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Meta-Analysis

Effect of Social Support and Self Efficacy on Drug Taking Adherence in Hypertensive Patients: A Meta-Analysis

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ABSTRACT

Background: Hypertension is a condition that causes a person to experience a drastic rise in blood pressure. Social support and self-efficacy are needed to improve skills, self-confidence and a sense of security for patients to be more compliant with taking medication. This study aimed to analyze the effect of social support and self-efficacy on medication adherence in hypertensive patients.
Subjects and Method: This study is a meta-analysis using PICO, namely population: hypertensive patients; Intervention: good social support, good self-efficacy; Comparison: low social support, low self-efficacy; Result: medication adherence. The articles used in this study were obtained from two databases, namely PubMed and Google Scholar. Keywords in the article search "social cognitive theory (SCT)" AND "self efficacy" AND "social support "AND" hypertension" AND "medication adherence", cross-sectional. The included article is full English with a cross-sectional study design for 2012–2022 and reports the adjusted odds ratio (aOR) in multivariate analysis. Selection of articles using the PRISMA flowchart. Article analysis using the Review Manager 5.3 application.
Results: 7 articles with a cross-sectional study involving 708 people with hypertension from 2 continents namely Asia and Africa for systematic review and meta-analysis. The data collected showed that hypertensive patients with strong social support were twice as likely to adhere to medication as hypertensive patients with weak social support (aOR= 2.16; 95%CI= 1.82 to 2.57; p <0.001), Hypertensive patients with self-efficacy Those who are strong are more likely to adhere to medication twice than hypertensive patients with weak self-efficacy (aOR= 2.11; 95% CI = 1.27 to 3.52; p <0.004).
Conclusion: Social support and self-efficacy improve medication adherence in hypertensive patients.

Keywords: social support, self-efficacy, social cognitive theory, hypertension, medication adherence

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BACKGROUND

Hypertension is a disease that included in health problems and occurs globally. Hypertension has the potential to cause chest pain, heart attack, stroke, and even sudden death, so routine blood pressure checks are very important to do as an effort to prevent hypertension and the diseases that arise as a result (Thangsuk et al., 2021).

Hypertension is a non-communicable disease (PTM) that always been identified as a burden of disease and cause of life-adjusted disability (DALYS) (Chowdhury et al., 2016). Hypertension is also included in a

degenerative disease which is still a scary figure in society (Abidin, 2019).

WHO (2021) has a target for the non-communicable disease program, which is to reduce the prevalence of hypertension by 33% between 2010 and 2030. It is estimated that 1.28 billion adults aged 30-79 years worldwide suffer from hypertension, most of whom live in low and middle income countries. An estimated 46% of adults with hypertension. Less than half of adults (42%) with hypertension are diagnosed and treated. About 1 in 5 adults (21%) with hypertension can control it.

The social support provided will have a positive impact on family members who suffer from hypertension and experience health problems while undergoing treatment. Hypertension sufferers who receive social support will be able to influence their adherence and control of treatment (Utami and Rauda-tussalamah, 2017).

The patient's belief in a treatment will give side effects that are considered disturbing, the emergence of concerns about long-term effects and dependence on medication that affects patient adherence. Social cognitive theory (SCT) which shows that self-efficacy is related to changes in one's behavior (behavioural change). Self-efficacy contributes to better understanding of the behavior changes process. High self-efficacy will assume that abilities can be use to get good results as expected and has eleven times the opportunity to show support for taking good medicine compared to patients who have low automatic effectiveness (Kendu et al., 2021).

Based on this background, a comprehensive study is needed from various primary studies on the effect of social support and self-efficacy on medication adherence in hypertensive patients. The purpose of this study was to analyze the effect of social support and self-efficacy on medication adherence in hypertensive patients, with a meta-analysis of primary studies.

SUBJECTS AND METHOD

1. Study Design

This research was a systematic research and meta-analysis. The articles used were obtained from the Google Scholar and PubMed databases between 2012 and 2022. Identification of articles was carried out using the PRISMA flowchart. The search keywords were “social cognitive theory (SCT)” AND “self efficacy“ AND ” social support “AND” hypertension” AND “medication adherence”, cross-sectional.

2. Steps of Meta-Analysis

Meta-analysis is carried out through 5 steps as follows:

1) Defining research questions in the form of PICO (Population, Intervention, Comparison, Outcome).
2) Search main study articles from various electronic databases such as Google Scholar and PubMed.
3) Conduct screening and Critical Appraisal of the main study articles.
4) Perform data extraction and synthesis of effect estimates into RevMan 5.3.
5) Interpret and draw conclusions.

3. Inclusion Criteria

The inclusion criteria in this research artile were full text using a cross-sectional design, the research subjects were hypertensive patients, the research results were medication adherence, to measure the relationship, the researchers used multivariate analysis with Adjusted Odds Ratio (aOR).

4. Exclusion Criteria

Exclusion criteria were articles non-English languages and articles other than cross-sectional study design.

5. Operational Definition of Variables

The independent variables are social support and self-efficacy, the dependent variable is medication adherence

Social support is the support obtained from family and non-family members regarding treatment and adherence to taking antihypertensive medication.

Self-efficacy is a belief in one's ability to organize and carry out the actions necessary to produce certain achievements in terms of adherence to medication and taking medication.

Compliance with taking medication is a behavior to comply with suggestions or procedures from doctors regarding drug use, which was previously preceded by a consultation process between the patient and the doctor as a health service provider.

6. Study Instruments

This study is guided by the PRISMA flowchart and assessment of the quality of research articles using the Critical Appraisal Checklist For Cross-sectional study (CEBM, 2014).

7. Data Analysis

The analysis in this study was carried out using the Review Manager application (RevMan 5.3). Forest plots and funnel plots are used to determine the degree of relationship and heterogeneity of the data.

RESULTS

The research process begins with conducting a research question to get a PICO which will be used as a reference for searching related articles. Google Scholar and PubMed are databases for article searches.

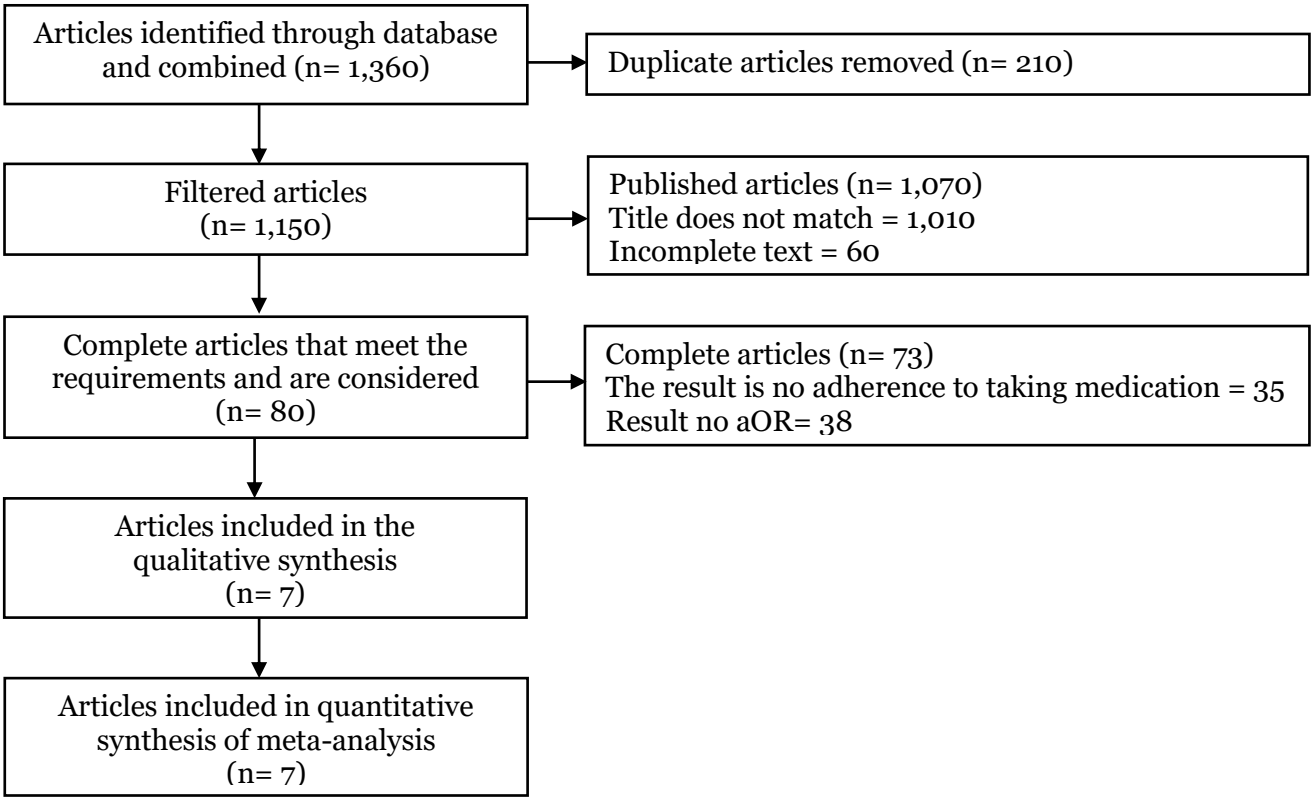

Figure 1. PRISMA Flowchart

Figure 1 Review of articles can be seen through the PRISMA flowchart. Research related to the effect of social support and self-efficacy on medication adherence in hypertensive patients consisted of 7 articles, from the initial search process there were 1360 articles, after the deletion of published articles 80 of them were full articles that met

the requirements and were considered for full text review then 7 articles that met the quality assessment were included in the quantitative synthesis using a meta-analysis.

Figure 2 research articles come from 2 continents, namely Asia (Iran, Palestine, Egypt, China) and Africa (Ethiopia). Table 1, the researcher conducted an assessment of the quality of the study of 7 articles through the 2014 CASP.

Figure 2. Map of the study area on the effect of social support and self-efficacy on medication adherence in hypertensive patients

Table 1. Results of the quality assessment of cross-sectional study on the effect of social support and self efficacy on drug taking adherence in hypertensive patients

Author (Year)	Question Criteria												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
Gelaw et al. (2021)	2	2	2	1	2	2	2	2	2	2	1	2	22
Andualem et al. (2020)	2	2	2	1	2	2	2	2	2	2	1	2	22
Andualem et al. (2021)	2	2	2	2	2	2	2	2	2	2	1	2	23
Hussen et al. (2020)	2	2	2	2	2	2	2	2	2	2	1	2	23
Ademe et al. (2019)	2	2	2	1	2	2	2	2	2	2	1	2	22
Titebu et al. (2017)	2	2	2	2	2	2	2	2	2	2	1	2	23
Khadoura et al. (2021)	2	2	2	1	2	2	2	2	2	2	1	2	22

Description of the question criteria:

1 = Does the study address clearly focused questions/problems?
2 = Are the research methods (research design) appropriate to answer the research questions?
3 = Are the methods for selecting subjects (employees, teams, divisions, organizations) clearly explained?
4 = Could the way the sample was obtained introduce (selection) bias?
5 = Does the subject sample represent the population to which the findings will refer?
6 = Is the sample size based on pre-study considerations of statistical power?
7 = Was a satisfactory response rate achieved?

8 = Can the measurement (questionnaire) be valid and reliable?
9 = Was statistical significance assessed?
10 = Are confidence intervals given for the main results?
11 = Is it possible that there are disturbing factors that have not been taken into account?
12 = Can the results be applied to your organization?

Answer score description:

0 = No
1 = Can't tell
2 = Yes

Table 2. Summary of primary cross-sectional study articles on the effect of social support and self efficacy on drug taking adherence in hypertensive patients with each PICO

Author (Year)	Country	Sample	P	I	C	O
Gelaw et al. (2021)	Northwest, Ethiopia	392	All adult hyper-tensive patients > 18 years	Good social support and good self-efficacy	Low/poor social support	Medication adherence
Andualem et al. (2020)	Northwest, Ethiopia	301	All hypertensive patients aged >18 years	Good self-efficacy	Low/poor social support	Medication adherence
Andualem et al. (2021)	Northeastern Ethiopia	366	All hypertensive patients aged >18 years	Good self-efficacy	Low/poor social support	Medication adherence
Hussen et al. (2020)	Eastern Ethiopia	398	Hypertensive follow-up patient for the past 6 months, >18 years	Good social support	Low/poor social support	Medication adherence
Ademe et al. (2019)	Dessie, Ethiopia	309	Patients with hypertension >18 years	Good social support and good self-efficacy	Low/poor social support	Medication adherence
Titebu et al. (2017)	Addis Ababa Ethiopia	404	All adult hypertensive patients > 18 years	Good social support	Low/poor social support	Medication adherence
Khadoura et al. (2021)	Gaza	538	All adult hypertensive patients > 18 years	Good social support and good self-efficacy	Low/poor social support	Medication adherence

Tabel 3. Adjusted Odds Ratio (aOR) of the effect of social support on medication adherence in hypertensive patients

Studies	aOR	95%CI	
		Lower Limit	Upper Limit
Gelaw et al. (2021)	2.12	1.30	3.39
Hussen et al. (2020)	2.71	1.56	4.69
Ademe et al. (2019)	2.20	1.27	3.82
Titebu et al. (2017)	1.49	0.91	2.44
Khadoura et al. (2021)	2.26	1.79	2.84

Tabel 3. Adjusted Odds Ratio (aOR) on articles the effect of good self efficacy on drug taking adherence in hypertensive patients

Studies	aOR	95%CI	
		Lower Limit	Upper Limit
Gelaw et al. (2021)	1.35	0.82	2.22
Andualem et al. (2020)	3.64	1.75	7.55
Andualem et al. (2021)	1.38	1.20	2.13
Ademe et al. (2019)	1.82	1.12	2.96

1. Effect of social support on medication adherence in hypertensive patients

The forest plot in Figure 3 shows that there is stagnant effect of social support on medication adherence in hypertensive patients. Hypertensive patients with strong social support are twice as likely to adherence to medication as hypertensive patients with weak social support (aOR= 2.16; 95% CI = 1.82 to 2.57; p <0.001). The forest plot also shows the estimated effect of social support on medication adherence with low variation (I^2= 0 %; p= 0.560). Thus, the calculation of the average estimate is carried out using the Fixed Effect Model approach.

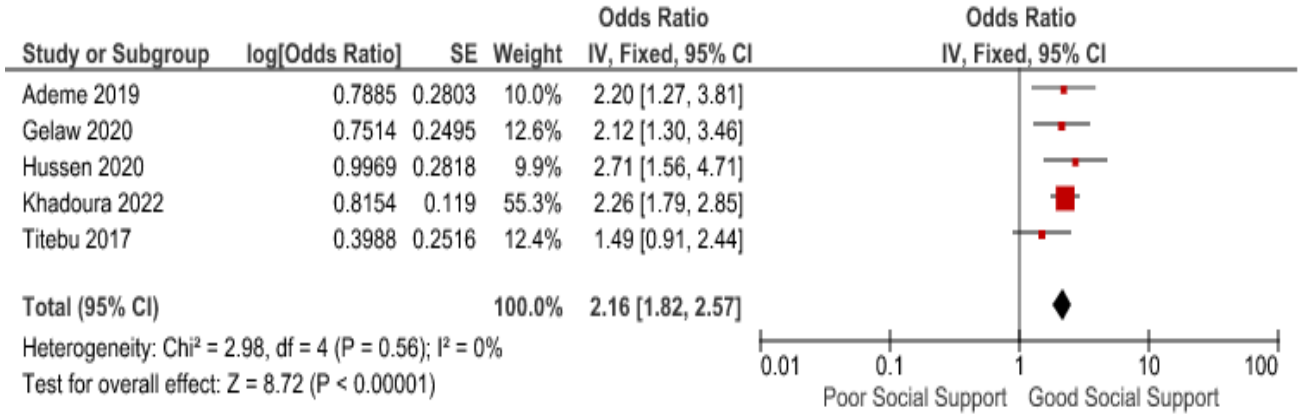

Figure 3. Forest plot of the effect of social support on medication adherence in hypertensive patients

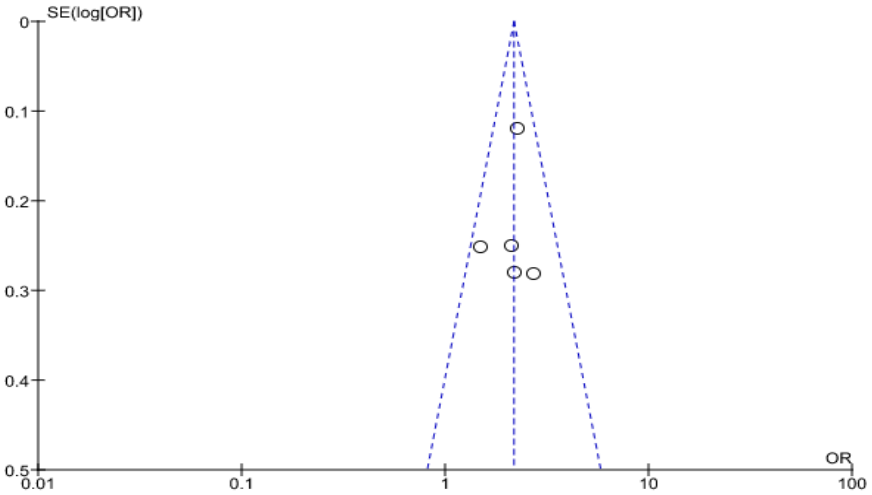

Figure 4. Funnel plot of the effect of social support on medication adherence in hypertensive patients

The funnel plot in Figure 4 shows a symmetrical distribution of effect estimates to the right and left of the average vertical line, thus not indicating publication bias in this meta-analysis.

2. Effect of self-efficacy on medication adherence in hypertensive patients

The forest plot study in Figure 5 shows that there is a stagnant effect of self-efficacy on medication adherence in hypertensive patients. Hypertensive patients with strong self-efficacy are twice as likely to adhere to medication as hypertensive patients with weak self-efficacy (aOR= 2.11; 95% CI= 1.27 to 3.52; p<0.004), Forest plot also shows the estimated effect of self-efficacy on medication adherence with low variation (I^2= 90%; p<0.001) so the analysis used the Random Effect Model. The funnel plot in Figure 6 shows a symmetrical distribution of effect estimates to the right and left of the average vertical line, thus not indicating publication bias in this meta-analysis.

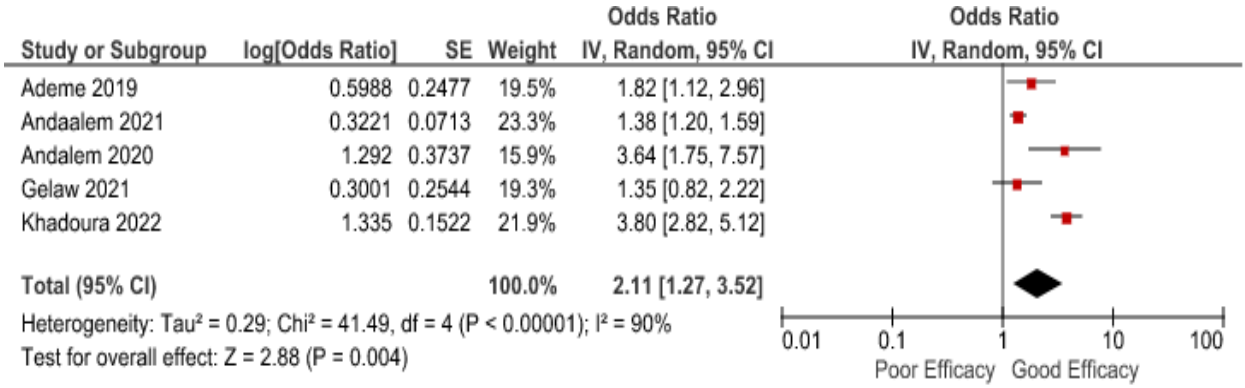

Figure 5. Forest plot of the effect of self-efficacy on medication adherence in hypertensive patients

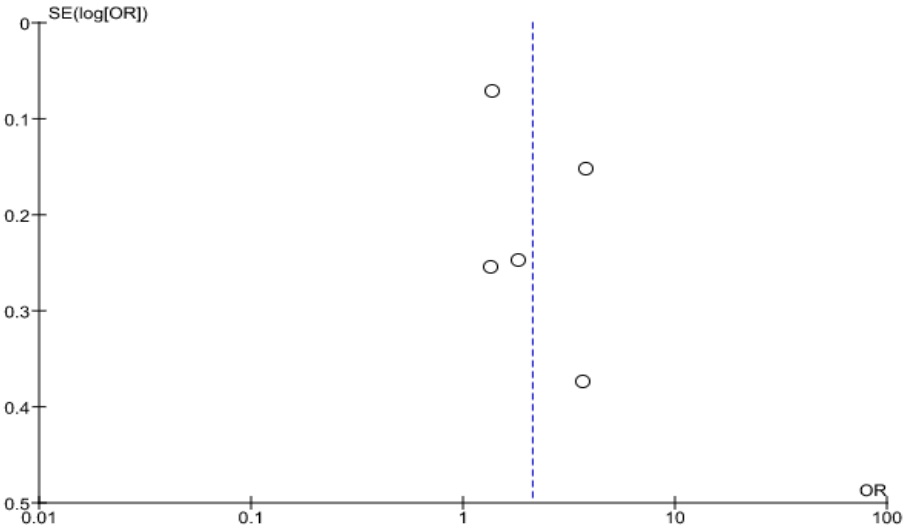

Figure 6. Funnel plot of the effect of self-efficacy on medication adherence in hypertensive patients

DISCUSSION

Systematic studies and meta-analyses in this study have a significant effect between social support and self-efficacy on medication adherence in hypertensive patients. This study discusses social support and self-effi-

cacy which are considered important because they are the cause of medication adherence in hypertensive patients.

Social support is the presence of certain people who personally provide advice, motivation, direction and show a way out when individuals experience a problem or experience obstacles in carrying out activities in a directed manner to achieve goals (Turan et al., 2019).

Social support is very important to understand because the individual concerned needs the closest people who can be trusted to help overcome these problems. Logistic regression results showed a strong three times more adherence to taking medication (aOR= 3.08; 95% CI= 1.12 to 8.50; p=0.030) related to support from health personnel to have good relations between patients and proper counseling. Therefore, as to foster a sense of security and the emergence of trust in influencing the level of adherence in hypertensive patients, especially in patients who are recommended to take drugs or to know blood pressure values (Rif'ati et al., 2018).

One aspect of the relationship between health workers and patients is the existence of effective communication in providing support such as complying with appointments between doctors and patients and understanding counseling regarding treatment and disease. Patients who routinely go to health facilities will experience a decrease in blood pressure because health workers will provide motivational encouragement to adhere to taking antihypertensive medication in controlling it (Yassine et al., 2016).

The role of health workers in increasing adherence to taking antihypertensive medication in patients is a very strong influence. The role of the officer is implemented in the form of providing clear information regarding the importance of taking medication regularly. Without waiting in long queues is a form of support from a health facility that can affect patient compliance behavior. Providing support to patients to recover, and interpersonal communication to produce good service behavior. Health workers who provide friendly and good service will provide good feedback for patients who come for treatment, it is this good service that gives the impression of customer satisfaction as a positive behavior in patients (Nuratiqa et al., 2020).

Family support is an effort to create an attitude of adherent hypertensive patients in treatment. Providing support can be in the form of verbal, attitudes such as helping sufferers to reach a health service, caring to take them to the nearest health facility, helping to finance medicine, reminding family members of the schedule for taking medicine (Hanum et al., 2019).

Family as the main source of support for parents, spouse, children, there is a relationship of 1.39 times (aOR 1.39; 95% CI=1.03 to 1.87; p=0.005). Family social support has been associated with many benefits regarding physical and mental health, many patients feel they receive little support from members outside their family, except from professional institutions because the lack of formal support services available for the elderly makes the patient dependent on children or their partners for informational, instrumental and emotional support (Hu et al., 2015).

Family support plays an important role, especially among the elderly because the family is a support system that will really need the presence of the family to be able to help in daily activities, for example in terms of reminding you to take medicine regularly. Support can be influenced by internal motivation and a desire to recover so that the elderly are obedient in taking medication and also the provision of adequate information from health facilities can obtain good

knowledge of the elderly along with routine medical check-ups (Nade and Rantung, 2020).

Another study conducted by Nyantakyi et al., (2020) stated that marital status can increase adherence to taking medication by 6.87 because married individuals will support each other between partners to remind them to take medication and take medication. This research was in line with with Uchmanowicz et al., (2018) that living with family has 1.91 times (aOR= 1.91; 95% CI= 0.26 to 3.56; p=0.006) has adherence in taking medication compared to those living alone or in organized institutions. It can be seen from the support received by the patient, such as closer attention to the health of their partner.

Research conducted by Abbas et al., (2020) found that there was a positive relationship between social support from the surrounding environment and adherence to treatment. Social support such as neighbours, friends increases the odds ratio of taking medication by (aOR=1.39; 95% CI= 1.03 to 1.87; p=0.009). Patients who received support from neighbors and friends showed better adherence to treatment than those who did not. There is a positive effect of support as a measure of social network where this factor can influence emotional well-being and shows a significant impact on medication adherence.

One's belief can be successful in completing tasks such as convincing oneself that to control hypertension by being disciplined in taking medication can prevent blood pressure from rising. Self-efficacy can be applied in understanding self-management of medication adherence. Self-efficacy in hypertension predicts 90.9% of self-management abilities related to medication adherence and fosters a higher level of confidence in patients' abilities to develop management behaviors that contribute to better hypertension control (Ding et al., 2018).

Higher self-efficacy reported better treatment adherence once (aOR = 1.08; 95% CI= 1.02 to 1.13; p=0.005) because self-efficacy forms a higher general sense of trust in the medical system so that patients are more obedient to reported better treatment adherence and hypertension control, so that health services should be able to improve better self-efficacy associated with active participation in cardiovascular disease risk reduction strategies in minority populations such as coaching in positive behavior change, patient empowerment and chronic disease management (Elder et al. al., 2012).

Research by Morrison et al., (2015) stated that self-efficacy had a very weak effect (aOR= 0.73; 95% CI= 0.70 to 0.77; p= 0.001) and perceived barriers to taking medication had an effect of 1.70 times (aOR = 1.70; 95%CI= 1.38 to 2.09; p=0.001) because in convincing the patient not only to get encouragement from health workers but also needed family support, social support and environmental support in order to grow a sense of confidence to comply more regularly with treatment.

The success of self-efficacy in patients or sufferers of hypertension is seen through the support of health workers who provide clear information, as well as support from family members. Hypertensive patients who receive proper support will be able to manage and control blood pressure independently and most importantly, their confidence will increase in taking various preventive measures to control blood pressure. Self-efficacy in people with hypertension creates intrinsic motivation, namely motivation from within themselves, such as being able to satisfy their needs and feel satisfied because of support. Beliefs about self-efficacy make him even better. Self-efficacy will also determine

a person's thinking about good behavior in controlling their disease so that self-efficacy is considered the most prominent predictor of changes in health behavior such as medication adherence in patients (Siahaan et al., 2022).

The conclusion of the meta-analysis of 7 studies on social support and self-efficacy for medication adherence in hypertensive patients came from Asian and African countries and this study had an effect on social support of (aOR= 2.16; 95%CI= 1.82 to 2.57; p <0.001) and self-efficacy (aOR= 2.11; 95% CI= 1.27 to 3.52; p<0.004). The limitation of this research is in the search for articles due to search bias so that researchers only use 2 databases, namely Google Scholar, PubMed and ignore other database sources. Not many articles were analyzed for social support and self-efficacy variables on medication adherence in hypertensive patients with an observational study design using multivariate analysis.

AUTHOR CONTRIBUTION

Sukma is the main researcher who selects topics, searches for and collects research data. Meanwhile, Didik Gunawan Tamtomo and Argyo Demartoto played a role in analyzing the research data and played a role in reviewing the document.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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