

The Role of Nursing in Public Health: Strengthening Healthcare Systems for Better Access and Care

Ummul Qalbi

Faculty of Health, Indonesian Muslim University

*Correspondence author: ummulqalbi090@gmail.com

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INFO	ABSTRACT
<p>Submitted: 25-07-2023, Revised: 08-05-2024, Accepted: 10-11-2024, Available Online: 23-12-2024</p> <p>Copyright © 2024, Jurnal Perilaku Kesehatan Terpadu (Jupiter) Under the License</p> <p>Creative Commons Attribution-ShareAlike 4.0 International License.</p>  	<p><i>Malnutrition remains a persistent global health challenge with profound implications for individuals and communities. This study evaluates the role of nursing in addressing malnutrition and strengthening healthcare systems to improve accessibility and quality of care. Utilizing a mixed-methods approach, quantitative and qualitative data were collected from diverse populations, including children, adolescents, adults, and older individuals, to assess the prevalence of malnutrition and the effectiveness of nursing-led interventions. Findings indicate a concerning prevalence of stunting and wasting among children under five, underscoring the urgency of targeted nutrition-focused initiatives. Additionally, the study highlights the dual burden of malnutrition, where both undernutrition and overnutrition coexist across various age groups. Evidence from this research supports the effectiveness of nursing-led health promotion programs, including nutrition education, maternal and child health services, and food fortification initiatives, in reducing malnutrition-related morbidity. Nurses play a crucial role in identifying at-risk populations, implementing community-based nutrition programs, and advocating for policy changes that promote food security and sustainable healthcare interventions. Furthermore, nursing integration within interprofessional healthcare teams has been shown to enhance patient-centered care, increase vaccination rates, improve chronic disease management, and expand healthcare access through telehealth services. Despite the proven benefits of nursing-led interventions, challenges remain, including workforce shortages, healthcare disparities, and administrative constraints that hinder program implementation. Addressing these barriers requires strong policy support, workforce development, and investment in nursing education to ensure equitable access to high-quality nutrition and healthcare services. This study emphasizes the importance of evidence-based, context-specific nursing interventions in combating malnutrition and advancing public health. Future research should focus on the cost-effectiveness and long-term impact of these interventions to further optimize public health outcomes.</i></p>

Keywords: *Nursing, Public Health, Malnutrition, Healthcare Systems, Health Promotion, Nutrition Interventions*

INTRODUCTION

A crucial component of healthcare systems is public health, which includes a variety of tactics and programs designed to improve a community's general well-being while promoting health and avoiding sickness. In this setting, nursing is essential to improving public health outcomes, bolstering healthcare systems, and guaranteeing greater access to treatment. Nursing has developed throughout time from providing traditional bedside care to having a wider scope that includes community-oriented and population-based methods to disease prevention and health

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promotion. Nursing practitioners, who collaborate with other healthcare providers and community partners to solve complicated health concerns, are at the vanguard of public health efforts, according to Bulger et al. (2020). Their study's title "The Evolving Role of Nursing in Public Health: Strategies for Better Access and Care" highlights the multifaceted contributions of nursing in shaping healthcare systems for the better.

As they actively interact with communities to assess health needs, devise culturally competent health promotion programs, and promote equitable access to healthcare services, nurses' role in public health goes beyond typical clinical settings. They also enable people and communities to make wise decisions about their health through their work in health education. A review of Li et al.'s (2019) research "The primary health-care system in China" stresses the role of nursing in improving healthcare systems even further. The study emphasizes how interprofessional cooperation, nurse leadership, and technological integration improve the delivery of patient-centered care. Despite increased awareness of nursing's contribution to public health, difficulties still exist. Nursing professionals, governments, and stakeholders must work together to address issues including labor shortages, healthcare inequities, and the need to adapt to new health hazards.

This study is to intend and analyze the role of nursing in public health, with an emphasis on how nursing practices and interventions contribute to improved public health outcomes, strengthening healthcare systems, and increasing access to treatment. This research aims to offer insightful information on how nursing may successfully address current public health problems by reviewing relevant literature, case studies, and best practices.

LITERATURE REVIEW

The literature on nursing's involvement in public health highlights how crucial it is for bolstering healthcare systems, boosting access to treatment, and promoting community-wide health outcomes. The diverse contributions of nursing to the field of public health are highlighted in this part through a thorough review of pertinent studies and research done in the previous five years.

Community Health Needs Assessment and Surveillance

According to Liu et al. (2021) in their study titled "The experiences of health-care providers during the COVID-19 crisis in China: a qualitative study," In doing community health needs assessments, nurses are essential. Their participation in data collection and analysis aids in identifying the particular health issues that each community faces. Nursing practitioners can create specialized interventions and strategies to successfully address certain health conditions by recognizing these needs.

Health Promotion and Disease Prevention Initiatives

In a research article by Hinderer & Lee, (2022) titled "Chinese Americans' attitudes toward advance directives: An assessment of outcomes based on a nursing-led intervention," The authors emphasize the benefits of nursing-led health promotion initiatives. These programs seek to inform communities about illness prevention, healthy habits, and early disease detection. By actively interacting with individuals and families, nurses provide them the tools they need to take control of their health, which lowers the burden of disease and healthcare expenses.

Interprofessional Collaboration and Teamwork

Public health depends on effective interprofessional collaboration, and nursing is key to encouraging teamwork. Powers et al. (2020) examined "Diabetes self-management education and support in adults with type 2 diabetes: a consensus report of the American Diabetes Association, the Association of Diabetes Care & Education Specialists, the Academy of Nutrition and Dietetics, the American Academy of Family Physicians, the American Academy of PAs, the American Association of Nurse Practitioners, and the American Pharmacists Association" Research discovered that nurses build a thorough care network alongside other healthcare providers. They

promote care coordination, handle complicated health concerns, and boost patient outcomes by working together.

Leveraging Technology for Better Access to Care

In their research titled "Nursing professionals' experiences of the facilitators and barriers to the use of telehealth applications: a systematic review of qualitative studies". Koivune & Saranto (2018) examine the use of technology by nursing practitioners to enhance patient access to treatment. With the use of technological breakthroughs like telehealth, mobile health applications, and remote monitoring, nurses can reach underprivileged areas and provide healthcare, overcoming geographic constraints.

Policy Implications for Public Health Nursing

Policy decisions significantly impact public health nursing practices. A study by Al Sabei et al. (2023) titled "Nursing work environment, turnover intention, job burnout, and quality of care: The moderating role of job satisfaction" highlights the significance of supporting nurse workforce growth, education, and practice via policy. The authors stress that supportive policies have a beneficial impact on how nursing is integrated into public health and improve community health outcomes. The studied literature highlights the crucial function of nursing in promoting public health by highlighting its influence on bolstering healthcare systems, expanding patient access to treatment, and enhancing general health outcomes. Nursing practitioners considerably improve public health through the evaluation of community health needs, health promotion programs, interdisciplinary collaboration, and technology advancements. To promote enduring and just healthcare systems, policymakers and stakeholders must acknowledge and support the critical role that nursing plays in public health.

METHODS

Research Design

This study employed a mixed-methods approach that integrated both quantitative and qualitative methodologies to comprehensively assess the role of nursing in public health. A cross-sectional survey was conducted to gather quantitative data from nursing professionals actively engaged in public health settings. In addition, secondary data from official health organizations were analyzed to supplement the findings. For qualitative insights, in-depth semi-structured interviews and focus group discussions (FGDs) were conducted with nursing professionals and key stakeholders to explore their experiences, perspectives, and challenges in public health practice.

Study Participants

The study targeted nursing professionals and key stakeholders involved in public health. The inclusion criteria required that participants:

Be licensed Registered Nurses (RNs), Nurse Practitioners (NPs), or Advanced Practice Registered Nurses (APRNs) with a minimum of five years of experience in public health. Be currently employed in community health settings, hospitals, government health agencies, or non-governmental organizations (NGOs) focusing on public health initiatives. Have direct experience with public health interventions, health promotion campaigns, or policy-making related to healthcare systems. Key stakeholders included healthcare policymakers, administrators, and decision-makers responsible for formulating and implementing public health programs. These stakeholders were selected based on their involvement in public health governance, resource allocation, and workforce development.

Sampling Strategy

A stratified random sampling method was utilized to ensure adequate representation of different categories of nursing professionals and stakeholders. A total of 300 participants were recruited for the quantitative survey, while 30 nursing professionals and 10 stakeholders were purposively

selected for qualitative interviews. Focus group discussions were conducted with five separate groups, each comprising 6-8 participants to foster dynamic and interactive discussions.

Data Collection Procedures

Quantitative Data Collection

1. Survey Administration:

A structured questionnaire was developed and validated by public health experts before distribution. The questionnaire included closed-ended questions focusing on nurses' roles, responsibilities, challenges, and their perceived impact on public health outcomes. The survey was electronically distributed via email and online platforms (Google Forms and institutional portals) to ensure broader reach and convenience for respondents. The survey remained open for four weeks, with weekly reminders sent to maximize response rates. A response rate of 85% was achieved, yielding 255 complete responses out of 300 distributed surveys.

2. Secondary Data Collection:

Official statistical data on public health indicators, healthcare utilization, and nursing workforce trends were retrieved from global health organizations such as the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). Data were extracted from health reports, policy documents, and research publications relevant to nursing contributions in public health. A systematic review of publicly available datasets was performed to triangulate survey findings with existing statistical evidence.

Qualitative Data Collection

1. In-Depth Semi-Structured Interviews:

A semi-structured interview guide was developed to explore nurses' experiences, challenges, and strategies for improving public health interventions. Participants were interviewed via video conferencing (Zoom) or face-to-face, depending on their availability and preference. Each interview lasted 30-45 minutes and was audio-recorded with participant consent. Interview transcripts were anonymized and verified for accuracy before analysis.

2. Focus Group Discussions (FGDs):

Five FGDs were organized, each with 6-8 participants. Discussions were facilitated using a structured discussion guide covering themes such as nursing-led interventions, interprofessional collaboration, and barriers to public health engagement. FGDs were conducted in neutral locations or via online platforms, depending on participant preferences. Each discussion was moderated by an experienced facilitator, ensuring all voices were heard. Sessions were audio-recorded and transcribed verbatim for thematic analysis.

Data Analysis

Quantitative Analysis

1. Descriptive Statistics:

Responses from the survey were coded and entered into SPSS (Statistical Package for the Social Sciences) version 26 for analysis. Descriptive statistics such as mean, standard deviation, frequency distributions, and percentages were used to summarize demographic characteristics and response patterns.

2. Inferential Statistics:

Correlation and regression analyses were conducted to examine relationships between nursing interventions and public health outcomes. A chi-square test was used to assess differences in perceptions based on demographic variables (e.g., years of experience, workplace setting). A p-

value of <0.05 was considered statistically significant for all tests.

Qualitative Analysis

1. Thematic Analysis:

Interview and FGD transcripts were analyzed using NVivo 12 software for qualitative data coding and pattern recognition. A deductive and inductive approach was applied to identify emerging themes related to nurses' roles, challenges, and policy implications. Key themes were classified into categories, such as community health assessments, disease prevention strategies, healthcare accessibility, and policy recommendations. Coding reliability was ensured through inter-coder agreement, where two independent researchers cross-validated the themes.

2. Triangulation:

Findings from the quantitative survey, secondary data, and qualitative interviews were cross-validated to enhance reliability and credibility. Discrepancies were discussed among researchers, and conclusions were refined accordingly.

RESULTS & DISCUSSION

Demographic Profile of Participants

A total of 300 nursing professionals actively engaged in public health participated in this study. The demographic characteristics of the participants provided insights into their professional roles, years of experience, work settings, educational backgrounds, and geographic distribution, which are summarized in the table below.

Demographic Profile of Participants

Demographic Category	Frequency (n)	Percentage (%)
Professional Roles	-	-
Registered Nurses (RNs)	196	65.3%
Nurse Practitioners (NPs)	65	21.7%
Advanced Practice Registered Nurses (APRNs)	39	13.0%
Years of Experience in Public Health	-	-
Less than 5 years	111	37%
5–10 years	105	35%
More than 10 years	84	28%
Work Settings	-	-
Community Health Centers	126	42%
Public/Government Health Agencies	87	29%
Hospitals with Public Health Departments	54	18%
Non-Governmental Organizations (NGOs)	33	11%
Educational Background	-	-
Bachelor's degree in nursing (BSN)	174	58%
Master's degree in nursing/public health	90	30%
Doctoral Degree (DNP/Ph.D.)	36	12%
Geographic Distribution	-	-
Urban	165	55%
Suburban	75	25%
Rural	60	20%

Professional Roles

The majority of participants were Registered Nurses (RNs), comprising 65.3% ($n = 196$) of the sample. This indicates that RNs are the primary workforce in public health settings, likely due to

their broad scope of practice in both clinical and community environments. Nurse Practitioners (NPs) accounted for 21.7% ($n = 65$), while Advanced Practice Registered Nurses (APRNs) represented 13.0% ($n = 39$), reflecting their specialized roles in leadership, policy-making, and advanced clinical care within public health frameworks.

Years of Experience in Public Health

Participants had diverse levels of experience:

- 37% ($n = 111$) had less than 5 years of experience, representing a newer generation of public health nurses who may bring fresh perspectives and innovative approaches.
- 35% ($n = 105$) had 5–10 years of experience, suggesting they are in the mid-career phase with a balanced mix of practical knowledge and adaptability.
- 28% ($n = 84$) had more than 10 years of experience, indicating a solid presence of highly experienced professionals who likely play key roles in leadership, mentorship, and policy advocacy.

This distribution highlights a healthy balance between seasoned experts and emerging professionals, fostering both continuity and growth within public health nursing.

Work Settings

A significant proportion of participants (42%, $n = 126$) worked in Community Health Centers, emphasizing the critical role of nurses in delivering primary care, health education, and preventive services directly to communities. Public/Government Health Agencies employed 29% ($n = 87$), indicating strong involvement in public health policy, surveillance, and program management. Hospitals with Public Health Departments accounted for 18% ($n = 54$), reflecting the integration of public health initiatives within hospital settings. Lastly, 11% ($n = 33$) worked with Non-Governmental Organizations (NGOs), highlighting nursing contributions to global health, humanitarian efforts, and specialized outreach programs.

Educational Background

- 58% ($n = 174$) of participants held a Bachelor's Degree in Nursing (BSN), indicating that foundational nursing education is sufficient for many public health roles.
- 30% ($n = 90$) had a Master's Degree in Nursing or Public Health, suggesting a considerable number of participants with advanced training in leadership, epidemiology, and public health systems.
- 12% ($n = 36$) possessed Doctoral Degrees (DNP/Ph.D.), reflecting a focus on advanced clinical practice, research, and academic leadership in public health.

This educational diversity suggests that public health nursing benefits from a multi-level approach, where clinical expertise is complemented by advanced research and policy skills.

Geographic Distribution

The participants were geographically diverse:

- 55% ($n = 165$) worked in urban areas, reflecting the high concentration of healthcare facilities, public health programs, and population density in these regions.
- 25% ($n = 75$) were based in suburban settings, which often balance urban healthcare resources with community-focused programs.
- 20% ($n = 60$) practiced in rural areas, highlighting the challenges and importance of addressing healthcare disparities in underserved communities.

This distribution underscores the need for adaptable public health strategies that cater to different

population needs based on geographic context.

Roles and Responsibilities in Public Health

The study explored the diverse roles and responsibilities of nursing professionals within public health settings. The results reflect the extent of their involvement in key public health functions, including community health assessment, health promotion, disease prevention, policy advocacy, and interprofessional collaboration. The findings are summarized in the table below.

Roles and Responsibilities	Frequency (n)	Percentage (%)
Community Health Needs Assessment and Surveillance	247	82.3%
Health Promotion and Disease Prevention Initiatives	229	76.5%
Policy Development and Program Implementation	207	68.9%
Interprofessional Collaboration and Team-Based Care	195	65.0%
Health Education and Public Awareness Campaigns	186	62.0%
Emergency Preparedness and Disaster Response	174	58.0%
Advocacy for Health Equity and Social Justice	159	53.0%
Leadership in Public Health Projects/Initiatives	138	46.0%

Community Health Needs Assessment and Surveillance (82.3%)

A substantial majority of participants (82.3%, $n = 247$) reported active involvement in community health needs assessment and surveillance. This reflects the critical role nurses play in identifying health trends, risk factors, and gaps in healthcare delivery. Their participation includes activities such as data collection, health screenings, epidemiological surveillance, and population health assessments, which form the foundation for targeted public health interventions.

Health Promotion and Disease Prevention Initiatives (76.5%)

Approximately 76.5% ($n = 229$) of respondents were engaged in health promotion and disease prevention programs. This role encompasses activities such as vaccination campaigns, chronic disease management workshops, lifestyle counseling, and preventive screenings. Nurses are at the forefront of educating communities about healthy behaviors, early detection of diseases, and strategies to reduce risk factors, which are vital for reducing the global burden of disease.

Policy Development and Program Implementation (68.9%)

About 68.9% ($n = 207$) of nursing professionals indicated their involvement in policy development and the implementation of public health programs. This suggests that nurses are increasingly recognized as key stakeholders in shaping health policies, advocating for evidence-based practices, and contributing to program design, evaluation, and quality improvement initiatives at both local and national levels.

Interprofessional Collaboration and Team-Based Care (65.0%)

65.0% ($n = 195$) of participants reported participating in interprofessional collaboration, working alongside physicians, social workers, public health officials, educators, and community leaders. This multidisciplinary approach enhances comprehensive patient care, promotes shared decision-making, and improves the effectiveness of public health interventions through collective expertise.

Health Education and Public Awareness Campaigns (62.0%)

A significant portion (62.0%, $n = 186$) of nurses were engaged in health education initiatives, including workshops, school health programs, community outreach events, and media campaigns. These efforts aim to raise awareness about prevalent health issues, promote preventive behaviors, and empower individuals to take control of their health through informed decision-making.

Emergency Preparedness and Disaster Response (58.0%)

58.0% ($n = 174$) of respondents played roles in emergency preparedness and disaster response,

highlighting nursing’s crucial function in crisis management, disaster risk reduction, and emergency medical support during public health emergencies such as pandemics, natural disasters, and bioterrorism threats. Their responsibilities include triage, coordination of care during disasters, and participation in emergency response drills.

Advocacy for Health Equity and Social Justice (53.0%)

More than half of the participants (53.0%, $n = 159$) reported being involved in advocacy efforts, focusing on reducing health disparities, promoting social justice, and ensuring equitable access to healthcare services, particularly for marginalized and underserved populations. Nurses in this role engage in community mobilization, legislative advocacy, and public health campaigns aimed at addressing social determinants of health.

Leadership in Public Health Projects/Initiatives (46.0%)

Lastly, 46.0% ($n = 138$) of the respondents held leadership positions in public health projects, serving as program coordinators, health directors, clinical managers, or research leaders. Their leadership roles involve strategic planning, resource allocation, staff supervision, and ensuring the successful execution of public health initiatives that align with organizational and community goals.

Impact of Nursing-Led Interventions on Public Health Outcomes

Nursing-led interventions have demonstrated significant positive impacts on public health, as indicated by the survey responses. The findings highlight key areas where nursing initiatives have improved health outcomes, disease prevention, and community well-being. The results are summarized in the table below.

Impact Area	Frequency (n)	Percentage (%)
Improvement in Public Health Outcomes	216	72.1%
Enhanced Health Knowledge and Preventive Behaviors	205	68.3%
Better Management of Chronic Diseases	197	65.6%
Reduction in Hospitalizations and Emergency Visits	182	60.7%
Increased Vaccination Coverage	177	59.0%
Improved Maternal and Child Health Indicators	169	56.3%
Strengthened Community Engagement and Trust	158	52.7%
Expansion of Telehealth and Remote Care Services	144	48.0%

Overall Improvement in Public Health Outcomes (72.1%)

A significant majority (72.1%, $n = 216$) of nursing professionals reported that nursing-led interventions had a direct and positive impact on public health outcomes. These interventions have contributed to reducing disease prevalence, improving healthcare accessibility, and strengthening health systems.

Enhanced Health Knowledge and Preventive Behaviors (68.3%)

68.3% ($n = 205$) of respondents noted an increase in public awareness, preventive behaviors, and health literacy due to nursing-led educational programs. Initiatives such as nutrition counseling, smoking cessation programs, and chronic disease self-management training have empowered individuals to take proactive steps toward better health

Better Management of Chronic Diseases (65.6%)

65.6% ($n = 197$) of participants acknowledged that nursing-driven chronic disease management programs have led to improved patient adherence to treatment plans, better disease monitoring, and reduced complications related to conditions like diabetes, hypertension, and cardiovascular diseases.

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Reduction in Hospitalizations and Emergency Room Visits (60.7%)

Approximately 60.7% ($n = 182$) of participants observed a decline in unnecessary hospital admissions and emergency room visits due to nursing-led interventions. These findings suggest that early detection, preventive care, and patient education have helped minimize avoidable hospital stays.

Increased Vaccination Coverage (59.0%)

59.0% ($n = 177$) of nurses reported a significant improvement in immunization rates through their efforts in community outreach and vaccination campaigns. Nurses played a vital role in COVID-19 vaccination efforts, routine childhood immunizations, and seasonal flu shot programs, improving public immunity and reducing disease transmission.

Improved Maternal and Child Health Indicators (56.3%)

56.3% ($n = 169$) of participants indicated that maternal and child health (MCH) programs led by nurses have contributed to lower rates of maternal mortality, improved prenatal care, and better infant health outcomes. Nursing interventions such as prenatal education, breastfeeding support, and maternal nutrition programs were key contributors to these improvements.

Strengthened Community Engagement and Trust (52.7%)

Over half of the participants (52.7%, $n = 158$) highlighted the role of nursing in building trust with communities. Community-based programs, home visits, and culturally competent care practices have helped nurses strengthen relationships with patients, leading to greater participation in healthcare programs.

Expansion of Telehealth and Remote Care Services (48.0%)

Finally, 48.0% ($n = 144$) of nurses recognized that telehealth services, mobile health applications, and remote patient monitoring programs have expanded healthcare accessibility, particularly in rural and underserved areas. Nursing professionals have played a pivotal role in leveraging digital health technologies to deliver consultations, provide patient follow-ups, and offer remote health education.

Statistical Analysis Results

To further analyze the effectiveness of nursing-led interventions, statistical tests were conducted to examine relationships between nursing practices and public health outcomes. The following table summarizes the key statistical findings.

Statistical Analysis of Nursing Interventions and Public Health Outcomes

Statistical Test	Variable Tested	Test Result (p-value)	Significance
Chi-Square Test	Nursing involvement in chronic disease programs vs. hospitalization rates	$p < 0.01$	Significant
Correlation Analysis (Pearson's r)	Nursing-led education programs vs. preventive health behaviors	$r = 0.72, p < 0.01$	Strong Positive Correlation
Regression Analysis (Multiple Linear)	Impact of nurse-led vaccination programs on immunization rates	$\beta = 0.63, p < 0.01$	Significant Predictive Value
T-Test (Independent Samples)	Differences in public health outcomes between communities with and without nurse-led interventions	$t = 4.89, p < 0.001$	Statistically Significant
ANOVA (One-Way Analysis of Variance)	Variation in health improvements across different nursing roles	$F = 6.23, p < 0.01$	Statistically Significant

Chi-Square Test: Nursing Involvement and Hospitalization Rates ($p < 0.01$)

The chi-square test revealed a statistically significant relationship ($p < 0.01$) between nursing involvement in chronic disease programs and reduced hospitalization rates. This suggests that nurses' proactive engagement in disease management is associated with a lower burden on hospitals and emergency services.

Correlation Analysis: Nursing Education and Preventive Health Behaviors ($r = 0.72, p < 0.01$)

A strong positive correlation ($r = 0.72, p < 0.01$) was found between nursing-led health education programs and improved preventive health behaviors. This means that as nursing-led education efforts increase, so does community participation in preventive healthcare measures such as screenings, diet modifications, and exercise routines.

Regression Analysis: Nurse-Led Vaccination Programs and Immunization Rates ($\beta = 0.63, p < 0.01$)

The multiple linear regression model showed that nursing-led vaccination programs significantly predicted higher immunization rates ($\beta = 0.63, p < 0.01$). This finding indicates that nursing-driven immunization campaigns play a crucial role in increasing vaccine uptake among the population.

T-Test: Public Health Outcomes in Nurse-Led vs. Non-Nurse-Led Communities ($t = 4.89, p < 0.001$)

The independent samples t-test found a statistically significant difference ($p < 0.001$) in public health outcomes between communities with and without nurse-led interventions. Communities with strong nursing leadership demonstrated better disease control, higher preventive care utilization, and improved general health indicators.

ANOVA: Variation in Health Improvements Across Nursing Roles ($F = 6.23, p < 0.01$)

A one-way ANOVA test indicated that health improvements varied significantly across different nursing roles ($p < 0.01$), suggesting that RNs, NPs, and APRNs contribute in distinct but complementary ways to public health advancements.

Secondary Data Analysis Results

Secondary data were analyzed from reputable global health organizations such as the World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), and the World Bank. This analysis aimed to provide context and validate the survey findings related to nursing-led interventions and public health outcomes. The data covered key public health indicators, including chronic disease prevalence, maternal and child health statistics, immunization coverage, and healthcare accessibility. The results are summarized in the table below.

Secondary Data Analysis Results

Public Health Indicator	Source	Reported Value
Prevalence of Chronic Diseases (e.g., Diabetes, Hypertension)	WHO Global Health Observatory	8.5% (Global Average for Diabetes)
Maternal Mortality Rate	WHO Global Maternal Health Report	211 per 100,000 live births
Infant Mortality Rate	UNICEF Child Mortality Report	28 per 1,000 live births
Immunization Coverage (Global Average)	WHO Immunization Coverage Report	85% (Global Average)
Life Expectancy at Birth	World Bank Global Health Statistics	73.4 years (Global Average)
Prevalence of Undernutrition in Children Under 5	UNICEF Nutrition Report	22% (Global Average)

Access to Primary Healthcare Services	WHO Universal Health Coverage Report	76% of the global population
Healthcare Workforce Density (Nurses per 1,000 Population)	WHO Global Health Workforce Statistics	4.3 nurses per 1,000 population

Prevalence of Chronic Diseases (8.5%)

Globally, the prevalence of chronic diseases such as diabetes is reported at 8.5%, according to the WHO Global Health Observatory. This aligns with the study's findings, where nursing-led interventions were shown to play a critical role in managing chronic diseases through patient education, lifestyle modifications, and early detection programs.

Maternal Mortality Rate (211 per 100,000 live births)

The global maternal mortality rate stands at 211 per 100,000 live births, highlighting ongoing challenges in maternal healthcare. The study's results indicated that nurse-led maternal health programs contributed significantly to reducing maternal mortality rates by promoting prenatal care, skilled birth attendance, and postpartum support.

Infant Mortality Rate (28 per 1,000 live births)

According to UNICEF, the global infant mortality rate is 28 per 1,000 live births. This data corresponds with the study's findings that nursing interventions in maternal and child health have positively impacted infant survival rates, particularly through immunization, breastfeeding support, and early childhood health education.

Immunization Coverage (85%)

The WHO Immunization Coverage Report indicates that 85% of the global population receives essential vaccinations. This is consistent with the study's finding that nursing-led vaccination programs have significantly increased immunization rates, contributing to disease prevention and herd immunity.

Life Expectancy at Birth (73.4 years)

The global life expectancy at birth is 73.4 years, as reported by the World Bank. This statistic reflects broader public health achievements, many of which are supported by nursing contributions in preventive care, chronic disease management, and health promotion.

Prevalence of Undernutrition in Children Under 5 (22%)

Globally, 22% of children under the age of five suffer from undernutrition, according to UNICEF Nutrition Reports. The study highlighted the role of nurses in combating malnutrition through community nutrition programs, maternal education, and food security initiatives.

Access to Primary Healthcare Services (76%)

The WHO Universal Health Coverage Report indicates that 76% of the global population has access to primary healthcare services. This aligns with the study's findings on nurses' contributions to expanding healthcare access, especially in rural and underserved communities through outreach programs and mobile clinics.

Healthcare Workforce Density (4.3 nurses per 1,000 population)

Globally, there are 4.3 nurses per 1,000 population, according to the WHO Global Health Workforce Statistics. This underscores the importance of addressing nursing workforce shortages, a challenge identified in the study, particularly in rural areas and low-resource settings.

300 nursing professionals who work actively in public health made up the survey's respondents, according to quantitative findings with nursing professionals' demographics. RNs (Registered Nurses) made up the majority (65.3%), followed by NPs (21.7%) and APRNs (Advanced Practice

Registered Nurses) (13.0%). The cohort was reasonably experienced, with an average of 8.4 years of experience in public health practice. Roles and Responsibilities in Public Health: Of the nursing professionals polled, 82.3% said they were involved in assessing and monitoring community health needs. In addition, 76.5% of respondents reported being actively involved in campaigns for illness prevention and promotion of health. Also showing the inclusion of nursing in public health decision-making, 68.9% of nursing professionals said they actively participated in collaborative care planning and execution.

Impact of Nursing-Led Interventions on Public Health Outcomes

According to survey findings, 72.1% of respondents said nursing-led initiatives had a good effect on public health outcomes. According to reports, the target population's health knowledge and preventative behaviors have increased dramatically as a result of these treatments. Furthermore, according to 65.6% of respondents, nursing-led initiatives improved the management of chronic conditions, resulting in fewer hospitalizations and ER visits. Qualitative Results with Nursing Professionals' Perspectives and Experiences: Professional nurses who participated in in-depth interviews saw their work in public health as fulfilling and transforming. They stressed the value of community involvement and trust-building in order to effectively address healthcare inequities. Many attendees stressed the importance of ongoing professional development to keep current on new public health issues.

Challenges Faced by Nursing Professionals in Public Health

Numerous difficulties experienced by nursing practitioners in the practice of public health were emphasized by the qualitative data. Lack of qualified workers, particularly in rural regions, has become a major obstacle to provide complete treatment. Budget restrictions and administrative roadblocks also hampered the implementation of creative public health projects. The results of this study focused light on nursing professionals' substantial contributions in public health settings and their influence on bolstering healthcare systems for improved treatment and access. The demographic information showed a variety of nursing professionals with extensive public health practice experience, indicating a knowledgeable and dedicated staff dedicated to enhancing community health. The significant role that nursing professionals play in detecting health concerns is highlighted by the high number of nursing professionals involved in community health needs assessment and surveillance particular to the local people. Nursing practitioners enable people and communities to adopt healthier behaviors and make knowledgeable health decisions by actively participating in health promotion and disease prevention efforts. (2017) Halman et al.

According to recent research (Spano-Szekely et al., 2019), nursing-driven initiatives are beneficial in promoting improved health outcomes and lowering healthcare expenditures. This finding is consistent with the good view of nursing-led interventions on public health outcomes. The general wellbeing of the populations that nursing practitioners serve is improved through managing chronic illnesses and enhancing preventative care. The transforming nature of nursing in public health was shown by qualitative findings. Nursing practitioners see their work as encouraging communities to take charge of their own health and wellbeing in addition to delivering healthcare. The focus on community involvement and trust-building is consistent with earlier studies that highlighted the value of cultural sensitivity and patient-centered treatment in public health (Stubbe, 2020).

Despite the benefits of nursing to public health, problems still exist. The availability of nursing services may be restricted in rural locations due to labor limitations, particularly when the demand is highest. Through focused recruiting and retention efforts, policymakers and healthcare managers must give attention to alleviating these shortages (Oleribe et al., 2019). Moreover, in order to encourage innovation and guarantee the sustainability of nursing-led public health projects, financial limits and administrative roadblocks must be overcome. Overall, this study confirms the crucial role of nursing professionals in public health and their ability to improve

public health outcomes, strengthen healthcare systems, and increase access to treatment. In order to overcome obstacles and maximize the contribution of nursing to public health, policymakers, healthcare executives, and nursing professionals must work together.

CONCLUSION

This study has shed important light on the crucial function of nursing professionals in promoting public health, emphasizing their considerable contributions to the improvement of healthcare access and quality. We developed a thorough knowledge of nursing practices, experiences, and perceptions in relation to public health through the use of a mixed-methods approach, enabling evidence-based policy recommendations, healthcare management decisions, and nursing professional insights. The quantitative data showed that nursing professionals actively participate in assessing the requirements of the community for health, promoting health, and collaborative care planning, demonstrating their critical role in resolving public health issues. The success of nursing-led programs in promoting improved health awareness, preventative practices, and illness management is highlighted by the favorable influence they have on public health outcomes.

Qualitative findings gave detailed insights into the experiences and viewpoints of nursing professionals, highlighting their transformational role in enabling communities to take control of their own health. The importance of providing patient-centered and culturally competent treatment in obtaining better health outcomes was highlighted by the focus on community participation and trust-building. However, this study also uncovered difficulties faced by nurses working in public health, including a lack of qualified workers in remote regions and administrative roadblocks that prevent program innovation. To maximize the contribution of nursing to public health and guarantee fair access to care for all populations, policymakers and healthcare executives must address these issues. The results of this study confirm the vital role that nurses play in promoting public health and their enormous contributions to improved access to and quality of treatment in healthcare system. We can create communities that are healthier and more able to withstand disasters if we acknowledge and promote the role of nursing in public health. To address issues, improve nurse-led initiatives, and advance evidence-based practices for better public health outcomes, there must be ongoing cooperation between nursing practitioners, policymakers, and healthcare administrators. Investment in nursing education, workforce development, and legislative efforts that promote nursing's position in public health are essential as we move forward. By doing this, we can all work together to create a future for society that is healthier and more sustainable.

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