka: A Qualitative Study.” *PLoS ONE* 14(1): 1–23.
- Nashilongo, M. M. et al. 2017. “Assessing Adherence to Antihypertensive Therapy in Primary Health Care in Namibia: Findings and Implications.” *Cardiovascular Drugs and Therapy* 31(5–6): 565–78.
- Olowe, Olumuyiwa A., and Andrew J. Ross. 2017. “Knowledge, Adherence and Control among Patients with Hypertension Attending a Peri-Urban Primary Health Care Clinic, KwaZulu-Natal.” *African Journal of Primary Health Care and Family Medicine* 9(1): 1–5.
- Osamor, Pauline E., and Bernard E. Owumi. 2011. “Factors Associated with Treatment Compliance in Hypertension in Southwest Nigeria.” *Journal of Health, Population and Nutrition* 29(6): 619–28.
- Pan, Jingjing et al. 2019. “Determinants of Hypertension Treatment Adherence among a Chinese Population Using the Therapeutic Adherence Scale for Hypertensive Patients.” *Medicine* 98(27): e16116.
- Paralihar S. 2018. “Active Methodology.” : 1–6.
- Pirasath, S., T. Kumanan, and M. Guruparan. 2017. “A Study on Knowledge, Awareness, and Medication Adherence in Patients with Hypertension from a Tertiary Care Centre from Northern Sri Lanka.” *International Journal of Hypertension* 2017.
- Ramli, Azuana, Nur Sufiza Ahmad, and Thomas Paraidathathu. 2012. “Medication Adherence among Hypertensive Patients of Primary Health Clinics in Malaysia.” *Patient Preference and Adherence* 6: 613–22.
- Reach, Gérard. 2011. “Obedience and Motivation as Mechanisms for Adherence to Medication: A Study in Obese Type 2 Diabetic Patients.” *Patient Preference and Adherence* 5: 523–31.
- Shahin, Wejdan, Gerard A. Kennedy, and Ieva Stupans. 2019. “The Impact of Personal and Cultural Beliefs on Medication Adherence of Patients with Chronic Illnesses: A Systematic Review.” *Patient Preference and Adherence* 13: 1019–35.
- Shaik, Shaffi Ahamed et al. 2016. “Medications Adherence Level and Its Associated Factors among Hypertensive Patients at a Major Referral Hospital, in Riyadh, KSA.” *Asian Journal of Medical Sciences* 7(4): 24–30.
- Suhadi. 2011. “Analisis Faktor-Faktor Yang Mempengaruhi Di Wilayah Puskesmas Sronol Kota Semarang Universitas Indonesia Analisis Faktor-Faktor Yang Mempengaruhi.”
- de Terline, Diane Macquart et al. 2019. “Factors Associated with Poor Adherence to Medication among Hypertensive Patients in Twelve Low and Middle Income Sub-Saharan Countries.” *PLoS ONE* 14(7): 1–14.
- Teshome, Destaw Fetene, Kindie Bantie Bekele, Yohannes Ayanaw Habitu, and Abebaw Addis Gelagay. 2017. “Medication Adherence and Its Associated Factors among Hypertensive Patients Attending the Debre Tabor General Hospital, Northwest Ethiopia.” *Integrated Blood Pressure Control* 10: 1–7.
- Tilea, Ioan et al. 2018. “Treatment Adherence among Adult Hypertensive Patients: A Cross-Sectional Retrospective Study in Primary Care in Romania.” *Patient Preference and Adherence* 12: 625–35.
- Uchmanowicz, Bartosz et al. 2018. “Factors Influencing Adherence to Treatment in Older Adults with Hypertension.” *Clinical Interventions in Aging* 13: 2425–41.
- Vrijens, Bernard et al. 2017. “Current Situation of Medication Adherence in

Hypertension.” *Frontiers in Pharmacology* 8(MAR): 1–8.

Yousif Awad, Eman, Bassima Ezat Gwaied, Latifa Mahmoud Fouda, and Hanan Abo El-Gamelen Ebrahim Essa. 2015. “Compliance of Hypertensive Patients with Treatment Regimen and Its Effect on Their Quality Of Life.” *IOSR Journal of Nursing and Health Science Ver. 14*(2): 2320–1940. www.iosrjournals.org.

Zhang, Yuji et al. 2018. “Factors Affecting Medication Adherence in Community-Managed Patients with Hypertension Based on the Principal Component Analysis: Evidence from Xinjiang, China.” *Patient Preference and Adherence* 12: 803–12.