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LEARNING IN CLINICAL CASES

Guided imagery therapy for reducing hypertension in adolescents

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Abstract
Hypertension care in nursing involves a comprehensive approach to managing and reducing high blood pressure in patients. Guided imagery is an effective complementary therapy in hypertension care. However, studies exploring the benefits of this therapy for patients living with hypertension are limited. This study aims to evaluate the effectiveness of guided imagery in reducing hypertension. Using a descriptive case study approach, the study focused on a hypertensive female adolescent. Factors such as obesity, family history of hypertension, high salt consumption, and limited knowledge were identified as contributors to hypertension in adolescents. Non-pharmacological therapies like guided imagery can be used alongside pharmacological treatments to manage hypertension in this population. Community nurses are encouraged to incorporate guided imagery therapy to alleviate symptoms of hypertension and enhance overall patient care.

Keywords: Hypertension; community nursing; guided imagery; non-pharmacological therapy; adults nursing

Introduction

Hypertension, commonly known as high blood pressure, is a chronic medical condition where the force of the blood against the artery walls is consistently too high. This condition is defined by a systolic blood pressure of 130 mm Hg or higher and/or a diastolic blood pressure of 80 mm Hg or higher (Kowalski, Goniewicz, Moskal, Al-Wathinani, & Goniewicz, 2023). Blood pressure is determined by the amount of blood your heart pumps and the amount of resistance to blood flow in your arteries. When the arteries narrow, the heart pumps more blood, leading to higher blood pressure (Goodhart, 2016). Hypertension is often called the "silent killer" because it typically has no symptoms until it causes significant health problems. It can lead to severe complications, including heart disease, stroke, kidney failure, and vision loss (Kotwal & Joseph, 2023). The causes of hypertension can be broadly classified into two categories: primary (essential) hypertension and secondary hypertension. Primary hypertension, which accounts for about 90-95% of cases, develops gradually over many years and has no identifiable cause. It is often associated with genetic factors, age, lifestyle habits such as poor diet, lack of physical activity, and excessive alcohol consumption. Secondary hypertension, on the other hand, results from an underlying condition such as kidney disease, adrenal gland tumors, or certain medications (Mensah, 2019). The management of hypertension typically involves lifestyle modifications like adopting a heart-healthy diet, regular physical activity, maintaining a healthy weight, and avoiding tobacco use (Carey, Moran, & Whelton, 2022). In many cases, medication may also be necessary to control blood pressure and prevent complications. Regular monitoring and working closely with healthcare providers are crucial for effectively managing this condition (Nguyen, Dominguez, Nguyen, & Gullapalli, 2010).

Hypertension is a growing concern among adolescents, often overlooked in this age group. Traditionally associated with older adults, hypertension can also manifest in teenagers, potentially leading to serious health issues if not addressed (Robinson & Chanchlani, 2022). Adolescence is a critical developmental stage marked by significant physical, emotional, and social changes, and the emergence of hypertension during this period can have lasting implications (Flynn, 2019). Understanding the causes, symptoms, and management of hypertension in adolescents is essential for promoting long-term health and well-being. Several factors contribute to the development of hypertension in adolescents. Genetics plays a crucial role, as a family history of high blood pressure can increase the likelihood of its occurrence (Ashraf, Irshad, & Parry, 2020). Additionally, lifestyle choices, such as

poor diet, lack of physical activity, and obesity, significantly impact blood pressure levels. The consumption of high-sodium foods, sugary beverages, and processed snacks can lead to weight gain and increased blood pressure (Anyaegbu & Dharnidharka, 2014). Moreover, sedentary behaviors, such as excessive screen time and insufficient exercise, further exacerbate the risk of developing hypertension (Park, Moon, Kim, Kong, & Oh, 2020). Understanding these risk factors is vital for prevention and early intervention. Recognizing the symptoms of hypertension in adolescents can be challenging, as many young people may not exhibit noticeable signs. Some adolescents may experience headaches, dizziness, or nosebleeds, but these symptoms are not always present. Regular blood pressure screenings are essential for early detection, especially for those with risk factors **(Figure 1)**. Schools and healthcare providers should prioritize routine checks to identify elevated blood pressure levels and initiate appropriate interventions (Riley, Hernandez, & Kuznia, 2018).

Figure 1. Illustration of regular blood pressure checking (*Courtesy of pexels.com*).

The management of hypertension in adolescents involves a multifaceted approach that includes lifestyle modifications and, in some cases, medication (Bouhanick et al., 2021). Encouraging a balanced diet rich in fruits, vegetables, whole grains, and low-fat dairy products can help lower blood pressure. Reducing sodium intake and increasing physical activity are also critical components of managing hypertension (Robinson & Chanchlani, 2022). Healthcare providers may recommend at least 150 minutes of moderate-intensity exercise each week. In more severe cases, antihypertensive medications may be prescribed to help control blood pressure levels. Education and support from healthcare professionals, families, and schools are vital in helping adolescents adopt healthier habits (Raj, Naik, & Nirgude, 2020). As the prevalence of high blood pressure continues to rise among young people, it is essential to raise awareness about its causes, symptoms, and management strategies (Sumna, Malhotra, Gupta, Goswami, & Salve, 2023). Early detection through regular screenings, coupled with lifestyle modifications and appropriate medical interventions, can help mitigate the risks associated with hypertension. Fostering a supportive environment and promoting healthy behaviors empowers adolescents to take charge of their health, significantly

reducing the long-term impact of hypertension on their lives. For example, integrating the guided imagery for supporting the primary care of hypertension.

Guided imagery is a relaxation technique that can be beneficial for individuals managing hypertension. It involves using the imagination to create calming and peaceful mental images, helping to reduce stress and promote a sense of well-being in pregnancy (Haruna et al., 2019). For those experiencing high blood pressure, guided imagery can serve as a complementary approach to traditional treatments, aiding in the reduction of stress levels that often contribute to elevated blood pressure. The therapy like relaxing therapy which is helpful for reducing hypertension. The process of guided imagery typically begins with finding a quiet and comfortable space where one can relax without distractions (Goldstein, Josephson, Xie, & Hughes, 2012). Individuals are encouraged to close their eyes and take deep, slow breaths, focusing on their breathing to center themselves. As they relax, they are guided to visualize serene and tranquil scenes, such as a peaceful beach, a quiet forest, or a beautiful garden (Zhang et al., 2021). This mental escape can help shift attention away from stressors and promote a sense of calm, which is crucial for managing hypertension. As the imagery unfolds, participants may be guided to engage their senses fully. They might visualize the gentle sound of waves lapping against the shore, feel the warmth of the sun on their skin, or smell the fresh scent of pine trees. Engaging multiple senses enhances the experience and deepens relaxation, allowing the body to respond positively. This immersive experience can lead to a decrease in heart rate and blood pressure, providing immediate relief from the physical symptoms of stress (Rainforth et al., 2007). The existing body of research on hypertension during pregnancy has primarily focused on the physiological and clinical implications for expectant mothers and their infants. While these studies provide valuable insights into the management and outcomes of hypertension in pregnant women, there remains a significant gap concerning the specific experiences and challenges faced by adolescents who are pregnant. Adolescence is a unique developmental stage characterized by rapid physical, emotional, and social changes, and the intersection of pregnancy and hypertension in this demographic warrants' further investigation. One notable gap in the literature is the limited number of case reports that specifically address hypertension in pregnant adolescents. Most studies tend to group adolescents with adults, obscuring the distinct factors that may contribute to hypertension in younger populations. Adolescents may face unique stressors, such as social stigma, lack of access to healthcare, and insufficient support systems, all of which can exacerbate hypertension. Understanding these specific challenges is crucial for developing targeted interventions that cater to the needs of pregnant adolescents. Moreover, there is a need for studies that consider the long-term implications of hypertension in adolescent. Therefore, the study is aimed to investigate the effect of guided imagery among adolescent with hypertension. Incorporating guided imagery into a daily routine can yield long-term benefits for individuals with hypertension. Also, can promote a greater sense of mindfulness and self-awareness, encouraging individuals to recognize and address stressors proactively.

Method

This study employs a case study methodology to explore the effects of guided imagery on patients suffering from hypertension (>180/100 mm Hg), specifically chronic hypertension. Conducted in Magelang, the research centers on a single adult patient who has endured this condition for over a year. This chronicity underscores the necessity for supplementary therapeutic approaches beyond the standard medical treatment. Chronic hypertension often requires a multifaceted management strategy, as it can lead to severe complications if not effectively controlled. The decision to incorporate guided imagery into the patient's care plan reflects a growing recognition of the importance of holistic approaches in managing chronic health conditions, particularly those influenced by psychological factors. The guided imagery therapy was meticulously structured over the course of one week, consisting of seven sessions, each lasting between 15 to 20 minutes. This specific duration was chosen to ensure that the sessions were both manageable for the patient and sufficiently immersive to facilitate relaxation and mental engagement. During these sessions, the patient was guided to visualize calming and serene environments, fostering a sense of peace and reducing stress levels. Stress is a known contributor to elevated blood pressure, and by addressing this psychological component, the therapy aimed to provide a complementary benefit to the pharmacological treatments the patient was already receiving. This dual approach highlights the potential for guided imagery to serve as an adjunct therapy, enhancing overall treatment efficacy.

Prior to the initiation of the intervention, ethical approval was secured, ensuring that the study adhered to the highest standards of research ethics and patient safety. This step is crucial in any clinical study, particularly when involving human subjects, as it safeguards their rights and well-being throughout the research process. In

addition to the patient, the family was actively involved in the therapy as part of a broader educational initiative. Engaging family members not only helps create a supportive environment but also empowers them with knowledge about the patient's condition and the therapeutic process. This involvement can enhance the effectiveness of the therapy by fostering a collaborative approach to health management, where family support plays a pivotal role in the patient's journey toward better health. Data analysis for this study was conducted manually, relying on insights gathered during the assessment (sphygmomanometer, documentation), intervention (protocol of guided imagery), and evaluation phases. This thorough analytical approach allowed for a comprehensive understanding of the patient's response to guided imagery. Meticulously documenting changes in the patient's blood pressure readings, psychological state, and overall well-being, the researchers aimed to draw meaningful conclusions about the efficacy of guided imagery as a therapeutic intervention. The findings from this case study could contribute to the broader discourse on integrative health practices, emphasizing the significance of addressing both physical and psychological dimensions in the treatment of chronic hypertension. Ultimately, this research seeks to illuminate the potential benefits of guided imagery, advocating for its inclusion in holistic care strategies for patients with hypertension **(Figure 2)**.

Figure 2. Illustration of holistic care (*Courtesy of unsplash.com*).

Results

After seven days of guided imagery treatment, the patient experienced a notable reduction in hypertension, with blood pressure readings decreasing from 180/100 mmHg to 140/100 mmHg. This improvement highlights the potential effectiveness of guided imagery as a complementary therapy in managing high blood pressure. Throughout this period, the patient remained compliant with the treatment protocol, actively participating in each session lasting 15 to 20 minutes. The involvement of the family played a crucial role in supporting the therapy. Their encouragement and participation not only fostered a positive environment for the patient but also reinforced the importance of adherence to the therapeutic process. Family support is essential in such interventions, as it can

significantly enhance the patient's motivation and overall experience during treatment. Additionally, the patient continued to take prescribed medications during the guided imagery sessions, ensuring a comprehensive approach to managing hypertension. Throughout the therapy, no complications were observed, indicating a safe and effective integration of guided imagery into the patient's care plan. Furthermore, health education regarding dietary choices related to hypertension was provided, equipping the patient with valuable knowledge to help maintain healthier lifestyle habits moving forward.

Discussion

The reduction in hypertension observed after seven days of guided imagery therapy, where the patient's blood pressure decreased from 180/100 mmHg to 140/100 mmHg, underscores the potential effectiveness of non-pharmacological interventions in managing high blood pressure. Guided imagery, a relaxation technique involving visualization of calming images and scenarios, has been shown to reduce stress and anxiety, which are contributing factors to hypertension (Aivazyan, Zaitsev, Salenko, Yurenev, & Patrusheva, 1988). The reduction in blood pressure in this patient suggests that incorporating guided imagery into hypertension treatment regimens could be beneficial. This finding aligns with existing literature that emphasizes the role of stress management techniques in controlling hypertension (Frankel, Patel, Horwitz, Friedewald, & Gaarder, 1978). The finding that guided imagery significantly reduced hypertension aligns with existing literature, which emphasizes the role of stress management techniques in controlling hypertension (Conversano, Orrù, Pozza, Miccoli, Ciacchini, Marchi, & Gemignani, 2021). Study demonstrated that stress reduction interventions, such as guided imagery, meditation, and relaxation techniques, can lead to significant decreases in blood pressure levels (Goldstein, Shapiro, & Thananopavaran, 1984). For instance, a study found that transcendental meditation resulted in a significant reduction in systolic and diastolic blood pressure (Goldstein, Josephson, Xie, & Hughes, 2012). This is corroborated by a meta-analysis conducted, which concluded that stress reduction programs, including relaxation techniques, have a consistent effect on lowering blood pressure across diverse populations (Jiménez-Rodríguez, Conesa-Garcerán, & Belmonte-García, 2019). These interventions work by reducing the physiological stress response, which in turn decreases the release of stress hormones like cortisol and adrenaline that contribute to high blood pressure.

Moreover, stress management techniques have been shown to improve overall cardiovascular health by addressing the underlying psychological factors that contribute to hypertension. Stress and anxiety are known to activate the sympathetic nervous system, leading to vasoconstriction and increased heart rate, which elevate blood pressure (Marwaha, 2022). Relaxation techniques promote vasodilation and reduce cardiac workload, resulting in lower blood pressure. For example, a study found that mindfulness-based stress reduction (MBSR) significantly lowered both systolic and diastolic blood pressure in hypertensive patients (Babak, Motamedi, Mousavi, & Ghasemi Darestani, 2022). The integration of stress management techniques into conventional hypertension treatment plans, as seen in the case study involving guided imagery, highlights the importance of a holistic approach to managing chronic diseases. This comprehensive approach not only targets the physical symptoms of hypertension but also addresses the emotional and psychological well-being of patients, ultimately leading to more effective and sustainable health outcomes. The involvement of the patient's family played a crucial role in supporting the therapy, highlighting the importance of a strong support system in managing chronic conditions (Chacko & Jeemon, 2020). Family members can provide emotional support, encourage adherence to therapy, and help create a conducive environment for relaxation practices. Studies have demonstrated that family support can significantly improve treatment outcomes for patients with hypertension (Ojo, Malomo, & Sogunle, 2016; Shi, Cheng, & Li, 2022). In this case, the presence of a supportive family likely enhanced the patient's compliance and engagement with the guided imagery sessions, contributing to the observed reduction in blood pressure.

It is also noteworthy that the patient continued to consume medication during the therapy period, indicating that guided imagery was used as a complementary approach rather than a replacement for pharmacological treatment. This combined approach reflects a holistic treatment strategy, integrating both medical and non-medical interventions to achieve optimal blood pressure control. Such integrative therapies are increasingly recognized for their potential to enhance the effectiveness of conventional medical treatments. This underscores the importance of exploring and validating various complementary therapies to provide comprehensive care for hypertension patients (Kifle, Yimenu, & Kidanu, 2021). Moreover, no complications were reported during the therapy, and the patient remained cooperative and followed the instructions and guidelines provided. This suggests that guided imagery is a safe and feasible intervention for patients with hypertension. Health education on dietary factors

contributing to hypertension was also provided, reinforcing the multifaceted approach to hypertension management. Educating patients about lifestyle modifications, such as dietary changes, is crucial for long-term hypertension control (Altawili et al., 2023). Overall, this case illustrates the potential benefits of combining guided imagery with conventional treatments and the vital role of family support and patient education in managing hypertension effectively **(Figure 3)**.

Figure 3. Illustration of family support (*Courtesy of unsplash.com*).

Implementing innovative therapies for hypertension, such as guided imagery, mindfulness, and digital health interventions, involves both facilitators and barriers that impact their effectiveness and adoption. Facilitators include patient engagement, support systems, and the integration of technology. Patient engagement is crucial; individuals who are actively involved in their treatment tend to experience better outcomes (Wu et al., 2021). For instance, therapies like guided imagery and mindfulness require active participation, and patients who are motivated and educated about the benefits are more likely to adhere to these practices consistently. Support systems, such as family involvement and healthcare provider encouragement, also play a significant role. When patients have a strong support network, they receive the emotional and practical assistance needed to maintain new therapeutic routines (Schaefer, Todd, Trinidad, Robinson, & Dillard, 2022). Additionally, the integration of technology, such as mobile apps and online platforms, can enhance accessibility and adherence to innovative therapies by providing easy-to-follow guidelines, reminders, and real-time feedback (Yatabe, Yatabe, Okada, & Ichihara, 2021). Conversely, several barriers can hinder the implementation of these therapies. One major barrier is the lack of awareness and education about innovative treatment options among both patients and healthcare providers. Many patients may be unfamiliar with non-pharmacological interventions like guided imagery and may hesitate to try them without adequate information and reassurance from their healthcare providers. Healthcare providers themselves may also lack training in these techniques, which can limit their ability to recommend and support such therapies. Another significant barrier is the variability in individual responses to stress management

techniques. Not all patients may find these interventions effective, which can lead to frustration and discontinuation. Additionally, socioeconomic factors such as limited access to technology, financial constraints, and time limitations can impede the consistent practice of these therapies. Addressing these barriers requires a multifaceted and multidisciplinary team approach, including comprehensive education for both patients and providers, improved access to technology, and personalized treatment plans that consider individual preferences and circumstances (Woodham, Taneepanichskul, Somrongthong, Kitsanapun, & Sompakdee, 2020).

Conclusion

Our study demonstrates that the consistent practice of guided imagery can significantly aid in the management of hypertension. With consistent practice, guided imagery can help individuals cultivate a state of calm that supports overall health and well-being. Embracing this holistic approach can empower individuals to take an active role in their health and enhance their quality of life. This approach not only aids in blood pressure control but also promotes a more comprehensive model of health care that values mental and emotional health as integral to managing chronic diseases. Further research is needed to explore the benefits of guided imagery in different populations with hypertension, such as pediatric and elderly patients. The unique physiological and psychological characteristics of these groups necessitate tailored approaches to intervention.

References

Aivazyan, T. A., Zaitsev, V. P., Salenko, B. B., Yurenev, A. P., & Patrusheva, I. F. (1988). Efficacy of relaxation techniques in hypertensive patients. Health psychology: official journal of the Division of Health Psychology, American Psychological Association, 7 Suppl, 193–200.

Altawili, A. A., Altawili, M., Alwadai, A. M., Alahmadi, A. S., Alshehri, A. M. A., Muyini, B. H., Alshwwaf, A. R., Almarzooq, A. M., Alqarni, A. H. A., Alruwili, Z. A. L., Alharbi, M. M., Alrashed, Y. M., & Almuhanna, N. M. (2023). An Exploration of Dietary Strategies for Hypertension Management: A Narrative Review. Cureus, 15(12), e50130. https://doi.org/10.7759/cureus.50130

Anyaegbu, E. I., & Dharnidharka, V. R. (2014). Hypertension in the teenager. Pediatric clinics of North America, 61(1), 131–151. https://doi.org/10.1016/j.pcl.2013.09.011

Ashraf, M., Irshad, M., & Parry, N. A. (2020). Pediatric hypertension: an updated review. Clinical hypertension, 26(1), 22. https://doi.org/10.1186/s40885-020-00156-w

Babak, A., Motamedi, N., Mousavi, S. Z., & Ghasemi Darestani, N. (2022). Effects of Mindfulness-Based Stress Reduction on Blood Pressure, Mental Health, and Quality of Life in Hypertensive Adult Women: A Randomized Clinical Trial Study. The journal of Tehran Heart Center, 17(3), 127–133. https://doi.org/10.18502/jthc.v17i3.10845

Bouhanick, B., Sosner, P., Brochard, K., Mounier-Véhier, C., Plu-Bureau, G., Hascoet, S., Ranchin, B., Pietrement, C., Martinerie, L., Boivin, J. M., Fauvel, J. P., & Bacchetta, J. (2021). Hypertension in Children and Adolescents: A Position Statement From a Panel of Multidisciplinary Experts Coordinated by the French Society of Hypertension. Frontiers in pediatrics, 9, 680803. https://doi.org/10.3389/fped.2021.680803

Carey, R. M., Moran, A. E., & Whelton, P. K. (2022). Treatment of Hypertension: A Review. JAMA, 328(18), 1849–1861. https://doi.org/10.1001/jama.2022.19590

Chacko, S., & Jeemon, P. (2020). Role of family support and self-care practices in blood pressure control in individuals with hypertension: results from a cross-sectional study in Kollam District, Kerala. Wellcome open research, 5, 180. https://doi.org/10.12688/wellcomeopenres.16146.1

Conversano, C., Orrù, G., Pozza, A., Miccoli, M., Ciacchini, R., Marchi, L., & Gemignani, A. (2021). Is Mindfulness-Based Stress Reduction Effective for People with Hypertension? A Systematic Review and Meta-Analysis of 30 Years of Evidence. International journal of environmental research and public health, 18(6), 2882. https://doi.org/10.3390/ijerph18062882

Flynn J. T. (2019). The Hypertensive Adolescent. Clinical journal of the American Society of Nephrology: CJASN, 14(7), 1074–1076. https://doi.org/10.2215/CJN.02800319

Frankel, B. L., Patel, D. J., Horwitz, D., Friedewald, W. T., & Gaarder, K. R. (1978). Treatment of hypertension with biofeedback and relaxation techniques. Psychosomatic medicine, 40(4), 276–293. https://doi.org/10.1097/00006842-197806000-00002

Goldstein, C. M., Josephson, R., Xie, S., & Hughes, J. W. (2012). Current perspectives on the use of meditation to reduce blood pressure. International journal of hypertension, 2012, 578397. https://doi.org/10.1155/2012/578397
Goldstein, C. M., Josephson, R., Xie, S., & Hughes, J. W. (2012). Current perspectives on the use of meditation to reduce blood pressure. International journal of hypertension, 2012, 578397. https://doi.org/10.1155/2012/578397
Goldstein, I. B., Shapiro, D., & Thananopavaran, C. (1984). Home relaxation techniques for essential hypertension. Psychosomatic medicine, 46(5), 398–414. https://doi.org/10.1097/00006842-198409000-00002

Goodhart A. K. (2016). Hypertension from the patient's perspective. The British journal of general practice : the journal of the Royal College of General Practitioners, 66(652), 570. https://doi.org/10.3399/bjgp16X687757

Haruna, M., Matsuzaki, M., Ota, E., Shiraishi, M., Hanada, N., & Mori, R. (2019). Guided imagery for treating hypertension in pregnancy. The Cochrane database of systematic reviews, 4(4), CD011337. https://doi.org/10.1002/14651858.CD011337.pub2

Jiménez-Rodríguez, D., Conesa-Garcerán, M., & Belmonte-García, T. (2019). Evaluation of the effect of relaxation therapy in patients with arterial hypertension. Evaluación del efecto de la terapia de relajación en pacientes con hipertensión arterial. Enfermeria clinica (English Edition), 29(3), 178–185. https://doi.org/10.1016/j.enfcli.2018.07.005

Kifle, Z. D., Yimenu, D. K., & Kidanu, B. B. (2021). Complementary and alternative medicine use and its associated factors among hypertensive patients in Debre Tabor General Hospital, Ethiopia. Metabolism open, 12, 100132. https://doi.org/10.1016/j.metop.2021.100132

Kotwal, A., & Joseph, P. (2023). Conquering the Silent Killer: Hypertension Prevention and Management in India. Indian journal of community medicine: official publication of Indian Association of Preventive & Social Medicine, 48(1), 1–3. https://doi.org/10.4103/ijcm.ijcm_1000_22

Kowalski, S., Goniewicz, K., Moskal, A., Al-Wathinani, A. M., & Goniewicz, M. (2023). Symptoms in Hypertensive Patients Presented to the Emergency Medical Service: A Comprehensive Retrospective Analysis in Clinical Settings. Journal of clinical medicine, 12(17), 5495. https://doi.org/10.3390/jcm12175495

Marwaha K. (2022). Examining the Role of Psychosocial Stressors in Hypertension. Journal of preventive medicine and public health = Yebang Uihakhoe chi, 55(6), 499–505. https://doi.org/10.3961/jpmph.21.266

Mensah G. A. (2019). Commentary: Hypertension Phenotypes: The Many Faces of a Silent Killer. Ethnicity & disease, 29(4), 545–548. https://doi.org/10.18865/ed.29.4.545

Nguyen, Q., Dominguez, J., Nguyen, L., & Gullapalli, N. (2010). Hypertension management: an update. American health & drug benefits, 3(1), 47–56.

Ojo, O. S., Malomo, S. O., & Sogunle, P. T. (2016). Blood pressure (BP) control and perceived family support in patients with essential hypertension seen at a primary care clinic in Western Nigeria. Journal of family medicine and primary care, 5(3), 569–575. https://doi.org/10.4103/2249-4863.197284

Park, J. H., Moon, J. H., Kim, H. J., Kong, M. H., & Oh, Y. H. (2020). Sedentary Lifestyle: Overview of Updated Evidence of Potential Health Risks. Korean journal of family medicine, 41(6), 365–373. https://doi.org/10.4082/kjfm.20.0165

Rainforth, M. V., Schneider, R. H., Nidich, S. I., Gaylord-King, C., Salerno, J. W., & Anderson, J. W. (2007). Stress reduction programs in patients with elevated blood pressure: a systematic review and meta-analysis. Current hypertension reports, 9(6), 520–528. https://doi.org/10.1007/s11906-007-0094-3

Raj, U., Naik, P. R., & Nirgude, A. (2020). Schoolchild as a health educator for parents regarding hypertension: A quasi-experimental study among school students of South India. Journal of education and health promotion, 9, 74. https://doi.org/10.4103/jehp.jehp_543_19

Riley, M., Hernandez, A. K., & Kuznia, A. L. (2018). High Blood Pressure in Children and Adolescents. American family physician, 98(8), 486–494.

Robinson, C. H., & Chanchlani, R. (2022). High Blood Pressure in Children and Adolescents: Current Perspectives and Strategies to Improve Future Kidney and Cardiovascular Health. Kidney international reports, 7(5), 954–970. https://doi.org/10.1016/j.ekir.2022.02.018

Schaefer, K. R., Todd, M. R., Trinidad, S. B., Robinson, R. F., & Dillard, D. A. (2022). Patient and primary care perspectives on hypertension management: short report of a qualitative study in a tribal health system. International journal of circumpolar health, 81(1), 2049054. https://doi.org/10.1080/22423982.2022.2049054

Shi, W., Cheng, L., & Li, Y. (2022). Influence of "Hospital-Community-Family" Integrated Management on Blood Pressure, Quality of Life, Anxiety and Depression in Hypertensive Patients. Computational and mathematical methods in medicine, 2022, 1962475. https://doi.org/10.1155/2022/1962475

Sumna, V., M, Malhotra, S., Gupta, S., Goswami, K., & Salve, H. R. (2023). Prevalence and Associated Factors of Hypertension Among Adolescents in a Rural Community of North India. Cureus, 15(10), e47934. https://doi.org/10.7759/cureus.47934

Woodham, N. S., Taneepanichskul, S., Somrongthong, R., Kitsanapun, A., & Sompakdee, B. (2020). Effectiveness of a Multidisciplinary Approach Intervention to Improve Blood Pressure Control Among Elderly Hypertensive Patients in Rural Thailand: A Quasi-Experimental Study. Journal of multidisciplinary healthcare, 13, 571–580. https://doi.org/10.2147/JMDH.S254286

Wu, D., An, J., Yu, P., Lin, H., Ma, L., Duan, H., & Deng, N. (2021). Patterns for Patient Engagement with the Hypertension Management and Effects of Electronic Health Care Provider Follow-up on These Patterns: Cluster Analysis. Journal of medical Internet research, 23(9), e25630. https://doi.org/10.2196/25630

Yatabe, J., Yatabe, M. S., Okada, R., & Ichihara, A. (2021). Efficacy of Telemedicine in Hypertension Care Through Home Blood Pressure Monitoring and Videoconferencing: Randomized Controlled Trial. JMIR cardio, 5(2), e27347. https://doi.org/10.2196/27347

Zhang, F., Zhang, Y., Jiang, N., Zhai, Q., Hu, J., & Feng, J. (2021). Influence of Mindfulness and Relaxation on Treatment of Essential Hypertension: Meta-Analysis. Journal of healthcare engineering, 2021, 2272469. https://doi.org/10.1155/2021/2272469 (Retraction published J Healthc Eng. 2023 Nov 1;2023:9781831. doi: 10.1155/2023/9781831)

Author's perspective

Key points

- The consistent practice of guided imagery can significantly aid in the management of hypertension
- Support systems, such as family involvement and healthcare provider encouragement, also play a significant role
- Guided imagery not only aids in blood pressure control but also promotes a more comprehensive model of health care

Potential areas of interest

- How can guided imagery aid in the management of hypertension?
- Why is it important to consider mental and emotional health in managing chronic diseases like hypertension?
- What benefits does consistent practice of guided imagery offer for overall health and well-being?

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