LEVEL OF ADHERENCE OF THE ELDERLY TO THEIR ANTI-HYPERTENSIVE MEDICATION: BASIS FOR A HEALTH EDUCATION-INFORMATION MATERIAL

Emann John S. Bonifacio[1], Andrea Nicole G. Dijamco[2], Manuel John A. Pobre[3], Haryl P. Simongo[4], Frederick F. Reduble, RN, MSN[5]

ABSTRACT

Hypertension remains a leading health concern among elderly populations, especially in rural communities where access to healthcare may be limited. This study aimed to determine the level of adherence of elderly individuals to their antihypertensive medications in Barangay Bonfal Proper, Bayombong, Nueva Vizcaya, and to develop a health education and information material to support improved adherence. Using a quantitative, descriptive-comparative research design, data were collected from 58 hypertensive elderly respondents using the Morisky Medication Adherence Scale and the Hill-Bone High Blood Pressure Compliance Scale. Results revealed that a majority of respondents exhibited good to high adherence, while about one-third showed low adherence. Among demographic variables, only civil status showed a statistically significant relationship with adherence, with separated individuals demonstrating higher compliance. Other variables, such as age, sex, educational attainment, and socioeconomic status, did not significantly affect adherence levels. Based on the findings, a culturally sensitive and accessible educational poster was developed to raise awareness and support medication adherence in the community. This study emphasized the importance of tailored interventions to promote health behaviors. It highlighted the potential of educational tools to improve adherence among elderly patients.

Keywords: Elderly health, Hill-Bone Scale, High Blood Pressure Compliance Scale, Morisky Medication Adherence Scale, rural healthcare, self-regulation theory

INTRODUCTION

Hypertension is a major global health concern and remains one of the leading risk factors for cardiovascular morbidity and mortality, particularly among the elderly. According to the World Health Organization (2023), approximately 1.28 billion people are affected by hypertension, and its prevalence continues to rise, driven by aging populations and changes in lifestyle. Older people are especially vulnerable due to physiological changes, such as arterial stiffening, which increases the heart's workload (Roth et al., 2020). In the Philippines, hypertension prevalence among older adults is alarmingly high, with data from Abalos et al. (2023) showing that 69.1% of elderly Filipinos have hypertension, yet only 51.5% receive treatment.

Despite the effectiveness of antihypertensive medications, adherence remains suboptimal. Studies indicate that 20% to 50% of patients fail to adhere to long-term medication regimens (Gutierrez & Sakulbumrungsil, 2021). Poor adherence is a complex issue influenced by cognitive decline, polypharmacy, socioeconomic challenges, and misconceptions about treatment (Jimmy & José, 2011; Kvarnström et al., 2021). In older people, forgetfulness, depression, lack of support, and health literacy further complicate adherence (Adinkrah et al., 2020; Lo et al., 2016).

While many studies have explored these barriers in urban settings, there is a scarcity of research focusing on rural areas, particularly within the Philippine context. The literature remains inconsistent, especially regarding how demographic factors such as civil status, education, or income affect adherence. For example, while some studies link low education and

female gender to poor adherence (Bhandari et al., 2015; Ismael & Qadir, 2015), others report contrasting results (Barreto et al., 2015). Similarly, research on the role of social support presents conflicting conclusions. While some assert that family involvement enhances adherence (Ali et al., 2014), others suggest that independence and autonomy, especially among separated or single individuals, may foster better compliance (Han et al., 2012; Šulinskaitė et al., 2022).

In Barangay Bonfal Proper, Bayombong, Nueva Vizcaya, local health data revealed that 58 elderly individuals are diagnosed with hypertension, underscoring a significant health burden in this rural community. Despite national initiatives such as the Department of Health's Hypertension and Diabetes Club and PhilHealth's outpatient care programs (Mercado-Asis et al., 2020), little is known about how effectively elderly patients in this locality adhere to prescribed medications. Moreover, no tailored educational interventions have been designed to address adherence in this specific population.

By critically appraising both international and local literature and identifying inconsistencies in current findings, this research aims to provide evidence-based insights that can inform the development of a culturally appropriate health education poster. This educational tool seeks not only to raise awareness but to actively support behavior change and sustained medication adherence in the community. This study is significant in addressing the knowledge gap on rural elderly adherence in the Philippines, informing local health strategies, and contributing to the broader understanding of behavioral health interventions in underserved populations.

METHODOLOGY

This study employed a quantitative, descriptive-comparative research design to determine the level of adherence of hypertensive elderly individuals to their antihypertensive medications and to develop health education information materials to support improved adherence. The study was conducted in Barangay Bonfal Proper, Bayombong, Nueva Vizcaya, a rural area identified by the Municipal Health Office as having the highest number of elderly hypertensive cases. All 58 hypertensive elderly residents aged 60 and above, officially listed by the Municipal Health Office, were selected using total enumeration (census sampling), ensuring that the entire target population was represented. Inclusion criteria required that participants be permanent residents of the barangay, aged 60 or older, diagnosed with hypertension, and capable of giving informed consent; those who did not meet these criteria were excluded. Prior to data collection, the research proposal was reviewed and approved by the Saint Mary's University Research Ethics Board (SMU-REB Protocol No. 2025 0961), ensuring that ethical standards, including voluntary participation, privacy, and protection of vulnerable populations, were upheld. Informed consent was obtained personally from each respondent, with appropriate accommodations provided for those with hearing, visual, or cognitive limitations.

The study used two validated tools to assess adherence: the Morisky Medication Adherence Scale (MMAS-8) and the Hill-Bone High Blood Pressure Compliance Scale. The MMAS-8 is a widely recognized 8-item self-report tool measuring medication-taking behavior. At the same time, the Hill-Bone Scale evaluates adherence to treatment through medication intake, sodium restriction, and appointment-keeping. Both instruments were administered in the local language, with the assistance of barangay health workers during house-to-house visits to facilitate comprehension among elderly respondents with limited literacy. Data collection took place over one week, during which researchers provided translation support and verbal assistance as needed to ensure accurate and honest responses. To maintain data confidentiality, all completed questionnaires were securely stored and later anonymized during data

processing.

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including frequency counts, percentages, means, and standard deviations, were used to summarize respondents' demographic characteristics and adherence levels. To compare differences in adherence levels based on demographic variables (sex, age, civil status, educational attainment, and socioeconomic status), inferential statistical tests were employed: independent t-tests for binary variables and one-way Analysis of Variance (ANOVA) for variables with more than two categories. Assumptions for these statistical tests, including normality and homogeneity of variance, were reviewed before analysis.

RESULTS AND DISCUSSION

Results

Section 1. Demographic Profile of Respondents

Table 1

Demographic Profile of the Respondents

Profile	Groups	f (n=58)	%
Age	60 to 64 years	30	51.7
	65 to 69 years	22	37.9
	70 years and above	6	10.3
Sex	Male	31	53.4
	Female	27	46.6
Civil Status	Single	3	5.2
	Married	31	53.4
	Separated	7	12.1
	Widow	17	29.3
Educational Attainment	Elementary	9	15.5
	High School	37	63.8
	College	12	20.7
Socioeconomic status	Employed	32	55.2
	Unemployed	26	44.8

Table 1 presents the demographic characteristics of the 58 elderly respondents. The sample consisted of slightly more males (53.4%) than females (46.6%). More than half of the respondents (51.7%) were aged 60–64 years. Regarding education, 63.8% had completed high school, followed by 20.7% with a college education. In terms of civil status, 53.4% were married, while 29.3% were widowed. Employment data showed that 55.2% of respondents were still employed, indicating a relatively active elderly population.

Section 2. Adherence of the Elderly to Antihypertensive Medications

Table 2

Level of Adherence of the Elderly to Antihypertensive Medications using Morisky Medication Adherence Scale

Scale	Level	f (n=58)	%	Mean	SD	QD
Morisky Medication Adherence Scale	High	35	60.3	6.78	3.18	Moderate
	Moderate	5	8.6			
	Low	18	31.0			

Legend: *8-10-High, 5-7- Moderate, 4 Below- Low*

Table 2 shows that 60.3% of respondents had high adherence, 32.8% had moderate adherence, and only 6.9% had low adherence. The mean score was 6.78, suggesting that most elderly individuals follow their prescribed medication regimen to some extent, with room for improvement.

Table 3

Item-Wise Analysis of Adherence (Morisky Scale)

Morisky Item		No		Yes	
		f	%	f	%
1.	Do you sometimes forget to take your high blood pressure pills?	40	68.97	18	31.03
2.	People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your hypertension medicine?	33	56.90	25	43.10
3.	Do you ever cut back or stop taking your BP medicine?	42	72.41	15	25.86
4.	When you travel or leave home, do you sometimes forget to bring along your hypertension medication?	42	72.41	16	27.59
5.	Did you take your hypertension medicine yesterday?	32	55.17	26	44.83
6.	When you feel like your hypertension is under control, do you sometimes stop taking your medicine?	42	72.41	16	27.59
7.	Are you having any side effects from your medications?	52	89.66	6	10.34
8.	Do you use more than one pharmacy to get your medications?	43	74.14	15	25.86
9.	Taking medications every day can be inconvenient for some people. Do you ever feel hassled about sticking to your blood pressure treatment plan?	51	87.93	7	12.07
10.	How often do you have difficulty remembering to take all your medications?	14	24.14	44	75.86

An item-level analysis of the Morisky Medication Adherence Scale (MMAS) responses revealed varied adherence patterns among elderly hypertensive patients. As shown in Table 3, the highest adherence was observed for Item 7, with 89.66% reporting no side effects. In contrast, 75.86% admitted having trouble remembering to take their medication (Item 10), and only 55.17% confirmed taking their medication the previous day (Item 5). These results highlight forgetfulness as a significant barrier to medication adherence.

Table 4
Level of Adherence of the Elderly to Antihypertensive Medications using Hill-Bone High Blood Pressure Compliance Scale

Scale	Level	f (n=58)	%	Mean	SD	QD
Hill-Bone High Blood Pressure Compliance Scale	Good Compliance	41	70.7	84.29	14.58	Good compliance
	Moderate	12	20.7			
	Low	5	8.6			

Legend: *80% above- Good Compliance, 70%-79%- Moderate, 69.9% below-Low*

The Hill-Bone High Blood Pressure Compliance Scale revealed that 70.7% of elderly hypertensive respondents demonstrated good compliance, supported by a mean score of 84.29 (SD = 14.58). In contrast, 20.7% exhibited moderate compliance, and 8.6% fell into the low compliance category. Good compliance encompasses not only regular medication intake, but also adherence to dietary restrictions (e.g., sodium limitation) and consistent attendance at follow-up appointments, which are critical components of effective blood pressure control and complication prevention

Table 5
Item-Wise Analysis of Compliance Behavior (Hill-Bone Scale)

Hill-Bone Item	Mean	Std. Deviation	Level of Compliance
How often do you…			
1. forget to take your HBP medicine?	3.36	0.52	Low
2. decide not to take your HBP medicine?	3.45	0.54	Low
3. eat salty food?	3.09	0.73	Low
4. shake salt on your food before you eat it?	3.38	0.59	Low
5. eat fast food?	3.14	0.61	Low
6. get the next appointment before you leave the clinic?	2.69	1.17	Moderate
7. miss scheduled appointments?	3.53	0.65	Low
8. forget to get prescriptions filled?	3.67	0.51	Low
9. run out of HBP pills?	3.62	0.52	Low
10. skip your high blood pressure medicine before you go to the doctor?	3.66	0.51	Low
11. miss taking your HBP pills when you feel better?	3.55	0.54	Low
12. miss taking your HBP pills when you feel sick?	3.59	0.70	Low
13. take someone else's HBP pills?	3.67	0.51	Low
14. miss taking your HBP pills when you are careless?	3.62	0.59	Low
Ctotal	48.02	5.30	
CPercent	84.29	14.58	

Legend: *Mean 1.00–1.99 – High Compliance, 2.00–2.99 – Moderate, 3.00–4.00 – Low*

The overall compliance score was high (M = 48.02, 84.29%, SD = 14.58), but item-level analysis revealed critical behavioral gaps. Common non-compliant actions included forgetting to refill prescriptions, taking someone else's medication, and skipping doses before doctor visits, indicating issues in medication management and continuity of care. While follow-up appointment scheduling showed better adherence (M = 2.69), high scores for missing

appointments (M = 3.53) and running out of medication (M = 3.62) highlight systemic and motivational barriers.

Section 3. Difference between the Adherence of the Elderly in their Medication and Maintenance when grouped by Profile Variables

Table 6

Difference between the Adherence of the Elderly in their Medication and Maintenance when grouped by Profile Variables using Morisky Medication Adherence Scale

Profile	Groups	f	Mean	SD	Level of Adherence	Test statistic	p-value
Age	60 to 64 years	30	6.63	3.41	Moderate	0.275	0.761
	65 to 69 years	22	7.13	3.15	Moderate		
	70 years and above	6	6.17	2.23	Moderate		
Sex	Male	31	6.19	3.57	Moderate	-1.511	0.136
	Female	27	7.44	2.56	Moderate		
Civil Status	Married	31	6.65^{B}	3.45	Moderate	4.170**	0.010
	Separated	7	9.14^{A}	1.07	High		
	Widow	17	6.88^{B}	2.47	Moderate		
Educational Attainment	Elementary	9	7.11	3.22	Moderate	0.161	0.851
	High School	37	6.59	3.25	Moderate		
	College	12	7.08	3.15	Moderate		
Socioeconomic status	Employed	32	7.50	2.82	Moderate	1.973	0.053
	Unemployed	26	5.88	3.42	Moderate		

Legend: *8-10-High, 5-7- Moderate, 4 Below- Low.*

***significant at α=0.01, Mean groups that do not share a common letter are significantly different from each other.*

No statistically significant differences were observed for age (p = .817), sex (p = .136), educational attainment (p = .851), or socio-economic status (p = .053). However, civil status demonstrated a significant effect (F = 4.170, p = .010), with separated individuals exhibiting markedly higher adherence (M = 9.14, SD = 1.07) compared to married and widowed elders.

Table 7

Difference between the Adherence of the Elderly in their Medication and Maintenance when grouped by Profile Variables using Hill-Bone High Blood Pressure Compliance Scale

Profile	Groups	f	Mean	SD	Level of Compliance	Test statistic	p-value
Age	60 to 64 years	30	84.46	10.52	Good	2.664	0.079
	65 to 69 years	22	88.96	7.69	Good		
	70 years and above	6	80.36	6.39	Good		
Sex	Male	31	85.43	9.85	Good	-0.273	0.786
	Female	27	86.11	9.18	Good		
Civil Status	Married	31	85.94^{B}	9.36	Good	3.326*	0.026
	Separated	7	90.82^{A}	5.69	Good		
	Widow	17	85.82^{B}	9.65	Good		
Educational Attainment	Elementary	9	84.52	10.75	Good	0.350	0.706
	High School	37	86.53	9.65	Good		
	College	12	84.23	8.34	Good		
Socioeconom	Employed	32	85.88	8.61	Good	0.121	0.904

ic status	Unemployed	26	85.58	10.59	Good

Legend: *80% above- Good Compliance, 70%-79%- Moderate, 69.9% below-Low*
**significant at α=0.05; Mean groups that do not share a common letter are significantly different from each other.*

No significant differences were observed in compliance scores by age (p = .125), sex (p = .786), educational attainment (p = .706), or socioeconomic status (p = .904). Once more, civil status was the only profile variable to exhibit a statistically significant effect (F = 3.326, p = .026), with separated individuals displaying slightly better compliance.

Discussion

This study explored medication adherence and compliance behaviors among elderly hypertensive patients in Barangay Bonfal Proper, Nueva Vizcaya, using the Morisky Medication Adherence Scale (MMAS) and Hill-Bone High Blood Pressure Compliance Scale. Overall, the findings indicate a relatively high level of adherence and compliance: 60.3% of respondents showed high adherence on the MMAS, and 70.7% demonstrated good compliance on the Hill-Bone scale. However, item-level analyses uncovered critical behavioral gaps, particularly related to forgetfulness, poor prescription management, and symptom-based nonadherence, which temper the initial impression of strong adherence.

Notably, 75.9% of respondents admitted difficulty remembering to take their medications (MMAS Item 10), and only slightly more than half reported taking their medicine the previous day. Similarly, several items in the Hill-Bone scale, such as forgetting to refill prescriptions, running out of pills, or taking someone else's medication, revealed consistent patterns of low behavioral compliance. These findings align with previous research by Albadrani et al. (2024) and Uchmanowicz et al. (2018), which emphasized that elderly patients often report high adherence despite frequent unintentional lapses due to forgetfulness, polypharmacy, and cognitive decline. This discrepancy underscores the limitations of relying solely on categorical adherence measures and highlights the importance of examining individual behaviors.

Moreover, guided by Self-Regulation Theory, the study supports the idea that inadequate self-monitoring and planning contribute to poor medication-taking behavior. External influences such as lack of caregiver involvement, inconsistent access to medication, and insufficient education on the risks of nonadherence likely contribute to these lapses. Interestingly, civil status emerged as a significant factor affecting adherence and compliance, with separated respondents showing higher adherence and compliance scores. This could be attributed to increased personal responsibility or to external support mechanisms that are not typically captured in conventional marital status categories. This point warrants further qualitative investigation.

The implications of these findings are clear. While a majority of older adults may appear adherent based on scoring thresholds, the consistency and correctness of their behaviors remain fragile. This reinforces the need for targeted, behavior-focused interventions, such as medication reminders, pill organizers, mobile health tools, caregiver engagement, and simplified regimens. The IEC materials developed alongside this study, which promote dietary control, regular check-ups, and the use of reminder tools, are well aligned with these needs and can serve as practical solutions to improve adherence in similar communities.

Nonetheless, this study is not without limitations. The reliance on self-report tools introduces the risk of social desirability and recall bias, potentially inflating adherence scores. The sample, while focused and relevant to the target community, was relatively small and geographically confined, limiting generalizability. Furthermore, the study did not assess

cognitive status or comorbidity burden, both of which are important predictors of adherence in older adults. Despite these limitations, the study's strengths lie in its dual-scale approach, community-based focus, and granular item-level analysis, which offered a more nuanced understanding of adherence behaviors than total scores alone would permit. The integration of IEC strategies and alignment with evidence-based interventions further enhances the study's practical value.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study revealed that the majority of hypertensive elderly residents in Barangay Bonfal Proper demonstrated good to high levels of medication adherence, as indicated by both the Morisky Medication Adherence Scale and the Hill-Bone High Blood Pressure Compliance Scale. However, approximately one-third still exhibited low adherence, largely due to unintentional behaviors such as forgetfulness. Among the demographic variables examined, only civil status showed a statistically significant relationship with adherence, with separated individuals displaying higher levels of compliance than their married or widowed counterparts. These findings suggest that personal autonomy and self-regulation may play a greater role in adherence than commonly assumed social support structures.

Recommendations

In light of the findings, the researchers recommend that community health practitioners and local health units continue to strengthen medication adherence programs for the elderly by incorporating simple, culturally tailored education material (poster) delivered in the local dialect. Since forgetfulness was identified as a common reason for low adherence, practical memory aids such as pill organizers, reminder charts, or phone alarms may be encouraged, especially during routine barangay health visits. Family members and caregivers could also be oriented on the importance of supportive involvement in the daily routines of elderly patients, while still fostering the patient's autonomy. Given that separated individuals demonstrated better adherence in this study, future programs might explore how promoting self-reliance and self-monitoring can benefit all elderly patients regardless of civil status.

The study emphasizes the need for context-specific, behaviorally grounded interventions, especially in rural communities where health literacy and access to care may be limited. For practice, the findings support the development and use of culturally appropriate educational tools, such as the poster created in this study, to reinforce daily medication routines and healthy behaviors among the elderly. For future research, studies should longitudinally examine adherence behavior and assess the effectiveness of targeted educational materials. In terms of education, nursing and public health curricula should strengthen training on community-based strategies to promote chronic disease management among older adults. Administratively, barangay and municipal health offices should integrate regular medication counseling and support mechanisms for hypertensive elderly. It is also suggested that local government units (LGUs) and barangay health offices conduct regular follow-ups and counseling sessions to simplify medication routines and reinforce their importance. Lastly, policymakers should consider expanding access to mobile health technologies and reminder systems, particularly in underserved rural areas, to sustain and improve adherence rates.

REFERENCES

Abalos, J. B., Saito, Y., Ramos, M., & Cruz, G. T. (2023). Prevalence, awareness, treatment, and control of hypertension among older adults in the Philippines. *The Journals of Gerontology: Series A, 79*(2). https://doi.org/10.1093/gerona/glad155

Adinkrah, E., Bazargan, M., Wisseh, C., & Assari, S. (2020). Adherence to hypertension medications and lifestyle recommendations among underserved African American middle-aged and older adults. *International Journal of Environmental Research and Public Health, 17*(18), 6538. https://doi.org/10.3390/ijerph17186538

Albadrani, M. S., Aljeelani, Y. O., Farsi, S. H., Aljohani, M. A., Qarh, A. A., Aljohani, A. S., … Fadlalmola, H. A. (2024). Effect of medication adherence on quality of life, activation measures, and health imagine in elderly people: A cross-sectional study. *BMC Geriatrics, 24*(1), 631. https://bmcgeriatr.biomedcentral.com/articles/10.1186/s12877-024-05227-3

Ali, M., Bekele, M., & Teklay, G. (2014). Antihypertensive medication nonadherence and its determinants among patients on follow-up in public hospitals in Northern Ethiopia. *International Journal of Clinical Trial, 1*(3), 95–104. https://www.ijclinicaltrials.com/index.php/ijct/article/view/60

Barreto, M. D. S., Ganassin, G. S., Matsuda, L. M., & Marcon, S. S. (2015). Dissatisfaction with the health service and nonadherence to antihypertensive medication treatment in Brazil. *Open Journal of Nursing, 5*(1), 49–57. https://doi.org/10.4236/ojn.2015.51006

Bhandari, B., Bhattarai, M., Bhandari, M., Ghimire, A., Pokharel, P. K., & Morisky, D. E. (2015). Adherence to antihypertensive medications: Population-based follow-up in Eastern Nepal. *Journal of Nepal Health Research Council, 13*(29), 38–42.

Ismael, D. H., & Qadir, C. S. (2015). Factors affecting treatment compliance of hypertensive patients in Erbil City. *Kufa Journal for Nursing Sciences, 5*(2), 1–8. https://doi.org/10.36321/kjns.vi20152.2601

Jimmy, B., & José, J. (2011). Patient medication adherence: Measures in daily practice. *Oman Medical Journal, 26*(3), 155–159. https://doi.org/10.5001/omj.2011.38

Kvarnström, K., Westerholm, A., Airaksinen, M., & Liira, H. (2021). Factors contributing to medication adherence in patients with a chronic condition: A scoping review of qualitative research. *Pharmaceutics, 13*(7), 1100. https://doi.org/10.3390/pharmaceutics13071100

Lo, S. H. S., Chau, J. P. C., Woo, J., Thompson, D. R., & Choi, K. C. (2016). Adherence to antihypertensive medication in older adults with hypertension. *Journal of Cardiovascular Nursing, 31*(4), 296–303. https://doi.org/10.1097/jcn.0000000000000251

Mercado-Asis, L. B., Atilano, A. A., Ona, D. I. D., Bonzon, D. D., Vilela, G. A., Chúa, C., Diaz, A. F., Balmores, B. A., Cabral, E. I., Aquino, A. V., Morales, D. D., Abelardo, N. S., Gomez, L. A., Oliva, R. C., & Castillo, R. (2020). Projecting the prevalence of hypertension in the Philippines: Its impact and the need for a call-to-action. *Social Science Research Network*. https://doi.org/10.2139/ssrn.3675427

Roth, G. A., Mensah, G. A., Johnson, C. O., Addolorato, G., Ammirati, E., Baddour, L. M., … Fuster, V. (2020). Global burden of cardiovascular diseases and risk factors, 1990–2019. *Journal of the American College of Cardiology, 76*(25), 2982–3021. https://doi.org/10.1016/j.jacc.2020.11.010

Šulinskaitė, K., Zagurskienė, D., & Blaževičienė, A. (2022). Patients' health literacy and health behaviour assessment in primary health care: Evidence from a cross-sectional survey. *BMC Primary Care, 23*(1), 223. https://doi.org/10.1186/s12875-022-01809-5

Uchmanowicz, B., Chudiak, A., Uchmanowicz, I., Rosińczuk, J., & Froelicher, E. S. (2018). Factors influencing adherence to treatment in older adults with hypertension. *Clinical Interventions in Aging, 13*, 2425–2441. https://doi.org/10.2147/CIA.S182881

World Health Organization. (2023). *Hypertension*. https://www.who.int/news-room/fact-sheets/detail/hypertension