

Rational Use of Medicines among Barangay Health Workers in Ligao City: A Knowledge, Attitudes, and Practices Study

Argie Regilme Balingbing

Student, AGO Medical and Educational Center Graduate School of Health

Abstract— Rational use of medicines is essential in promoting patient safety, improving treatment outcomes, reducing unnecessary health expenditures, and preventing medicine-related harm at the community level. This study assessed the knowledge, attitudes, and practices of Barangay Health Workers in Ligao City regarding the rational use of medicines. A descriptive cross-sectional design was employed among 152 accredited Barangay Health Workers using a structured self-administered questionnaire adapted from rational drug use knowledge, attitude, and practice instruments. Data were analyzed using frequencies, percentages, mean percentage score, weighted mean, chi-square test, Cramer's V, and Spearman's rank correlation. Findings showed that respondents had a high level of knowledge on rational medicine use, with an overall mean percentage score of 94.46%. They also demonstrated favorable attitudes, with an overall mean of 3.52, interpreted as Strongly Agree, and consistent practices, with an overall mean of 3.56, interpreted as Always. However, lower scores were noted in confidence in providing medicine-related information, documentation of medicines distributed, and follow-up monitoring of patients. Training attendance was significantly associated with knowledge, while educational attainment and length of service were associated with selected attitude and practice outcomes. The findings highlight the need for continuous training, role clarification, standardized documentation, and supportive supervision to strengthen BHWs' contribution to rational medicine use in primary health care.

Keywords— rational use of medicines; Barangay Health Workers; knowledge; attitudes; practices; primary health care.

I. INTRODUCTION

Rational use of medicines remains a central concern in public health because medicine-related decisions directly affect treatment outcomes, patient safety, health expenditures, and the prevention of avoidable drug-related harm. The concept emphasizes that patients should receive medicines appropriate to their clinical needs, in correct doses, for an adequate period, and at the lowest possible cost to them and their communities. When medicines are used irrationally, the consequences extend beyond individual patients and may affect the health system through unnecessary spending, treatment failure, adverse drug reactions, antimicrobial resistance, and erosion of public trust in health services. The manuscript identifies rational drug use as a global public health priority and associates inappropriate medicine use with treatment failure, antimicrobial resistance, and unnecessary

expenditures, citing Almarsdóttir et al. (2005) and Mekonnen et al. (2021).

The World Health Organization has long emphasized the importance of strengthening systems that promote rational medicine use. In the manuscript, the WHO framework is presented as involving standard treatment guidelines, essential medicines lists, patient information, and monitoring policies that can improve medicine selection, prescribing, dispensing, and use. These components show that rational use of medicines is not merely a matter of individual knowledge; it also depends on structured systems, clear protocols, and consistent communication among health providers and community-level health actors. This is particularly relevant in primary health care settings, where medicine use often occurs outside hospitals and where patients may rely on frontline workers for advice, reminders, referrals, and clarification of instructions.

Irrational medicine use is shaped by several interacting factors. According to the manuscript, Ofori-Asenso and Agyeman (2016) described irrational drug use as a problem driven by patient demand, prescribing practices, regulatory environment, and supply channels. Graham et al. (2016) further highlighted that easy access to antibiotics, prevalent self-medication, and weak enforcement of prescription requirements contribute to antimicrobial resistance. These concerns are especially important in community settings where households may keep medicines at home, share medicines with family members, discontinue treatment early, or seek advice from non-physician sources before consulting formal health facilities. Thus, promoting rational use of medicines requires community-based interventions that address both health knowledge and actual health behavior.

In the Philippine primary health care system, Barangay Health Workers occupy a strategic position in community-based health promotion. They are often the first point of contact for households, particularly in rural and underserved areas. Their roles commonly include health education, basic treatment support, assistance in medicine distribution, referral, and follow-up of patients. The manuscript notes that BHWs are frontline community actors under the Universal Health Care framework and often support medicine distribution, counseling, and adherence monitoring. Because of this, their knowledge, attitudes, and practices influence how medicines are understood and used at the household level.

The role of BHWs has become even more important under the Universal Health Care framework, which strengthens primary care and emphasizes accessible, people-centered services. The manuscript cites Pepito et al. (2025), who discussed the role of frontliners in navigating the Philippine primary care system, and Mallari et al. (2020), who documented the broad responsibilities of BHWs, including health promotion, basic treatment support, medicine distribution assistance, and linkage with higher-level facilities. However, the same literature also identifies gaps in training, supervision, and material support that limit the effectiveness of community health workers.

Although BHWs are close to the community and are often trusted by residents, they are not licensed prescribers or pharmacists. This creates a need for clear role boundaries and competency-based training. They must be able to provide correct basic information, reinforce instructions from licensed professionals, identify warning signs, document medicine-related activities, and refer patients when necessary. The manuscript emphasizes that BHWs' perspectives on rational drug use are shaped by training, resource availability, community expectations, and supervisory frameworks, citing Adepoju et al. (2023), Camasin (2023), and Khairunnisa (2024). This means that BHW performance depends not only on personal motivation but also on the health system environment in which they work.

Knowledge, attitudes, and practices studies are useful in assessing the readiness of frontline workers to perform health-related functions. Knowledge reflects awareness and understanding of rational medicine principles. Attitudes reflect beliefs, confidence, perceived responsibility, and willingness to follow protocols. Practices reflect the extent to which knowledge and attitudes are translated into routine behavior. In the case of rational use of medicines, a BHW may know that antibiotics should not be used without proper indication, but still require confidence, communication skill, and referral guidance to address patient questions in the community. The manuscript also recognizes this issue by grounding the study in Social Cognitive Theory, which views behavior as the product of interaction among personal, cognitive, and environmental factors.

The manuscript further integrates a capacity-building perspective, recognizing that knowledge alone does not guarantee sustained behavioral change. Capacity building requires training, mentoring, resources, institutional reinforcement, and feedback mechanisms. This is crucial for rational medicine use because safe medicine-related practice involves consistent actions: checking expiration dates, providing dosage and timing reminders, observing storage procedures, documenting medicine distribution, monitoring adherence, and referring

patients with adverse reactions or warning signs. Without standardized tools and supportive supervision, these practices may be performed inconsistently even when BHWs have favorable attitudes toward rational medicine use.

International and local studies cited in the manuscript support the importance of educational interventions and system support. Owkhonda (2021) is cited for showing that educational interventions can improve knowledge, attitudes, and practices related to rational drug use among health workers and communities. Nguyen et al. (2021) is cited in relation to self-efficacy and sustained behavior change among community health workers. In the Philippine context, Sia (2023) is cited for the promotion of rational drug use through the Philippine National Drug Formulary and training programs, while Robil (2020) is cited for recognizing BHWs as essential resources in primary health care. These sources support the need to examine BHW capacity and identify areas where training and institutional mechanisms can be strengthened.

Despite the growing literature on rational use of medicines, much of the existing research has focused on physicians, nurses, pharmacists, patients, and general community members. The manuscript identifies a clear gap in evidence regarding the knowledge, attitudes, and practices of Barangay Health Workers, particularly within the Philippine local government health system. This gap is important because BHWs are directly involved in community-level health promotion and may influence household medicine behaviors. If their knowledge is incomplete, their confidence is weak, or their practices are unsupported, rational medicine use interventions may fail to reach the barangay level effectively.

In Ligao City, BHWs serve communities with varied health needs and may encounter residents who require guidance on medicine intake, storage, follow-up, and referral. The problem addressed in this study is the limited empirical evidence on whether BHWs possess adequate knowledge, favorable attitudes, and consistent practices regarding rational use of medicines. The manuscript indicates that the study focused on accredited BHWs under the City Health

Office of Ligao and examined their role in patient education, medicine distribution, and monitoring of treatment adherence. It also clarifies that the study did not assess clinical prescribing or actual dispensing by licensed professionals but focused on BHWs' self-reported knowledge, attitudes, and practices.

Therefore, this study was conducted to assess the rational use of medicines among Barangay Health Workers in Ligao City using a knowledge, attitudes, and practices approach. Specifically, it sought to describe the demographic profile of BHWs in terms of age, sex, length of service, educational attainment, and attendance in rational use of medicines-related training; determine their level of knowledge, attitudes, and practices regarding the rational use of medicines; and examine the relationship between selected demographic characteristics, training exposure, and their knowledge, attitudes, and practices. By generating evidence on these areas, the study provides a basis for strengthening BHW capacity and supporting safer, more appropriate, and more effective medicine use at the community level.

II. METHODOLOGY

This study employed a descriptive cross-sectional research design to assess the knowledge, attitudes, and practices of Barangay Health Workers in Ligao City regarding the rational use of medicines. The design was appropriate because it allowed the researcher to describe the existing characteristics, knowledge levels, attitudes, and reported practices of the respondents at a specific point in time without manipulating any variables. The study was conducted in Ligao City, Albay, among 152 accredited Barangay Health Workers officially recognized by the Department of Health and the City Health Office of Ligao. Total enumeration sampling was used, covering the entire population of accredited BHWs in the city to ensure comprehensive representation and minimize sampling bias.

Data were gathered using a structured, self-administered questionnaire adapted from previously validated Knowledge, Attitude, and Practice instruments on rational drug use. The instrument was modified to fit the local context and the actual

responsibilities of Barangay Health Workers in the Philippine primary health care system. It consisted of four major sections: demographic profile, knowledge, attitudes, and practices. The demographic section included age, sex, educational attainment, length of service, and attendance in rational use of medicines-related training. The knowledge section used correct or incorrect responses, while the attitude and practice sections used Likert-type scales to measure agreement and frequency of practice. A pilot test was conducted to check the clarity, comprehensibility, and reliability of the instrument before actual data collection.

Before data collection, formal approval was secured from the Local Chief Executive, followed by coordination with the City Health Office of Ligao. The questionnaires were distributed through nurses and midwives assigned to the barangay health stations during the regular reporting schedule of the BHWs. Completed questionnaires were retrieved through the same health personnel and submitted to the City Health Office for processing. Data were analyzed using frequencies, percentages, weighted means, and mean percentage scores to describe the demographic

profile and KAP levels of the respondents. Chi-square tests were used to examine significant associations between demographic characteristics, training exposure, and KAP outcomes, while Cramer's V measured the strength of association and Spearman's rank correlation determined the direction of selected relationships. Statistical significance was set at $p < 0.05$.

III. RESULTS

Demographic profile of Barangay Health Workers in Ligao City

Table 1 shows that the Barangay Health Workers in Ligao City were predominantly middle-aged and female. The largest age group was 41–50 years old, followed by those aged 51–60 years old. This suggests that most BHWs had already reached a mature stage of personal and community involvement, which may influence their familiarity with household health needs and barangay-level health concerns. The very high proportion of female respondents also reflects the common pattern in community health work, where women often assume caregiving and health-promotion roles within local communities.

Table 1. Demographic Profile of Barangay Health Workers in Ligao City

Profile Category	Frequency	Percentage
Age		
20–30 years old	17	11.18
31–40 years old	18	11.84
41–50 years old	47	30.92
51–60 years old	41	26.97
61–70 years old	25	16.45
71–80 years old	4	2.63
Sex		
Female	151	99.34
Male	1	0.66
Length of Service		
1–5 years	45	29.61
6–10 years	39	25.66
11–15 years	28	18.42
16–20 years	10	6.58
21–25 years	8	5.26
26–30 years	9	5.92
31–35 years	10	6.58
36–40 years	3	1.97

Highest Educational Attainment		
Elementary	22	14.47
Secondary	94	61.84
Tertiary	27	17.76
Vocational/Others	9	5.92
Attendance in RUM-related Training		
Yes	56	36.84
No	96	63.16

In terms of length of service, many respondents had served for 1–5 years, followed by those with 6–10 years of experience. This indicates that the BHW workforce included both relatively newer workers and those with longer exposure to community health responsibilities. Educationally, most respondents reached the secondary level, while fewer had tertiary or vocational education. This finding is important because educational attainment may affect how BHWs understand, interpret, and communicate medicine-related information to patients.

A notable finding in Table 1 is that most BHWs had not attended prior training related to rational use of medicines. This is highly relevant to the study because BHWs are expected to support health education, medicine distribution, monitoring, and referral at the barangay level. Without sufficient training, their ability to provide accurate and consistent medicine-

related guidance may be limited. This supports the need for structured capacity-building activities focused on rational use of medicines, particularly because BHWs serve as frontliners in the local health system.

Level of knowledge, attitudes, and practices of Barangay Health Workers regarding the rational use of medicines

Table 2 indicates that BHWs had a high level of knowledge regarding the rational use of medicines, with an overall mean percentage score of 94.46%.

The respondents showed particularly strong knowledge in essential areas such as proper medicine use, checking expiration dates, and avoiding antibiotic use without clear medical indication. These findings suggest that BHWs have a sound basic understanding of medicine safety principles.

Table 2. Knowledge of Barangay Health Workers on Rational Use of Medicines

Knowledge Indicator	Correct Responses	%	Incorrect Responses	%
Proper use of medicine means giving drugs according to the patient's need, correct dose, correct timing, and appropriate duration.	152	100.00	0	0.00
Medicines bought in pharmacies or obtained from health centers without a prescription can be given to anyone without a doctor's guidance.	146	96.05	6	3.95
Proper storage of medicines helps maintain their effectiveness and prevents harm.	142	93.42	10	6.58
Expiration dates must be checked before distributing any medicine in the community.	152	100.00	0	0.00
Antibiotics can be given even without a clear medical indication.	152	100.00	0	0.00
If a patient experiences unexpected side effects from taking a medicine, they should immediately be referred to a higher-level health facility.	139	91.45	13	8.55

Barangay Health Workers have the responsibility to provide correct information to patients about medicines, even if they are not licensed healthcare professionals.	122	80.26	30	19.74
Overall Mean Percentage Score		94.46		

However, the lower correct response rate on the item concerning the responsibility of BHWs to provide correct medicine information shows a possible area of uncertainty. While BHWs are not licensed health professionals, they still play an important role in patient education and referral. This lower score may reflect role ambiguity, limited confidence, or fear of going beyond their official responsibilities. This is important because rational use of medicines does not depend only on knowing correct information; it also requires confidence and clarity in communicating that information appropriately.

The findings suggest that knowledge among BHWs is generally strong, but applied knowledge and role clarification still require improvement. This supports

the relevance of Social Cognitive Theory in the study, since knowledge alone may not automatically lead to confident and consistent practice. Training should therefore not only review factual concepts but also include practical counseling scenarios, referral decision-making, and clear boundaries of BHW responsibilities.

Table 3 shows that BHWs had generally positive attitudes toward the rational use of medicines, with an overall attitude mean of 3.52, interpreted as Strongly Agree. The highest-rated statement was that medicine distribution and provision must follow City Health Office protocols. This suggests that BHWs recognize the importance of institutional guidance and compliance with official health procedures.

Table 3. Attitudes of Barangay Health Workers on Rational Use of Medicines

Attitude Statement	Weighted Mean	Interpretation
Proper use of medicines is important for the health of the community.	3.68	Strongly Agree
I am capable of providing correct information to patients about medicines.	2.97	Agree
Continuous training is needed to improve my knowledge about medicines.	3.71	Strongly Agree
The distribution and provision of medicines must follow City Health Office protocols.	3.81	Strongly Agree
Monitoring patients' medicine use is part of my responsibility as a BHW.	3.44	Strongly Agree
Overall Attitude Mean	3.52	Strongly Agree

The respondents also strongly agreed that continuous training is needed to improve their knowledge about medicines. This is a significant finding because it shows openness to learning and capacity development. Even though many BHWs had not attended prior rational use of medicines-related training, their strong agreement on the need for continuous training indicates readiness to participate in future educational interventions.

The lowest attitude score was found in the statement on being capable of providing correct information to patients about medicines, although it was still interpreted as Agree. This finding suggests that BHWs may value rational medicine use but may not feel fully confident in performing counseling or patient education tasks. This indicates a self-efficacy gap. Therefore, future interventions should strengthen not only knowledge but also confidence, communication

skills, and supervised practice in medicine-related counseling.

Table 4 presents the practices of BHWs on rational use of medicines, with an overall practice mean of 3.56, interpreted as Always. This indicates that BHWs generally reported consistent practice of rational medicine-related tasks.

The highest-rated practice was checking the expiration date of medicines prior to distribution, followed by proper storage and referral of patients experiencing side effects or adverse drug reactions. These findings suggest that BHWs are highly attentive to routine safety practices.

Table 4. Practices of Barangay Health Workers on Rational Use of Medicines

Practice Indicator	Weighted Mean	Interpretation
Checking the expiration date of medicines prior to distribution.	3.98	Always
Providing patients with correct information about dosage, timing, and duration of medicines.	3.69	Always
Proper storage of medicines to maintain effectiveness.	3.88	Always
Performing proper documentation of medicines distributed in the community.	2.88	Often
Referring patients experiencing side effects and/or adverse drug reactions to higher health facilities.	3.70	Always
Conducting follow-up or monitoring of patients regarding their medicine use.	3.21	Often
Overall Practice Mean	3.56	Always

However, documentation and patient follow-up or monitoring received lower scores compared with other practice indicators. Documentation was interpreted as Often, while monitoring patients regarding medicine use was also interpreted as Often. These results suggest that while BHWs consistently perform direct and immediate safety tasks, they may be less consistent in systematic and continuing responsibilities. This may be due to lack of standardized forms, limited supervision, insufficient time, or unclear procedures.

This finding is important because rational use of medicines requires continuity. Checking expiration dates and giving dosage information are necessary, but documentation and monitoring are also needed to ensure adherence, detect problems, and support referral decisions. The lower scores in these areas

justify the need for a practical capacity enhancement program that includes documentation tools, monitoring checklists, and clear reporting mechanisms.

Relationship between selected demographic characteristics, training exposure, and the knowledge, attitudes, and practices of Barangay Health Workers on the rational use of medicines.

Table 5 shows significant associations between training attendance and knowledge, educational attainment and practices, educational attainment and attitudes, and length of service and attitudes. These findings suggest that learning exposure and educational background are important factors influencing BHWs' knowledge, attitudes, and practices related to rational use of medicines.

Table 5. Chi-Square Test of Independence between Selected Variables and KAP

Demographic Variable	KAP Variable Tested	χ^2 Value	df	p-value	Interpretation
Training attendance	Knowledge	12.45	1	0.001	Significant association
Educational attainment	Practices	9.87	2	0.002	Significant association

Educational attainment	Attitudes	9.84	6	0.040	Significant association
Length of service	Practices	11.12	7	0.130	Not significant
Length of service	Attitudes	6.21	2	0.045	Significant association
Age group	Knowledge	8.76	10	0.550	Not significant
Sex	Attitudes	0.65	1	0.420	Not significant

The significant association between training attendance and knowledge is particularly important. It implies that BHWs who had exposure to rational use of medicines-related training were more likely to demonstrate better knowledge. This supports the need for continuing education programs for BHWs, especially because the demographic findings showed that most respondents had no prior training in this area.

Educational attainment was also significantly associated with both attitudes and practices. This may suggest that BHWs with higher educational exposure are better able to understand health instructions, follow protocols, and apply rational medicine principles. Meanwhile, length of service was significantly associated with attitudes but not practices, suggesting that experience may shape perspectives but does not automatically translate into consistent technical

performance. Age and sex were not significantly associated with the selected KAP outcomes, indicating that rational medicine-related competence may be better improved through training and system support rather than relying on demographic characteristics alone.

Table 6 shows that the strength of association between selected variables and KAP outcomes ranged from very weak to moderate. Training attendance and knowledge showed a moderate association, while educational attainment and practices also showed a moderate association.

These findings indicate that training and education are meaningful factors in improving rational use of medicines-related outcomes among BHWs, although they are not the only factors involved.

Table 6. Cramer's V Results on the Strength of Association

Demographic Variable	KAP Variable Tested	χ^2 Value	df	p-value	Cramer's V	Strength of Association
Training attendance	Knowledge	12.45	1	0.001	0.28	Moderate
Educational attainment	Practices	9.87	2	0.002	0.25	Moderate
Educational attainment	Attitudes	9.84	6	0.040	0.22	Weak to Moderate
Length of service	Attitudes	6.21	2	0.045	0.20	Weak to Moderate
Length of service	Practices	11.12	7	0.130	0.12	Weak
Age group	Knowledge	8.76	10	0.550	0.09	Very Weak
Sex	Attitudes	0.65	1	0.420	0.07	Very Weak

The weak to moderate association between educational attainment and attitudes, as well as length of service and attitudes, suggests that these variables may contribute to positive perspectives but may not be strong enough by themselves to ensure consistent performance. Meanwhile, age group and sex showed very weak associations, reinforcing the idea that demographic characteristics alone are not reliable

indicators of BHW competence in rational medicine use.

These findings suggest that rational use of medicines among BHWs is shaped by multiple interacting factors. Training, supervision, resources, confidence, and institutional support likely work together in influencing behavior. Therefore, a capacity enhancement program should not focus only on

lectures or information dissemination. It should include skills training, mentoring, workflow support, standardized documentation, and regular monitoring.

Table 7 shows positive correlations between length of service and attitudes, length of service and practices,

educational attainment and attitudes, and training attendance and knowledge.

These findings suggest that longer service, higher educational exposure, and training participation are associated with better KAP-related outcomes among BHWs.

Table 7. Spearman's Rank Correlation Results

Demographic Variable	KAP Variable Tested	ρ / ρ	p-value	Direction of Relationship
Length of service	Attitudes	0.32	0.004	Positive
Length of service	Practices	0.29	0.006	Positive
Educational attainment	Attitudes	0.27	0.010	Positive
Training attendance	Knowledge	0.35	0.002	Positive

The positive correlation between training attendance and knowledge further strengthens the importance of structured training. This means that exposure to rational use of medicines-related learning activities may help improve BHWs' understanding of proper medicine use, referral, counseling, and safety practices. The positive relationship between length of service and both attitudes and practices also suggests that experience contributes to confidence and routine performance, although the earlier chi-square results show that experience alone may not be enough to produce significant differences in all practice areas.

Overall, the correlations support the need to combine experience-based learning with formal training. BHWs who have served longer may already possess valuable community familiarity, but they still need updated technical guidance. Similarly, newer BHWs may benefit from early orientation and mentoring. These findings support the development of a structured, continuous, and competency-based training program on rational use of medicines for BHWs in Ligao City.

IV. CONCLUSION & RECOMMENDATION

The study concluded that Barangay Health Workers in Ligao City generally demonstrated strong knowledge, favorable attitudes, and consistent basic practices regarding the rational use of medicines. Their knowledge was particularly evident in essential medicine safety areas such as proper medicine use,

checking expiration dates, proper storage, and avoiding antibiotic use without clear medical indication. However, the findings also revealed important gaps, especially in confidence in providing medicine-related information, documentation of medicines distributed in the community, and follow-up monitoring of patients. Training attendance was significantly associated with knowledge, while educational attainment and length of service were associated with selected attitude and practice outcomes. These findings indicate that although BHWs possess a strong foundation for supporting rational medicine use at the barangay level, their effectiveness depends on continuous training, clearer role guidance, stronger self-efficacy, and structured support systems.

Based on the findings, it is recommended that the City Health Office implement a structured capacity enhancement program for Barangay Health Workers focused on rational use of medicines. The program should include regular training on medicine safety, patient counseling, dosage and timing instructions, adverse reaction referral, documentation, and follow-up monitoring. Practical tools such as standardized documentation forms, patient monitoring checklists, referral guides, and protocol-based counseling scripts should be developed to support consistent practice. Since many BHWs had no prior rational use of medicines-related training, training should be institutionalized as part of continuing education and

supervision. The proposed program should also strengthen coordination between BHWs, nurses, midwives, pharmacists, and the City Health Office to ensure that BHWs can promote safe, appropriate, and effective medicine use within their defined community health role.

REFERENCES

- [1] Adepoju, O., et al. (2023). Capacity-building, resource support, and community health worker performance in resource-limited settings.
- [2] Almarsdóttir, A. B., & Traulsen, J. M. (2005). Rational use of medicines: An important issue in pharmaceutical policy. *Pharmacy World & Science*. <https://doi.org/10.1007/s11096-005-3298-5>
- [3] Arimbawa, P. E., Hita, I. P. G. A. P., & Wardhana, Z. F. (2021). Health belief model and the understanding of rational use of medicines. *International Journal of Public Health Science*, 10(2), 411–417.
- [4] Arlington, L., et al. (2021). Community health workers as health navigators in underserved communities.
- [5] Baliolaa, M., et al. (2023). Challenges and motivations of Barangay Health Workers in community health service delivery.
- [6] Bañas, C. B., et al. (2022). National online survey of Filipinos' knowledge, attitude and awareness of antibiotic use and resistance: A cross-sectional study. *Journal of Pharmaceutical Health Services Research*.
- [7] Bañas, R., et al. (2022). Community-level education and guidance in medication use: The role of non-professional health volunteers. *Asian Journal of Public Health*, 13(2), 112–125.
- [8] Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
- [9] Bhutta, Z. A., Lassi, Z. S., Pariyo, G., & Huicho, L. (2010). Global experience of community health workers for delivery of health-related Millennium Development Goals: A systematic review and recommendations for integration into national health systems. *Global Health Workforce Alliance*.
- [10] Camasin, R. (2023). Barangay Health Workers, capacity-building, and policy clarity in primary health care.
- [11] Chaturvedi, V. P., Mathur, A. G., & Anand, A. C. (2012). Rational drug use—as common as common sense? *Medical Journal Armed Forces India*, 68(3), 206–208.
- [12] Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches*. SAGE Publications.
- [13] Crucis, P. M., et al. (2019). Knowledge, attitude and practices on the use of antimicrobials among residents in Towerville Phase 5, Barangay Minuyan, San Jose del Monte, Bulacan, Philippines. *Journal of Asian Association of Schools of Pharmacy*, 8, 64–71.
- [14] Department of Health. (2019). The Universal Health Care Act, Republic Act No. 11223, and its implementing rules and regulations. <https://doh.gov.ph/ra11223>
- [15] Global Health Workforce Alliance & World Health Organization. (2010). Global experience of community health workers for delivery of health-related Millennium Development Goals. *World Health Organization*.
- [16] Graham, K., Sinyangwe, C., Nicholas, S., et al. (2016). Rational use of antibiotics by community health workers and caregivers for children with suspected pneumonia in Zambia. *BMC Public Health*.
- [17] Hartigan-Co, J., et al. (2025). Barangay Health Workers and community medicine use under the Universal Health Care framework.
- [18] Janz, N. K., & Becker, M. H. (1984). The health belief model: A decade later. *Health Education Quarterly*, 11(1), 1–47.
- [19] Khairunnisa, N. (2024). Self-medication practices and community expectations in primary health care settings.
- [20] Lee, J. M., Wong, K. L., & Mutuc, J. E. (n.d.). System dynamics approach towards the drug use problem in the Philippines.
- [21] Mallari, E. V., Lasco, G., & Dans, A. L. (2020). Connecting communities to primary care: A qualitative study on the roles, motivations, and lived experiences of community health workers in

- the Philippines. BMC Health Services Research, 20, 188.
- [22] Mekonnen, B. D., et al. (2021). Rational medicine use and therapeutic outcomes in public health systems.
- [23] Nguyen, T., et al. (2021). Self-efficacy, training, and sustained behavioral change among community health workers.
- [24] Ofori-Asenso, R., & Agyeman, A. A. (2016). Irrational use of medicines: A summary of key concepts. *Pharmacy*, 4(4), 35.
- [25] Owhonda, G. (2021). Educational interventions and rational drug use knowledge, attitudes, and practices among health workers and communities.
- [26] Pepito, V. C. F., et al. (2025). Health workforce issues and recommended practices in the implementation of Universal Health Coverage in the Philippines: A qualitative study. *Human Resources for Health*, 23, 21.
- [27] Pepito, V. C., et al. (2025). The role of frontliners under the Universal Health Care Act: Navigating the Philippine primary care system. *Health Policy and Planning*, 40(2), 210–225.
- [28] Robil, J. L. M. (2020). Knowledge, attitude & practices on primary health care services on maternal health and family planning among Barangay Health Workers. *International Journal of Innovation, Creativity and Change*, 14(1), 1301–1320.
- [29] Rosenstock, I. M. (1974). Historical origins of the health belief model. *Health Education Monographs*, 2(4), 328–335.
- [30] Segal, R., Angaran, D. M., Odedina, F. T., Zeigler, M. L., & Wallace, J. L. (2020). Opportunities and responsibilities for pharmacists to improve medication adherence through collaboration with community health workers. *Journal of the American Pharmacists Association*, 60(4), e25–e30.
- [31] Sia, I. C. (2023). Promotion of rational drug use through the Philippine National Drug Formulary and training programs. University of the Philippines Manila, National Institutes of Health.
- [32] Taburnal, M. V. M. (2020). Knowledge and competence of barangay health workers. *International Journal of Innovation, Creativity and Change*, 14(1), 1301–1320.
- [33] Urich, A. (2017). The health belief model. *Methods for Stress Management*. <https://psu.pb.unizin.org/kines082/chapter/the-health-belief-model/>
- [34] Williams, C. (2021). Descriptive cross-sectional research design and public health program development.
- [35] World Health Organization. (2002). Promoting rational use of medicines: Core components. <https://apps.who.int/iris/handle/10665/67438>