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**The Effect of Acupressure Therapy on Blood Pressure in Hypertension Patients:
Literature Study**

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ABSTRACT

Background: Hypertension is a major risk factor in the emergence of diseases or disorders of the cardiovascular system. With a high level of complexity, hypertension requires more attention from sufferers through regular treatment and other efforts to control blood pressure. Therefore, other alternatives are needed to control blood pressure in sufferers, one of which is acupressure therapy. The aim of this study was to analyze the effect of acupressure therapy on reducing blood pressure in hypertensive patients. **Methods:** The method applied in this research is literature study using the research databases *Scopus*, *PubMed* and *Google Scholar*. The inclusion criteria used in this study were articles published in 2018-2023. **Results:** The research results found 14 articles that met the inclusion and exclusion criteria. **Conclusion:** The entire article shows that acupressure therapy has a significant effect on reducing blood pressure in hypertensive patients. Based on the results of a literature review of articles on the topic of the effect of acupressure therapy on reducing blood pressure in hypertensive patients, it was found that acupressure therapy had a significant effect on reducing blood pressure in patients with hypertension.

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Background. Hypertension is a major risk factor in the emergence of diseases or disorders of the cardiovascular system (Putri and Mazarina 2022; Shao et al. 2018). Hypertension is a non-communicable disease (NCD) that requires special attention due to the impacts it has over a long period of time (Asari and Helda 2021). The emergence of hypertension in a person can be caused by internal factors such as genetics, lifestyle, sympathetic nervous disorders, or external factors such as environmental stress. The condition of hypertension in a person is usually accompanied by no signs of symptoms (Shin and Kim 2022). This is one of the reasons hypertension is called a *silent killer* due to its negative impacts which can be life threatening. However, in some cases, the appearance of *dull headaches* or dizziness, difficulty breathing, and drowsiness, are signs of symptoms that occur in patients with hypertension (Anggraini 2021).

Hypertension is a health problem that often occurs throughout the world. *The World Health Organization* explains that in 2019, 22% of the world's population had hypertension and only one fifth of the percentage regularly controlled blood pressure. The African Plain with a prevalence of 27% is the region with the highest cases of hypertension, while Southeast Asia is in third position with a prevalence of 25% (World Health Organization 2019). Indonesia, as a developing country on the Asian continent, has a prevalence of hypertension cases of 34.1% according to the 2018 Riskesdas results. This figure has increased by 8.3% from the 2013 data (RI Ministry of Health 2018). Based on data from the Central Java Province Central Statistics Agency, hypertension sufferers in Central Java reached 35% of the total population with the number of cases in Banyumas Regency in 2020 amounting to 25,865 people (Central Statistics Agency 2020).

The high incidence of hypertension is a problem that must be immediately addressed by all parties, especially the government. This is because complications that arise due to uncontrolled hypertension over a long period of time can give rise to more severe diseases that can be life threatening. Some complications that arise due to hypertension include heart failure, stroke, kidney problems, and nervous disorders (Sari and Putri 2023). With a high level of complexity, hypertension requires more attention from sufferers through regular treatment and other efforts to control

blood pressure. However, data shows that only 50% of hypertension sufferers in Indonesia receive regular treatment (RI Ministry of Health 2021). Therefore, other alternatives are needed to control blood pressure in sufferers, one of which is acupressure therapy.

Acupressure therapy is a complementary therapy that is beneficial for the body. Cupressure therapy is a finger prick therapy by applying pressure and massage to certain points on the body which is based on the principles of acupuncture (Dewi et al. 2022; Putri and Mazarina 2022). Through massage at certain points, the body is stimulated to release histamine which has an effect on vasodilation of blood vessels, resulting in increased blood circulation which makes the body more relaxed and ultimately lowers blood pressure (Balaji and Smitha 2023). From this process, acupressure therapy provides many benefits for the body, such as relieving pain, alleviating stress, and helping improve sleep quality. However, it should be remembered that this therapy is not the main treatment for hypertension sufferers but rather a secondary therapy to help control blood pressure in the body (Dewi et al. 2022).

Until now, there is a lot of scientific evidence that shows the benefits of acupressure therapy for hypertension sufferers. The research results of Aminuddin, et al (2020) explain that with acupressure therapy, hypertension sufferers can control blood pressure as evidenced by a decrease in systolic and diastolic pressure of up to 4-5mmHg. Other research also shows that acupressure therapy is effective in controlling blood pressure for people suffering from stress and disturbed sleep patterns in post-operative patients (Hudayah 2021; Sudjarwo and Solikhah 2023). Therefore, researchers are interested in conducting a literature study on the topic of the effect of acupressure therapy on reducing blood pressure in hypertensive patients. The aim of this study was to identify the effect of acupressure therapy on reducing blood pressure in hypertensive patients.

Methods. The method applied in this research is literature study using the research databases *Scopus*, *PubMed* and *Google Scholar*. The inclusion criteria used in this study were articles published in 2018-2023, in Indonesian or English, using an experimental design, and discussing the effect of acupressure therapy on reducing blood pressure in hypertensive patients. The exclusion criteria for this study

were articles that were inaccessible and not available in *full text form*.

Step in search shared on several processes, namely identification, screening, eligibility and inclusion. This step has in accordance with guidelines in PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analyses). PRISMA is a series of minimum-based evidence bases purposeful evidence _ help writer report diverse review systematic and meta - analysis assessing benefit. PRISMA focuses on the ways in which authors can ensure transparent and complete reporting _ from type study (Sastypratiwi & Nyoto, 2020) matter the it's in figure 1.

The article selection process in this study used the *PICO method* (P: Hypertensive patients, I: Acupressure therapy, C:-, O: Effect of acupressure therapy on reducing blood pressure in hypertensive patients). Search results for articles in databases determined by using the keywords "Acupressure therapy", "Blood pressure" and "Hypertension", namely, *Scopus* (n=14), *PubMed* (n =9), and *Google Scholar* (n=402) for a total of (n=425). After collecting the database, further screening and review of 425 articles was carried out and in the end only 15 articles were determined to meet the researchers' inclusion criteria. Articles that have been determined are subject to research on article quality according to the method used in the article. For non- *Randomized Control Trials* experimental methods, it is assessed using the *Checklist for Quasi Experimental Study* from the *Joanna Briggs Institute* which consists of 9 questions. Whereas For study *Randomized Control Trials* assessed use *Checklist for Randomized Control Trials* consisting of 13 questions.

Result and Discussion.

Result : Search results articles conducted in *Scopus*, *PubMed*, and *Google Scholar* databases found 14 articles that will reviewed of 425 corresponding articles _ with keywords. _ Articles come from publications for the 2018-2023 period, which are summarized in Table 1.

Discussion : The results of research on fourteen pieces of literature showed that blood pressure before being given acupressure therapy was in the range of stage 1 to stage 2. The decrease in blood pressure in each research object from all the articles analyzed ranged from

4-30 mmHg in systole and 4-18 mmHg in systole. diastole. From all the articles analyzed, the level of influence of acupressure therapy on reducing blood pressure in hypertensive patients is known to be very significant even though there are differences in the characteristics of the acupressure given. The condition of hypertension in a person is influenced by several factors such as age and gender (Smeltzer & Bare, 2017). Of all the articles analyzed, the majority of respondents were female. This is related to the limitations of research conducted by several researchers.

Structural and functional changes in the peripheral vascular system are responsible for the blood pressure changes that occur in old age. These changes include atherosclerosis, loss of connective tissue elasticity and a decrease in vascular smooth muscle relaxation, which in turn reduces the distensibility and tensile strength of blood vessels. As a result, the aorta and large arteries reduce their ability to accommodate the volume of blood pumped by the heart (stroke volume) and result in a decrease in cardiac output and an increase in peripheral resistance (Cristanto et al., 2021; Grassi et al., 2021; World Health Organization, 2019). Several of these conditions trigger the emergence of hypertension in the elderly. However, with these physiological changes, elderly people who suffer from hypertension experience limitations in the treatment process. The variety of medicines consumed by the elderly in an effort to improve their health is one of the reasons for the need for complementary therapies, especially acupressure to lower blood pressure (Purwono et al., 2020).

Acupressure therapy is a complementary therapy that is carried out by massaging stimulation points on the body to provide a comfortable and relaxing effect. Several articles provide information about acupressure only being carried out at a few points, such as in the article by Ambarwati et al. (2023) who carried out at points GB 20, LI 11, LI 4, PC 6, LV 3, and Wariin and Pranata (2018) at points KI3 and SP6. In

several other articles there is no explanation regarding the point of giving acupressure in the intervention provided. Acupressure therapy stimulates the nerves in the epidermis and is transmitted to the brain organ in the hypothalamus. The descending nervous system releases endogenous opiates similar to endorphins. The release of endorphins increases endorphin levels in the body and increases the production of the hormone dopamine. An increase in the hormone dopamine causes increased activity of the parasympathetic nervous system (Dewi et al., 2022; Putri & Mazarina, 2022; Saputra et al., 2023). People with high blood pressure perceive touch as a stimulus for the relaxation response and lower blood pressure because the parasympathetic nervous system controls the activities that occur and functions when the body is relaxed (Ambarwati et al., 2023; Maryati & Pertiwi, 2022).

The average duration of effectiveness of acupressure therapy for lowering blood pressure in hypertensive elderly people can vary depending on a number of factors, including the severity of hypertension, frequency of therapy, and individual response (Balaji & Smitha, 2023; Furqoni et al., 2022). The duration of acupressure therapy most commonly used in fourteen articles is 10 minutes to 30 minutes and is carried out 3 times a week. Acupressure therapy should not be applied to clients with swelling at the massage points, abrasions on the skin and serious illnesses such as heart failure. One should not press too hard on the points while giving a massage and should not cause the patient pain. The right massage should be able to create a sensation of comfort. When massaged, the body relaxes and automatically affects the parasympathetic nerves. This is in accordance with research by Wariin and Pranata (2018) which stated that twenty respondents felt comfortable and relaxed when receiving acupressure therapy.

From several articles analyzed, limitations were found. Limitations that

are often found in these fourteen articles are that almost all of the research involved relatively small samples, and there was no control group in the experimental studies. Apart from that, from research by Gede et al. (2023) and Kim and Park (2023), it was found that the majority of respondents were women which could bias the results due to the absence of male comparisons. The limited use of blind test techniques in the results of article analysis is another aspect that can be utilized by future researchers in deepening the topic of the effect of acupressure therapy on reducing blood pressure in hypertensive patients.

Conclusion

Based on the results of a literature review of articles on the topic of the effect of acupressure therapy on reducing blood pressure in hypertensive patients, it was found that acupressure therapy had a significant effect on reducing blood pressure in patients with hypertension. Acupressure therapy can be used as secondary therapy in the process of treating hypertension in the elderly.

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Table 1. Review Results of Selected Articles

Article Title and Author	Design, Samples, and Sampling Techniques	Research result	Research Limitations
<p>Acupressure therapy reduces blood pressure in elderly people with hypertension at Tresna Werdha Jakarta Type: Publication Article Author : Maryati , Laras Adhythia P ISSN: 1978 – 0664 EISSN: 2654 – 3249 (Maryati & Pertiwi, 2022)</p>	<p>Design used that is <i>Quasi Experiment non Randomized pretest-posttest control group approach</i> . The sample consisted of 18 elderly people who were divided into two groups. The sampling technique used is <i>purposive sampling</i> .</p>	<p>The results showed that acupressure treatment had a significant effect on reducing systolic blood pressure (p-value = 0.001 < 0.05) and diastolic blood pressure (p-value = 0.04 < 0.05).</p>	<p>The relatively small number of samples and the use of <i>purposive sampling techniques</i> can affect the validity of the research results.</p>
<p>Implementation of acupressure therapy at GB 20, LI 11, LI 4, PC 6, LV 3 points to lower blood pressure in hypertensive patients Type: Proceedings Article Author : Ambarwati , Eny Pujiati , Jamaludin, Dwi Novitasari . (Ambarwati et al., 2023)</p>	<p>Design used that is <i>Quasi Experiment pretest-posttest without control group</i> . The sample consisted of 18 people with the inclusion criteria being able to communicate well, suffering from stage 1-4 hypertension with systolic ≥ 140 mmHg and diastolic ≥ 90 mmHg, aged 45-55 years, and had no serious complications. The sampling technique used is <i>purposive sampling</i> .</p>	<p>The results showed that systolic blood pressure experienced a significant decrease in the second and third procedures (p: 0.000) in 18 respondents, while diastolic blood pressure did not experience a significant decrease in the second and third procedures (p: 0.137).</p>	<p>The sample size is relatively small, there is no control group and the use of <i>purposive sampling techniques</i> can affect the validity of the research results.</p>
<p>The effect of giving acupressure therapy on blood pressure in hypertensive patients in the Sawan I Community Health Center working area Type: Proceedings Article Author : Kadek Suartika Y, Ni Made D, Putu</p>	<p>Design used that is <i>Quasi Pre-Experiment pretest-posttest without control group</i> . The sample consisted of 78 hypertensive patients. The sampling technique used is <i>purposive sampling</i> .</p>	<p>The results of the study showed that there was a significant effect (p: 0.000) of giving acupressure therapy on the blood pressure of hypertensive patients. This is proven by the average decrease in blood pressure from 154/85 mmHg to 140/80 mmHg.</p>	<p>Does not explain in detail the criteria for the respondents studied. The absence of a control group and the use of <i>purposive sampling</i> can affect the validity of research results</p>

Article Title and Author	Design, Samples, and Sampling Techniques	Research result	Research Limitations
<p>Agus A EISSN: 2962-1828. (Kadek et al., 2023)</p>			
<p>The effect of pressing the Taixi (KI3), Sanyinjiao (SP6) acupressure points on reducing blood pressure in elderly people with hypertension at PSTW Jember Type: Publication Article Author : Sulton Wariin , Andi Eka P ISSN: 2302-7932 EISSN: 2527-7529. (Wariin & Pranata, 2018)</p>	<p>Design used that is <i>Quasi Experiment pretest-posttest without control group</i> . The sample consisted of 20 elderly people with hypertension aged >60 years. The sampling technique used is <i>simple random sampling</i> .</p>	<p>The results of the research showed that the systole value was $p=0.001$ ($p < \alpha$), the MAP value was $p= 0.000$ ($p < \alpha$) and the diastole value using the Wilcoxon signed rank test was $p= 0.004$ ($p < \alpha$) which indicated that the Taixi acupressure point was pressed (Ki3) and Sanyinjiao (Sp6) are effective in reducing blood pressure in elderly people with hypertension at PSTW Jember.</p>	<p>The sample size was relatively small, there was no control group, and the inclusion and exclusion criteria for research respondents were not explained in detail.</p>
<p>Decreased blood pressure in hypertension sufferers after being given acupressure therapy Type: Publication Article Author : Aminuddin, Yulianus Sudarman, Moh Syakib ISSN: 2443-3861 EISSN: 2528-5602 (Aminuddin et al., 2020)</p>	<p>Design used that is <i>Pre-Experiment one group pretest-posttest</i> . The sample consisted of 7 people suffering from hypertension with systolic blood pressure ≥ 140 mmHg and diastolic ≥ 90 mmHg, and who had not taken hypertension medication for less than 4-8 hours. <i>Purposive</i> sampling technique</p>	<p>The results of the study showed that the frequency distribution of respondents' blood pressure after acupressure therapy from 7 respondents was 5 people (71.42%) decreased and 2 people (28.58%) remained the same . Bivariate test results showed that systolic and diastolic blood pressure after acupressure therapy showed p value = 0.000 ($\alpha < 0.05$), mean difference = 15.714 for systolic and p value = 0.015 ($\alpha < 0.05$), mean difference = 11.429 for diastolic . So it</p>	<p>The sample size is relatively small, there is no control group and the sampling technique uses <i>purposive sampling</i> which can affect the validity of the research results.</p>

Article Title and Author	Design, Samples, and Sampling Techniques	Research result	Research Limitations
		was concluded that there was an effect of acupressure therapy on the blood pressure of hypertensive patients	
<p>Acupressure is Effective in Controlling Blood Pressure in the Elderly with Hypertension Type: Publication Article Author : Ammarullah Al Furqoni , Errick Endra C, Darmasta Maulana ISSN: 2338-5138 EISSN: 2338-5138 (Furqoni et al., 2022)</p>	<p>Design used that is <i>Pre-Experiment one group pretest-posttest without control group</i> . The sample consisted of 13 elderly people with hypertension with systolic blood pressure ≥ 130 mmHg and diastolic ≥ 80 mmHg, and not taking hypertension medication. Sampling technique <i>Simple random sampling</i></p>	<p>Research results show that with giving therapy acupressure in 13 elderly people hypertension obtained average pressure blood <i>pre</i> 144.23/80.85 mmHg, and <i>post</i> 137.15/75.92 mmHg with mark significance of 0.000 is possible concluded that therapy acupressure effective in lower pressure blood elderly hypertension</p>	<p>The sample size is relatively small and there is no control group which can affect the validity of the research results.</p>
<p>Effect of Acupressure Seven Meridian Points on Blood Pressure Changes in Hypertensive Patients Type: Publication Article Author: Gede Budi W, Made Martini, Ni Luh PE (Gede et al., 2023)</p>	<p>Design used that is <i>Pre-Experiment one group pretest-posttest without control group</i> . The sample consisted of 30 people with hypertension. <i>Purposive</i> sampling technique</p>	<p>The Wilcoxon test shows a p-value of 0.000 ($\alpha < 0.05$), thus shows the influence of acupressure therapy on blood pressure in hypertensive patients in the working area of Community Health Center II</p>	<p>The majority of respondents were women (20 people/66.7%) and all people/66.7%) and all the women were of average age the average age is elderly, so researchers assume that changes in women and men are not comparable. man.</p>
<p>Influence Therapy Back Acupressure _ to Blood Pressure in Patients Hypertension in the Work Area Public health</p>	<p>Design used that is <i>Quasi Experiment one group pretest-posttest without control group</i> . The sample consisted of 16 women with hypertension who</p>	<p>The results of this research on back acupressure therapy were that there was an effect on blood pressure in hypertensive patients with (p</p>	<p>The sample size is relatively small, there is no control group, the sampling technique uses <i>purposive sampling</i> , and</p>

Article Title and Author	Design, Samples, and Sampling Techniques	Research result	Research Limitations
<p>center Bandarharjo Semarang Type: Proceedings Article Author : Mega Ayu M, Sri Widodo. ISSN: 2654-766X (Maharani & Widodo, 2019)</p>	<p>took part in PROLANIS activities at the Bandarharjo Community Health Center, Semarang. <i>Purposive</i> sampling technique</p>	<p>value = 0.000). This is evidenced by a decrease in the average systolic blood pressure of 29.25 mmHg, diastolic blood pressure of 20.25 mmHg, and MAP of 23.25 mmHg.</p>	<p>there is no detailed explanation of the inclusion and exclusion criteria.</p>
<p>Self-acupressure to lower blood pressure in older adults with hypertension Type: Publication Article Author: Agus Citra D, Santun Setiawati, Raden Siti Maryam. ISSN: 2461-1026 (Dermawan et al., 2019)</p>	<p>Design used that is <i>Quasi Experiment one group pretest-posttest with control group</i> . The sample consisted of 36 elderly people with hypertension who were divided into 2 intervention and control groups. <i>Consecutive</i> sampling technique</p>	<p>The results of the study showed that there was a significant difference between the results of measuring the average systolic and diastolic blood pressure, namely 153.61/92.78 mmHg to 135.56/83.89 mmHg. The significance value of both is at $p=0.000$.</p>	<p>The limitation of this study is that it only carried out one blood pressure measurement for intervention and control.</p>
<p>The effect of acupressure therapy on blood pressure in hypertensive sufferers Type: Publication Article Author: Adi Saputra, Sintiya Halisya P, Tafdhila, Abdul Syafe'i. ISSN: 2655-4712 (Saputra et al., 2023)</p>	<p>Design used that is <i>Quasi Experiment one group pretest-posttest without control group</i> . The sample consisted of 20 people who were patients at the Asy-Syaafi Holistic Center. <i>Purposive</i> sampling technique</p>	<p>The results of the study showed that the average systolic blood pressure before acupressure therapy was 164.25 mmHg and the average diastolic blood pressure was 100 mmHg. The average systolic blood pressure and blood pressure after acupressure therapy was 143.85 mmHg and the average diastolic blood pressure was 90 mmHg. The results: Statistical test results prove that there is a difference in systolic blood</p>	<p>The relatively small sample size, the absence of a control group, and the use of <i>purposive sampling techniques</i> can affect the validity of the research results.</p>

Article Title and Author	Design, Samples, and Sampling Techniques	Research result	Research Limitations
		pressure (p value 0.000) and diastolic blood pressure (p value 0.025) before and after acupressure therapy.	
<p>The effectiveness of acupressure therapy in lowering blood pressure in patients with hypertension Type: Publication Article Author : Zubaidah, Insana Maria, Rusdiana , Iis Pusparina , Raihana Norfitri . (Zubaidah et al., 2021)</p>	<p>Design used that is <i>Pre-Experiment with non randomized control trials one group pretest-posttest without control group</i> . The sample consisted of 15 people with hypertension. <i>Purposive</i> sampling technique</p>	<p>The results of the study showed that there was an influence on changes in blood pressure before and after being given acupressure therapy with a value of p = 0.046 and p = 0.003.</p>	<p>The sample size is relatively small, there is no control group, the sampling technique uses <i>purposive sampling</i> , and there is no detailed explanation of the inclusion and exclusion criteria.</p>
<p>The Effect of Acupressure Therapy on Reducing Blood Pressure in Hypertension Patients in the Work Area of the Muntok Health Center in 2022 Type: Publication Article Author : Kiki Amalia EISSN: 2964-6804. (Amalia, 2023)</p>	<p>Design used that is <i>Pre-Experiment one group pretest-posttest without control group</i> . The sample consisted of 14 people with hypertension. <i>Purposive</i> sampling technique</p>	<p>The results of this study showed that there was an effect of giving acupressure therapy on reducing blood pressure using non-parametric statistical methods and using the Wilcoxon test, it was found that the value of p = 0.001 (p < 0.05) on systolic and diastolic blood pressure, before and after acupressure therapy with the average blood pressure pretest systolic 150.71 and 127.14, while <i>posttest</i> diastolic 90.36 and 80.71</p>	<p>The sample size is relatively small, there is no control group, the sampling technique uses <i>purposive sampling</i> , and there is no detailed explanation of the inclusion and exclusion criteria.</p>
<p>The Effect of Self-Acupressure Therapy on Changes in Blood</p>	<p>Design used that is <i>Quasi Experiment one group pretest-posttest with control</i></p>	<p>The analysis results show that the ρ - value = 0.000 < 0.05 (Sig.95%). So</p>	<p>The limitation of this research is that researchers have not been able to</p>

Article Title and Author	Design, Samples, and Sampling Techniques	Research result	Research Limitations
<p>Pressure in Hypertension Patients Type: Publication Article Writers :Yenni Monalisa, Edi Purwanto, Lukman Nulhakim (Monalisa et al., 2023)</p>	<p>group . The sample consisted of 20 people who were hypertension patients and were divided into control and intervention groups. <i>Purposive</i> sampling technique</p>	<p>it was concluded that there was an effect of giving independent acupressure therapy on changes in blood pressure in people with hypertension.</p>	<p>control other factors of hypertension such as age, regular consumption of medication and so on, so it is hoped that further research can examine these factors.</p>
<p>The effects of auricular acupressure on blood pressure, stress, and sleep in elders with essential hypertension: a randomized single-blind sham-controlled trial Type: Publication Article Author: Bomi Kim, Hyojung Park DOI:10.1093/eurjcn / zvad005 (Kim & Park, 2023)</p>	<p>Design used that is <i>Single-blind Randomized Control Trials with placebo-controlled studies</i>. The sample consists of 46 elderly people sufferer hypertension essential aged 66-84 years with criteria inclusion own level good conscience , having _ MMSE-DS score <9, and not yet Once acupressure auricular . The exclusion criteria for respondents were having lesions in both ears, receiving other complementary therapies, and currently using sleep aids.</p>	<p>The results showed that there were statistically significant differences between the two groups in systolic blood pressure (F=5.67, P=0.022), diastolic blood pressure (17.53, P<0.001), and heart rate (F=6.78, P= 0.013) over time..</p>	<p>Only elderly women participate though. Second, the duration of effect in this study after completing the 8-week auricular acupressure intervention was not assessed. Third, this study did not undergo blind testing.</p>

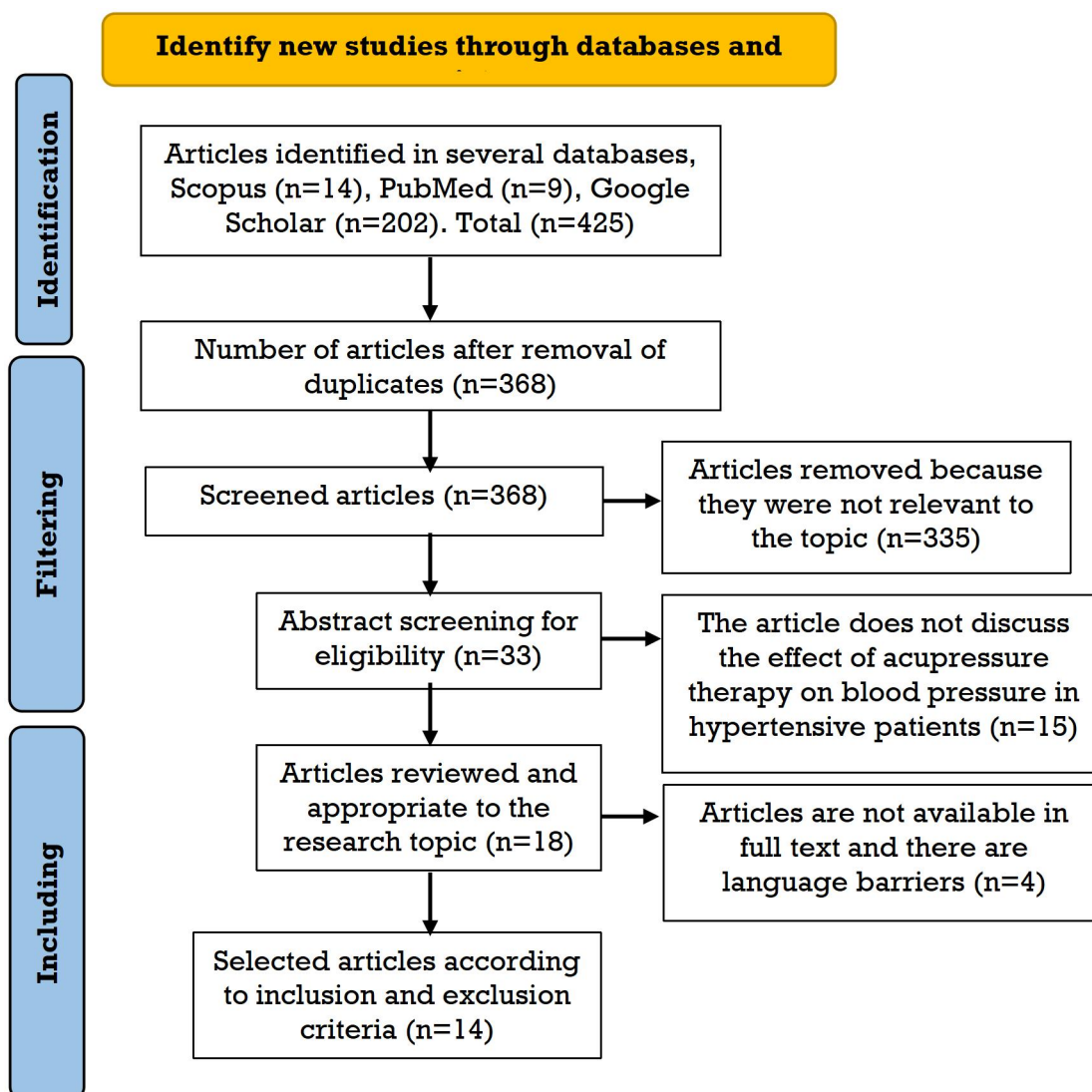


Figure 1. Article Selection Diagram based on PRISMA