Article

Mapping essential competencies: Informing curriculum development for public health education in Thailand

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Abstract: The competencies of public health professionals serve as the cornerstone for curriculum development ensuring that educational programs are pertinent efficient and attuned to the requirements of both the public health workforce and the communities they serve. This study endeavors to investigate the knowledge competency of public health professionals in Thailand with the intention of refining the suitability of knowledge competency for curriculum development tailored to the needs of public health professionals in Thailand. Employing a qualitative study, the study conducted semi-structured interviews with 17 university lecturers in public health programs in Northeastern Thailand. The data collected were transcribed and analyzed using content analysis. The findings elucidate that the lecturers articulated a core knowledge content pertinent to public health professionals in Thailand delineated across five principal themes and thirteen subjects within the public health curriculum. These themes encompassed: 1) Epidemiology and disease prevention (comprising two subjects), 2) Health promotion and community health (comprising four subjects), 3) Research methods in public health and biostatistics (comprising two subjects), 4) Public health administration, health system, and laws (comprising three subjects), and 5) Environmental health and occupational health and safety (comprising two subjects). Subsequently, this study scrutinized five core courses to formulate a model curriculum for public health. The proposed model curriculum is intended for application in both planning and the development of the public health workforce, fostering interdisciplinary learning and nurturing public health professionals rooted in the authentic context of Thailand.

Keywords: education; competency; public health; professional; curriculum; public health curriculum

1. Introduction

The public health workforce constitutes a crucial component of the available human resources dedicated to health promotion and maintenance. Predominantly engaged in the practice of public health, this workforce is tasked with the judicious application of available knowledge. In contemporary contexts, public health practitioners are expected to navigate dynamic environments, collaborating with an increasingly diverse array of stakeholders. To cultivate proficient public health professionals capable of catalyzing positive transformations within these intricate healthcare landscapes, emphasis must shift beyond conventional technical and academic competencies. Rather, the pivotal skills requisite for instigating constructive

change and fostering interdisciplinary collaboration are those of effective leadership (Koh and Jacobson, 2009).

For over four decades, competency models have become integral to human resources management, serving as a key tool for enhancing both individual and organizational effectiveness. Competencies encompass a set of essential factors essential for achieving significant outcomes within specific job roles or organizational contexts. These competencies span intellectual, managerial, social, and emotional domains (Chouhan and Srivastava, 2014). In 1953, McClelland a Psychology Professor at Harvard University and the founder of McBer and Company (now part of the Hay Group) also a prominent American management expert, first identified a human trait he termed 'competence' (Chouhan and Srivastava, 2014). Subsequently, in 1973, McClelland (1973), published a seminal paper titled "Testing for Competence Rather than Intelligence." This work challenged prevailing notions in industrial psychology, suggesting that traditional academic assessments and knowledge tests were inadequate predictors of exceptional on-the-job performance. McClelland posited that enduring personal characteristics, which he termed competencies, were superior predictors of outstanding job performance. His findings were further corroborated through 30 years of global competency research conducted by McBer and later by the Hay Group (Vazirani, 2010). In recent years, the term 'competence' and its derivative 'competency' have evolved, acquiring various meanings and labels through common usage. Professional competence is defined by the responsible and effective actions of individuals in alignment with established performance standards. It represents a holistic, integrated capability internalized by professionals to consistently deliver effective performance within specific professional domains, job roles, organizational contexts, and task situations. Competence encompasses a spectrum of competencies, each comprising a coherent cluster of knowledge, skills, and attitudes applicable within real-world performance contexts (Mulde, 2014).

Public health education has garnered worldwide interest and has continually evolved over time. Each region exhibits a unique specialization and diverse trajectory of development, influenced by the health context and demographic dynamics. In many European countries, public health education has traditionally been integrated into medical curricula. However, modern public health necessitates not only specialized expertise but also robust interdisciplinary collaboration. Advancing relevant education and training in Europe demands sustained efforts from professionals across academia and public health practice (Paccaud et al., 2011). In the United States, public health education is primarily emphasized through professional public health schools. These institutions assess the needs of the public health workforce and evaluate the evolving educational landscape amidst the maturation of the public health profession. Future trends suggest a growing emphasis on inter-professional education, new disciplinary perspectives, and pedagogical changes to meet evolving student needs (Rosenstock et al., 2011). Across the Asia-Pacific region, significant advancements in health status have been witnessed over the past five decades. Public health education has embedded essential values and competencies into professional practice. However, the evolving paradigm of public health necessitates continual review and enhancement of public health education quality. Initiatives like the Asia-Pacific Academic Consortium for Public Health (APACPH) strive to improve the relevance and quality of public health

education to address the diverse and dynamic challenges unique to the region (Karunathilake and Liyanage, 2011). Public health education in the Asian context exhibits considerable diversity. China, for instance, has undergone substantial reforms in healthcare and health professional education, incorporating national policies and pragmatic approaches. Hong Kong has selectively integrated best practices from British and American models while drawing from positive experiences in primary healthcare and Chinese traditions. Japan's medical and public health systems are closely intertwined with governmental and local bodies. Taiwan, Thailand, and the Philippines have largely adopted elements from the US tradition in primary healthcare. To address 21st-century challenges effectively, countries like China and India may need to explore novel models for public health education, potentially establishing independent faculties of public health to revitalize education and fortify the role of public health in addressing contemporary challenges (Karunathilake and Liyanage, 2011).

Over the past decade, there has been a remarkable proliferation in both the number and size of Bachelor of Science in Public Health (BSPH) programs. While many of these programs have been established within universities and faculties of public health in Thailand, numerous others are situated within faculties of sciences, schools of medicine, and various other colleges of public health. However, accurately quantifying the exact number of BSPH programs (or similar degrees under different names) remains challenging due to the absence of national accrediting standards. As of 2017, the student enrollment in these programs varies significantly, with approximately 5550 individuals in Thailand alone (Ministry of Public Health Thailand, 2017). Thailand has embarked on the development of a standardized public health curriculum, a process initiated with the announcement of the Professional Act of Public Health in 2013. This legislation delineates the scope and role of public health professionals within the country (Office of the Ordinance Thailand, 2013). Various organizations have undertaken efforts to develop a draft standard for public health curriculum. These include the Council of Dean of Public Health Education Institute of Thailand (2016), the Council of Community-Public Health (Council of Community-Public Health Thailand, 2019), and the draft standard framework for community health developed through a training and action research project for community health professional preparedness (Buakam et al., 2015). Inherent challenges arise when assessing the knowledge understanding encompassed within the set of competencies comprising knowledge, skills, behaviours, and values among public health professionals in Thailand. This assessment is crucial for determining the suitability of a set of competencies for the development of tailored curricula to meet their specific needs. Therefore, the objective of this study was to explore the suitability of competencies for public health professionals in Thailand.

2. Materials and methods

2.1. Study design

This study employed a qualitative approach aimed at developing the suitability of knowledge competency for curriculum development tailored to the needs of public health professionals in Thailand. Specifically, undergraduate students enrolled in

public health programs were expected to possess knowledge competencies aligned with the realities of healthcare service delivery. The qualitative methodology was chosen to focus on homogeneous participants within a defined context, allowing for an in-depth exploration of the knowledge competencies essential for effective public health practice.

Competencies were conceptualized as the expectations that professionals have for a particular role. Generally, qualitative researchers do not propose a framework to guide the research to samples prior to a study. The researchers desire to stay open to what the informants are saying and develop a theory based on the research by using semi-structured, open-ended interview questions. An absence of qualitative studies in relation to this topic in Thailand has been identified. Consequently, in order to fill this knowledge gap, applying into competency framework of the Council of Dean of Public Health Education Institute of Thailand (2016) and the Council of Community-Public Health (Council of Community-Public Health Thailand, 2019) to design the conceptual Framework.

2.2. Participants and data collection

The qualitative data collection involved conducting in-depth interviews and semi-structured interviews to examine with 17 university lecturers. These participants were selected based on homogeneous characteristics, specifically being lecturers within the bachelor's degree program in public health at universities in Northeastern Thailand. The sample comprised 8 males and 9 females, each representing a different university in the region. Purposive sampling was utilized, guided by specific inclusion criteria. These criteria included: 1) holding a position as a chairman of program and a lecturer within the bachelor's degree program of public health at a university in Northeastern Thailand, 2) possessing a minimum of five years of work experience in a university setting, 3) demonstrating an interest in the development of public health program curricula, and 4) having expertise in various fields such as epidemiology, health promotion, public health administration, community health, environmental health, and occupational health aspect.

2.3. Ethical consideration

The study received approval from the Mahasarakham University Ethics Committee for Research Involving Human Subjects (Approval No. 053/2017). Prior to their participation, individuals who expressed interest in the study were provided with comprehensive information outlining its purpose, the expected involvement of participants, potential risks and benefits associated with participation, and how their data would be utilized. Participants were assured of their voluntary participation and informed that they could withdraw from the study at any point without needing to provide a reason. Verbal informed consent was obtained from all participants before the commencement of data collection activities. To ensure confidentiality and data protection, all collected data were securely stored and managed.

2.4. Data analysis

The qualitative analysis process employed in this study followed established

procedures for data reduction, which involved systematically condensing, organizing, and interpreting the vast amount of data collected during the research phase.

From Zhang and Wildemuth (2009) contributed that "qualitative content analysis is mainly inductive, grounding the examination of topics and themes, as well as the inferences drawn from them, in the data". Therefore, we began our study with the raw data, which included interview transcripts, observation notes from the in-depth interview forms, and any other pertinent documents that we meticulously reviewed and familiarized ourselves with to gain a comprehensive understanding of the content. Following this an initial round of coding was conducted wherein the data were systematically segmented into meaningful units or 'codes' that captured key concepts themes or patterns within the dataset. This initial coding phase was exploratory in nature allowing for flexibility and openness to emergent themes and ideas. Subsequently, the coded data were subjected to a process of categorization and thematic analysis wherein similar codes were grouped together under overarching themes or categories. This iterative process involved constant comparison and refinement to ensure the accuracy and reliability of the identified themes. The emergence of codes in our study was driven by both deductive and inductive approaches. While we started with a set of predefined codes based on existing literature and research objectives, we remained open to new insights and perspectives that emerged from the data. This allowed for the discovery of unexpected themes or nuances that enriched the analysis and provided a more comprehensive understanding of the phenomenon under investigation. Overall, the methods for data reduction in our study were rigorous and systematic, guided by established qualitative research principles. The emergence of codes was a dynamic process shaped by the interplay of theory, data, and iterative analysis, ultimately leading to the generation of meaningful insights and conclusions.

3. The results

Through the exploration of knowledge competency among public health professionals in Thailand, conducted with 17 university lecturers, five overarching themes emerged. These themes encapsulated the essential domains of knowledge required for effective public health practice and curriculum development. The identified themes are as follows: 1) Epidemiology and Disease Prevention, 2) Health Promotion and Community Health, 3) Research Methods in Public Health and Biostatistics, 4) Public Health Administration, Health System, and Laws, 5) Environmental Health and Occupational Health and Safety. These themes represent fundamental areas of expertise necessary for addressing public health challenges and promoting population health within the Thai context.

Based on the analysis of interview data, the concept of knowledge in the public health domain was categorized into thirteen distinct subjects across five core content areas. These subjects include: 1) Epidemiology/Public Health Surveillance, 2) Disease Prevention and Control, 3) Health Promotion, 4) Health Care Aide, 5) Social Determinants of Health, 6) Community Health, 7) Research Methods in Public Health, 8) Biostatistics, 9) Public Health Administration and Health System, 10) Public Health Laws, 11) Code of Ethics for Public Health Profession, 12) Environmental Health, and

13) Occupational Health and Safety. These subjects represent the breadth of knowledge required for effective practice and curriculum development in public health. They encompass various dimensions of public health practice, including epidemiological surveillance, disease prevention, health promotion, community health, research methodologies, biostatistics, health administration, legal frameworks, ethics, environmental health, and occupational safety. This comprehensive foundation provides the necessary framework for addressing public health challenges and advancing population health initiatives (See **Figure 1**).
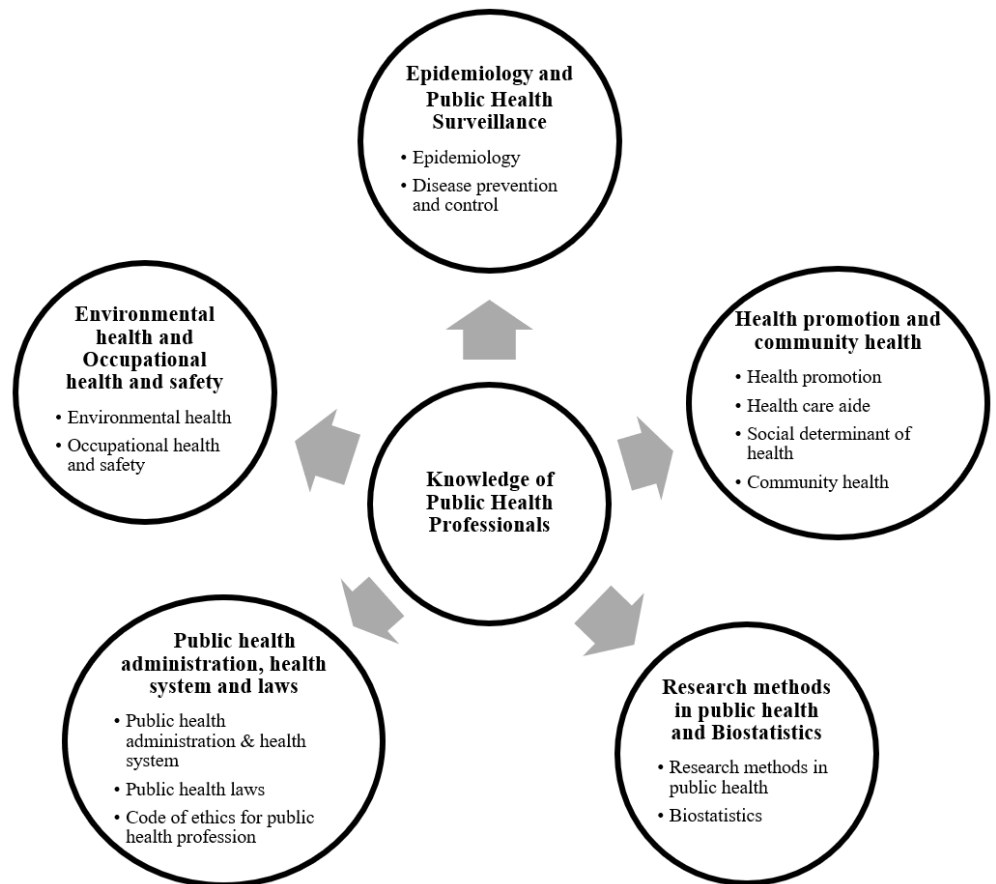

Figure 1. The curriculum framework of knowledge of public health professionals.

3.1. Epidemiology/Public health surveillance

3.1.1. Epidemiology

In the foundational concepts of public health, epidemiology holds paramount importance, necessitating proficiency in both the analysis and interpretation of epidemiological data, as well as the design and execution of epidemiological studies. Educational content must comprehensively cover these fundamentals, ensuring students grasp the distribution and determinants of health-related states or events within specified populations, and the application of epidemiological studies for health issue control. This encompasses disease surveillance, preventive and control program implementation, and subsequent evaluation. Additionally, students should demonstrate a nuanced understanding of epidemiological measures and study designs.

Consequently, a lecturer emphasized the pivotal role of public health professionals within healthcare settings.

"A public health professional ought to possess comprehensive knowledge of the various factors influencing health, capable of discerning between different categories of factors, and grasping the complex nature of diseases. This includes the recognition that certain diseases stem from behavioral and environmental factors, often intertwined in intricate relationships." (Lecturer 2)

The curriculum covers fundamental concepts of epidemiology as they relate to public health issues. Emphasis is placed on understanding the principles and methods of epidemiologic investigation. Topics include the dynamic nature of diseases, utilization of rates, ratios, and proportions, methods for direct and indirect adjustment, and the clinical life table, which quantifies and describes the extent of disease problems. Additionally, various epidemiologic study designs are introduced to explore associations between risk factors and disease outcomes, ultimately culminating in criteria for making causal inferences.

3.1.2. Public health surveillance and disease prevention and control

Public health surveillance is the principle of systematic collection, analysis, and interpretation of health-related data essential to planning, implementation, and evaluation of public health practice. Communicable disease surveillance is the continuous monitoring of the frequency and the distribution of disease, and death, due to infections that can be transmitted from human to human or from animals, food, water or the environment to humans, and the monitoring of risk factors for those infections. Public health surveillance also encompasses non-communicable conditions including injury, for example, poisonings or accidental.

"The public health surveillance, disease prevention, and control is one of the roles of a public health professional, should learn to prevent disease or injury before it ever occurs, when disease occurs they must be controlled and not spread, and be careful not to happen again." (Lecturer 4)

Disease prevention differs from health promotion because it focuses on specific efforts aimed at reducing the development and severity of chronic diseases and other morbidities. As a discipline, disease prevention has traditionally been described to encompass primary, secondary, and tertiary prevention.

3.2. Health promotion and community health

3.2.1. Health promotion

The knowledge of health promotion based on the definition in WHO's Bangkok Charter for Health Promotion in a Globalized World to Health promotion is the process of enabling people to increase control over their health and its determinants, and thereby improve their health (World Health Organization, 2005). It's mean improving the state of complete physical, mental and social well-being, an individual or group must be able to identify and to realize aspirations, to satisfy needs, and to change or cope with the environment. The purpose of health promotion is to positively influence the health behavior of individuals and communities as well as the living and working conditions that influence their health. Understanding of health promotion at the

individual, group, community, and national levels, as well as their critical thinking around the social determinants of health approaches to health interventions.

"The primary responsibility of a public health professional entails promoting health awareness within the community, ensuring individuals comprehend the fundamentals of health promotion, disease prevention, disease management, health literacy, and behavioral health. Given the pivotal role in safeguarding community well-being, public health professionals must be equipped with the knowledge and skills necessary to mitigate the onset and spread of illnesses." (Lecturer 5)

Professionals should possess a comprehensive understanding of the principles, methodologies, and theoretical frameworks underpinning health promotion, including an awareness of contemporary challenges encountered in its application. This course will place particular emphasis on health education and communication strategies, especially through mass communication channels. Additionally, students will explore various models for program planning in health promotion and will have the opportunity to practice developing an outline for a public health intervention.

3.2.2. Healthcare aids

In Thailand, a public health professional has a role in health care aides in a variety of settings including home care, assisted living facilities, and long-term care, especially in the primary healthcare setting.

"Public health professionals are also expected to possess fundamental healthcare knowledge, including skills in health assessment and first aid. These competencies are essential for providing health advice and facilitating patient referrals when necessary." (Lecturer 6)

This course aims to familiarize students with the origins, concepts, and evolution of community-based primary health care through the examination of case studies drawn from real-world community settings. Similar to clinical bedside teaching methodologies, authentic case studies are utilized to enhance students' problem-solving abilities within practical contexts. Within the health care aide program, students acquire competencies in assisting elderly individuals, individuals with disabilities, and those experiencing illness to preserve their quality of life and autonomy within their homes. Emphasis is placed on safety protocols and universal precautions, techniques for patient movement and lifting, standards for cleanliness and infection control, provision of care for children, elderly individuals, and those nearing the end of life, as well as guidance on patient health maintenance, hygiene, and nutrition. Furthermore, students are instructed in the assessment and documentation of vital signs, management of exceptional circumstances, and execution of emergency procedures.

3.2.3. Social determinant of health

Social determinants of health are the economic, social, cultural, and political conditions in which people are born, grow, and live that affect health status. The social determinant of health, which influence modifiable risk behaviors include, for example, tobacco use, poor eating habits, and lack of physical activity, which contribute to the development of chronic disease. The purpose of this overview course is to provide an

overview of the theories and principles that can be used to explain how social factors and human behaviors influence health.

"A public health professional should engage in a multidisciplinary approach to study, incorporating fields such as sciences, medicine, and sociology. Particularly significant is the understanding of social determinants of health, which play a pivotal role in the onset of diseases and illnesses at various levels, including individual, familial, communal, and societal levels." (Lecturer 1)

In this course, students will explore social, psychological, and cultural determinants of health behavior and consider their meaning for public health professionals in domestic and international community settings. The course addresses conditions and phenomena that affect people's understanding, acceptance, and use of health information and, therefore, the design, implementation, and evaluation of community health interventions. The course will focus on both social and behavioral determinants of health and will involve active engagement with the environment as we explore the causes of and pathways to health and disease.

3.2.4. Community health

Community health is essential for promoting population health, reducing health inequities, and building healthier, more resilient communities. By addressing the health needs of specific populations within the context of their communities, public health practitioners can make significant strides towards achieving optimal health outcomes for all. The community health, they will learn about the evolution of community health and its impact on society, populations, health disparities, health equity, and the current health care system. They will also gain an understanding of the role of a community health worker or public health professional in the Thailand context and its impacts on community health. The course provides an overview of the organization, role, and structure of community health agencies, with a specific emphasis on health education service. In addition, the course will cover the important role of national and global governance in public health.

"The concept of knowledge in community health encompasses various dimensions, including insights from social sciences, community diagnosis, fostering a culture of learning within communities, facilitating effective community communication, and offering guidance and advice to the population." (Lecturer 16)

A study of community health needs and health care delivery within the context of community. The changing demography in Thailand is explored, highlighting the need to understand cultural diversity. Emphasis is on the promotion of wellness and modification of patient behavior as a basis for improving health care delivery within communities, reflected by active engagement in a project designed to address a specific need within the community.

3.3. Research method in public health & biostatistics

3.3.1. Research method in public health

Although public health research is not a major role, it is an important role, necessary to have basic knowledge of public health research methods. At least, what the public health professional should know is the research principles including

research design in health/how to write the research project/developing tools/collecting data/research ethics/interpretation of results and research reports. They must be able to link the knowledge of research methods and sciences in biostatistics. It does not have to be high-level research but must have the knowledge to do basic health research.

"Currently, public health professionals in Thailand are increasingly focused on conducting health research and fostering innovative developments, particularly through the implementation of Routine to Research (R2R) practices. These initiatives aim to enhance health services and public health outcomes, ultimately contributing to the overall well-being of the population." (Lecturer 5)

3.3.2. Biostatistics in research

The biostatistics is understanding the theoretical basis of biostatistics including types of data, data collection methods, data organization and graphic representation, use of probability distributions, a basic understanding of probability theory, generation of a statistical hypothesis, the nature of the statistical error, underlying test assumptions, and the general principles of inferential links between populations and samples. Interpret the findings and draw appropriate conclusions for each statistical method, select an appropriate test for a given data type and analysis problem from the materials. Including apply, the tools acquired to common situations and apply the software for assessing bio-statistical problems.

"While biostatistics may not be considered a primary competency for public health professionals, it is nonetheless essential for them to have a basic understanding of key biostatistical concepts. This includes familiarity with fundamental principles such as descriptive statistics, analytical statistics, data comparison, and the analysis of factors associated with diseases. Such knowledge equips public health professionals with the necessary skills to interpret and utilize statistical data effectively in their practice." (Lecturer 14)

Furthermore, students should learn the data management, the skills, and competencies in health data structures, usage, and data collection tools, data quality assessment and integrity, types, and content of health records, and health information standards and regulations for health informatics.

3.4. Public health administration, health system and laws

3.4.1. Public health administration and health system

Public health administration is the component of the field of public health that concentrates on the management of people and health programs. The course work is the following subject areas: management, accounting, finance, economics, budgeting, and human resource administration. The field of public health administration concerns itself with the administration, leadership, and management of health care systems, such as hospitals, networks, and public health systems.

"Understanding the concept of public health administration is crucial for public health professionals, particularly regarding the effective management of budgetary resources, materials, and health systems. This includes integrating administrative and managerial principles to be applied in community health settings. By mastering these concepts, public health administrators can optimize

resource allocation, streamline processes, and enhance the delivery of healthcare services to communities." (Lecturer 8)

The health services management course aims to provide students with the essential managerial skills in planning and evaluating health services and understanding health needs. Managing people, resources, systems, and processes within health services to meet the changing environment considering the needs of the public and cost-effectiveness.

"The concept of a learning health system in Thailand aligns with national policies in public health, encompassing various components such as service delivery, health workforce, health informatics, medical products and technology, health financing, as well as leadership and governance. This approach emphasizes continuous improvement and adaptation based on evidence-based practices and stakeholder feedback, ensuring that the healthcare system remains responsive to evolving needs and challenges. By fostering a culture of learning and innovation across these key domains, Thailand's public health system can effectively address emerging health issues and enhance the overall well-being of its population." (Lecturer 7)

3.4.2. Public health laws

Law serves as a fundamental instrument for advancing public health objectives. This interdisciplinary course delves into the complex interplay between the collective needs of communities and the individual rights, a dynamic prevalent in numerous significant law-based public health interventions. Throughout this course, students will scrutinize the application of law and policy in the realm of public health. They will gain insight into the government's authority to address public health challenges and the legal safeguards protecting individuals from governmental actions. Moreover, students will explore legislation establishing governmental entities and infrastructures aimed at tackling public health issues, laws targeting specific health concerns, and laws entailing ancillary effects on public health. Furthermore, students will utilize case studies such as consumer protection, food safety, and tobacco control to analyze how legislative enactments, regulatory measures, and litigation strategies can be effectively employed to enhance public health outcomes.

"In accordance with the national health policy in Thailand, public health professionals should acquire knowledge in several key areas related to the health system, such as Policy Studies, Health System Planning, Health System Structure, Public Health Regulation and Laws." (Lecturer 11)

3.4.3. Code of ethics for public health profession

Additionally, the field of public health encompasses a code of ethics for healthcare professionals, which serves as a framework for shared professional values. Public health professionals in Thailand are tasked with addressing health-related issues within the context of the population and environment, focusing on factors contributing to disease or illness. Consequently, there is a heightened emphasis on ethical considerations within the realm of public health. Professional ethics in this domain revolve around the ethical dimensions of professionalism and the moral responsibility entrusted to public health practitioners by society to act in the interest of the common good. It is imperative for public health specialists to be familiar with

the principles of healthcare ethics, particularly emphasizing the responsibility to uphold the highest standards of conduct and to promote ethical behavior among all individuals with whom they collaborate. This ensures that public health efforts are conducted with integrity and respect for ethical principles, ultimately contributing to the well-being and welfare of the community as a whole.

> *"Ethics is the foundation of our work as public health professionals. By prioritizing the well-being of individuals and communities, upholding integrity, and acting with accountability, we build trust, protect the vulnerable, and advance the health of society. Let's continue to uphold ethical standards in all our endeavors for a healthier and more equitable world."* (Lecturer 9)

3.5. Environmental health & occupational health and safety

3.5.1. Environmental health

This course in environmental health encompasses a broad spectrum of topics pertaining to the relationship between the environment and human health. Students will receive a comprehensive overview of fundamental concepts in environmental health, including exposure assessment, toxicology, epidemiology, and risk assessment. Through the application of these core concepts, students will learn to analyze environmental health issues and their impacts. Additionally, the course will provide an introduction to methods used for measuring pollutants in the environment, with a primary focus on air pollution. Students will also explore strategies for effectively controlling environmental hazards. Furthermore, the course will introduce the concept of how disruptions in environmental exposures may influence human diseases. Overall, this course aims to equip students with the knowledge and skills necessary to understand, assess, and address environmental health challenges, thereby promoting the well-being of both individuals and communities.

> *"The core content of environmental health is the concept of environment effect to health, i.e., environmental change, environment sanitation, environmental hazard, pollution management, and analyzing factor of the environment with health."* (Lecturer 10)

3.5.2. Occupational health and safety

Work significantly impacts both physical and psychological health. This course aims to delve into the various health and safety concerns associated with different types of work. Students will develop an understanding of the current landscape of occupational safety and health, both in the Thailand and globally, including the enforcement of laws governing occupational safety and health, as well as the roles played by workers, unions, and employers. Furthermore, the course will examine the historical, economic, and cultural factors that contribute to or hinder solutions to occupational safety and health issues. The course on occupational health and safety provides an overview of key concepts and issues pertaining to the health and safety of workers. It covers topics such as industrial hygiene, injury control, and other aspects related to occupational health and safety. Students will learn to identify a conceptual framework for addressing the health needs of worker populations and to apply principles of public health in this context. Additionally, the course will discuss methods for recognizing and controlling work-related hazards. Drawing upon

knowledge from behavioral sciences, industrial hygiene, injury epidemiology, and safety, this course integrates these disciplines within a framework for program development and management. Through this interdisciplinary approach, students will develop the skills needed to address occupational health and safety challenges effectively in diverse work environments.

"Occupational health and safety is crucial for workplace well-being. From ergonomic design to accident control, we prioritize employee safety in all industries. Let's ensure a safe and healthy work environment for everyone." (Lecturer 3)

4. Discussion

The findings delineated the core components of the public health curriculum, which are divided into five competencies: epidemiology and disease prevention, health promotion and community health, research methods in public health and biostatistics, public health administration, health system, and laws, and environmental health and occupational health and safety. The structure of core competencies in public health education varies globally. Similar to this study, some core competencies have been identified in other regions such as China (Karunathilake and Liyanage, 2014), the Asia Pacific region (Paccaud et al., 2011), and the United States (Rosenstock et al., 2011).

In instances of similarity, the conceptualization and development of the 3-circles APACPH model by Patrick (2012) served as a guiding framework. This model emphasizes that public health graduates should exhibit global health competencies, approaches, and core proficiencies. These core proficiencies encompass biostatistics, epidemiology, health policy and management, social and behavioral science, and environmental health sciences (Karunathilake and Liyanage, 2014). Similarly, in China, the undergraduate public health curriculum incorporates training in epidemiology, health statistics, environmental and occupational health, and health management, mirroring the findings of this study (Bangdiwala et al., 2011).

Within schools of public health in the USA, students pursue their education under an exceptionally interdisciplinary faculty, encompassing biomedical sciences, medical care professionals, behavioral and social sciences (e.g., economics, sociology, politics), epidemiology, biostatistics, information management, law, health services research, and health education (Rosenstock et al., 2011). While this interdisciplinary approach mirrors the findings of this study, there may be differences in the specific subjects covered.

In Thailand, the Council of Deans of Public Health Education Institutes of Thailand introduced the draft of the Thailand Qualifications Framework for Bachelor of Public Health in 2016, outlining 10 core subjects for the BPH (the Council of Dean of Public Health Education Institute of Thailand, 2016). This framework aligns closely with the findings of this study, particularly in 8 subjects, which include biostatistics, epidemiology, public health administration and management, environmental health, occupational health and safety, public health ethics and laws, healthcare aide and referral, and disease prevention and control. However, there are two subjects that are suggested to be different, namely health education and behavioral sciences, and public health field practicum. The findings indicate that while the sub-courses of the Public

Health Curriculum show similarities with other research, there are variations in the names of the subjects, as mentioned above.

On the contrary, the Council of Community-Public Health in Thailand (Council of Community-Public Health Thailand, 2019) unveiled a standard framework for community health, delineating a training and action research project for community health professional readiness in 2019. The assessment of professional applicants' knowledge comprises 5 groups of subjects: health promotion and community health, disease prevention and control, epidemiology and biostatistics, health research, occupational health, and environmental health, and medical treatment, health care aide, and referral, and public health administration and laws. The categorization of subjects differs from the findings of this research. While some groups align with this study, such as health promotion and community health, occupational health, and environmental health, medical treatment, health care aide, and referral, and public health administration and laws, there are discrepancies in other groups, including disease prevention and control, epidemiology, biostatistics, and health research. Upon closer examination of the categories, the differences stem from the conceptualization of subject grouping. Additionally, some subjects, such as ethics for public health and social determinants of health, are missing from the framework.

There are several strengths and limitations to the present study. Strengths include the fact that both course designs were informed by input from university lecturers, ensuring that they were grounded in real-world contexts and aimed at developing competent public health professionals. Secondly, the course designs were evidence-based, reflecting the knowledge competencies required for public health professionals, which is a novel approach in Thailand. Additionally, this study provides valuable insights for policymakers seeking to develop standardized frameworks for public health education in Thailand, particularly in the context of curriculum development for bachelor's degree programs.

However, there are limitations to consider. The stakeholders interviewed were primarily from universities in Northeastern Thailand, which may limit the generalizability of the findings. The diversity of contexts across universities could potentially influence the subject matter covered in public health programs. Therefore, future research should aim to expand the scope by including lecturers from universities nationwide to obtain a more comprehensive understanding of perspectives and to enhance the applicability of findings in improving the standard of public health curriculum across Thailand.

5. Conclusion

Over the past decade, there has been a growing emphasis on professionalism and the development of national accrediting standards in public education. This study aimed to analyze five core courses to establish a model curriculum for public health. By leveraging research and methods designed to understand public health competency through the insights of university lecturers, we have formulated a comprehensive component curriculum for public health professionals. This endeavor entailed the successful integration of academic contributions from university lecturers, who are prospective stakeholders in cultivating preparedness among public health

professionals for community work. The education and training of the public health workforce to meet standards of competency necessitate ongoing and adaptive efforts to reflect the evolving responsibilities inherent in public health practice. To this end, we propose the development of a model curriculum that adopts an active learning-centered approach to course design. This proposed curriculum model is intended to be utilized in both planning and the development of the public health workforce, fostering interdisciplinary learning and producing professionals grounded in the realities of the Thai context. The outcomes of this study bear significant implications for policymakers, providing recommendations to refine current policies or introduce novel guidelines for enhancing public health education and human resource development in the healthcare sector. Through the integration of the proposed model curriculum, policymakers are positioned to foster advancements in public health education and facilitate the cultivation of a skilled workforce adept at addressing the diverse challenges inherent in the field of public health.

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