—Miscellaneous—

Community Health System Assessment for Noncommunicable Disease Prevention and Health Promotion in Indonesia: A Nursing Perspective

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Abstract As in many countries, noncommunicable diseases (NCDs) are a significant health problem in Indonesia. This assessment of Indonesia's community health system identified areas that could be strengthened in order to promote the development and implementation of a community health program for NCD prevention and health promotion in the country. In doing so, key components of a well-functioning community health system were assessed based on information obtained from the websites of the World Health Organization, the Indonesian Ministry of Health, Provincial Health Office, Ministry of Education, Ministry of Research Technology and Higher Education, and Nursing Association. Even though a national strategic health plan for NCD prevention and health promotion has been developed, progress with respect to this initiative at the provincial and district levels has not been adequately documented. However, the Indonesian Ministry of Health has recently commenced national community-based research in the form of a survey that is conducted at the district level. Despite the fact that community health posts provide services such as the measurement of body mass index, blood pressure, and blood glucose, in addition to education concerning smoking, exercise, and one's diet, the extent to which such services are implemented differs among provinces. Factors that hinder provision of community health services for NCD prevention and health promotion include regional disparities with respect to nursing personnel, a limited understanding of what NCD prevention and control entails in relation to community health nursing, and sparse coverage of adult nursing in nursing curricula. Therefore, in order to strengthen the development and implementation of a community health program for NCD prevention and health promotion, it is essential to use the results obtained from the survey to develop and implement health policies for NCD prevention and health promotion that meet the specific needs of each district. It is also necessary to integrate NCD prevention and health promotion into the national standard for community health nursing. Likewise, it is important for basic nursing education to place greater emphasis on life-course perspectives, prevention, and promotion.

Keywords health promotion, health systems, Indonesia, noncommunicable diseases, nursing education, public health nursing

Introduction

1. Social background

Indonesia is an archipelago located in Southeast Asia. It comprises over 13,000 islands, including five main islands (i.e., Sumatra, Java, Kalimantan, Sulawesi, and Papua). It is administratively divided into 34 provinces (Table 1), with 514 districts and municipalities at the same level underneath them [1].

The country's population comprises approximately 255 million people [1]. The percentage of working age (15–64 year old) and elderly (65+ year old) individuals increased respectively from 65.7% and 4.7% in 2004 to 67.3% and 5.4% in 2015 [1-2]. Owing to a surge in working age and elderly individuals, more people are presently at risk for noncommunicable diseases (NCDs).

Indonesia has a diverse culture that includes hundreds of ethnic groups with unique languages. Despite such diversity, the country is unified through its national language, Bahasa Indonesia [3]. The majority (87%) of

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Indonesians are Muslims [4]. Muslims are required to believe in and practice Islam's five pillars: (1) the *shahadah* (declaration that there is no God but Allah and Muhammad is his messenger); (2) *salat* (praying five times daily); (3) *zakat* (giving alms to the poor and needy); (4) *sawm* (fasting during the month of Ramadan); and (5) *hajj* (performing a pilgrimage to Makkah) [5]. *Ketuhanan Yang Maha Esa* (belief in one supreme God) is the country's national philosophy [6], which potentially influences people's lives and perceptions.

Following an economic crisis in the 1990s, Indonesia's economy resumed its growth. The per capita gross national income dropped from US $620 in 1990 to US $560 in 2000 and then increased to US $3,440 in 2015 [7]. This economic growth combined with urbanization has caused lifestyle changes in Indonesia [8]. In particular, people have increased their consumption of packaged foods, vegetable oils, meats, fish/seafood, fruits, and vegetables [8].

Table 1. Administrative Provinces in Indonesia

	Provinces
1	Aceh
2	North Sumatra
3	West Sumatra
4	Riau
5	Jambi
6	South Sumatra
7	Bengkulu
8	Lampung
9	Bangka Belitung Islands
10	Riau Islands
11	DKI (Special Capital Region of) Jakarta
12	West Java
13	Central Java
14	DI (Special Region of) Yogyakarta
15	East Java
16	Banten
17	Bali
18	West Nusa Tenggara
19	East Nusa Tenggara
20	West Kalimantan
21	Central Kalimantan
22	South Kalimantan
23	East Kalimantan
24	North Kalimantan
25	North Sulawesi
26	Central Sulawesi
27	South Sulawesi
28	Southeast Sulawesi
29	Gorontalo
30	West Sulawesi
31	Maluku
32	North Maluku
33	West Papua
34	Papua

2. Status of NCDs

Indonesia is an emerging nation. As with other middle-income countries, NCDs rather than communicable diseases are presently the cause of most deaths. The percentage of deaths that were attributable to NCDs increased from 25% in 1980, to 49% and 71% in 2000 and 2012, respectively [9-10]. Cardiovascular diseases in particular are a leading cause of death in Indonesia [10].

CERDIK encompasses practices recommended by the Indonesian Ministry of Health for health promotion, the prevention of NCDs, and the reduction of risk factors associated with NCDs [11]. CERDIK is an acronym that stands for *cek kesehatan secara berkala* (periodic health checkups), *enyahkan asap rokok* (smoking cessation), *rajin aktifitas fisik* (regular physical activity), *diet sehat dan seimbang* (a healthy and balanced diet), *istirahat cukup* (sufficient rest), and *kendalian stress* (stress management). However, Indonesians continue to struggle with the implementation of healthy practices. For instance, on average Indonesians consume 15 grams of salt daily [12] — which is three times higher than the amount recommended by WHO [13]. In addition, 72% of Indonesian men consume tobacco, which is substantially higher than the global average of 36% [14].

Recently, the Indonesian Ministry of Health has prioritized preventive and promotive primary health care [15]. A national policy and strategy for NCDs was formulated in 2003, which encompassed health promotion, increasing surveillance, and improving the delivery of health services and the management of NCDs. Subsequently, the Directorate of Noncommunicable Diseases was established at the Ministry of Health [16]. Nevertheless, few studies to date have assessed Indonesia's community health system with respect to NCD prevention and health promotion.

According to WHO, a well-functioning health system can respond to people's health needs by improving the health status of individuals, families, and communities. Moreover, WHO asserts that a well-functioning health system should include six key components: leadership and governance, service delivery, essential medical products/technologies, health financing, health information systems, and human resources for health [17]. Describing and assessing the key components of a community health system for the prevention of NCDs and health promotion is an important first step towards developing effective district-specific health strategies and NCD interventions. This study describes and assesses key components of a community health system for NCD prevention and health promotion in order to strengthen the development and execution of community health programs for NCD prevention and health promotion in Indonesia.

Methods

Information regarding community health systems for NCD prevention and health promotion was obtained from the websites of WHO, the Indonesian Ministry of Health,

Provincial Health Office, Ministry of Education, Ministry of Research Technology and Higher Education, and Nursing Association. The keywords *pencegahan penyakit tidak menular* (NCD prevention) and *promosi kesehatan* (health promotion) were searched for. Noteworthy information for strengthening the development and implementation of community health program for NCD prevention and health promotion was then organized and assessed according to the six aforementioned key components identified by WHO [17].

Results

Information pertaining to six key community health system components for NCD prevention and health promotion in Indonesia was identified.

1. Leadership and governance

The organizational structure of the health system for NCD prevention and health promotion is divided according to administrative level and health institution (Table 2) [18-19].

Table 2. Organizational Structure of the Health System for NCD Prevention and Health Promotion

Administrative level	Health institution
National	Departmen Kesehatan (Ministry of Health)
Province	Dinas Kesehatan Provinsi (Provincial Health Office)
District	Dinas Kesehatan Kabupaten / Kota (District / City Health Office)
Sub-district	Puskesmas (Community health centers)
Villages	Posbindu-PTMs (Integrated health posts)

At the national level, there is a strategic policy for NCD prevention and control, and specific evaluation indicators have been set. The Ministry of Health's Strategic Plan for 2010–2014 prioritizes NCD control by focusing on early detection and risk factors [20]. Likewise, the WHO Country Office for Indonesia emphasizes NCDs in its five strategic priorities [21]. The Ministry of Health's current strategic plan for 2015–2019 includes five specific evaluation indicators for controlling NCDs: (1) percentage of *pusat kesehatan masyarakat* (community health centers, or *puskesmas*) that conduct integrated NCD control; (2) percentage of districts/cities that have *kawasan tanpa rokok* (non-smoking area) policies; (3) percentage of villages that have *pos pembinaan terpadu pengendalian penyakit tidak menular* (integrated health posts for controlling NCDs, or *posbindu-PTMs*); (4) percentage of women aged 30–50 years who have undergone early cervical and/or breast cancer detection; and (5) percentage of districts/cities wherein medical examinations of drivers are conducted at main terminals [22].

According to the Indonesian Ministry of Health, NCD control activities and health promotion are required at the national, provincial, and district/city levels. Every province and district must assess and map their existing health policies and develop policies to support NCD control [23]. However, the Ministry of Health did not provide a clear overview of the actual status of such policies with respect to their implementations.

2. Service delivery and essential medical products/technologies

At the primary health care level, Indonesia has relatively adequate levels of provision, with an average of one public community health center for every 30,000 people [24]. Health care facilities in Indonesia provide promotive, preventive, curative, and rehabilitative health care. These services are covered under the country's universal health coverage system that was launched in 2014, which is called *jaminan kesehatan nasional* (national health insurance). It aims to cover the entire population by 2019 [25]. As of December 2015, it covered 61% of Indonesia's population (156,790,287 people) [1].

Puskesmas are health facilities that oversee both public and individual health efforts, with emphasis placed on promotive and preventive activities in order to achieve the highest degree of community health [26]. These facilities are linked to community-level health posts called posbindu-PTMs, which emphasize the prevention, early detection, and control of NCDs among individuals aged 25 years or older. Posbindu-PTMs began operating in 2011; by 2013, there were 7,225 posts throughout the country [22]. Health posts can measure a given patient's body mass index, cholesterol, blood pressure, and blood glucose, as well as provide counseling, health education, and facilitate physical activities [19]. These services are performed by community health volunteers in village offices, and are supervised by puskesmas in conjunction with their respective district health offices.

Nevertheless, the amount of emphasis placed on NCD prevention and control by puskesmas differs among provinces. As of 2013, only 34% of puskesmas integrated NCD prevention and control into their programs. In this regard, the best-performing provinces included Central Java, South Suwawesi, the Bangka-Belitung Islands, the Special Region of Yogyakarta, and West Sumatera, wherein 100% of all puskesmas addressed NCD prevention and control. In contrast, the worst performing province was West Java, wherein only 3.5% of its puskesmas addressed NCD prevention and control [27].

3. Health financing

The amount of funds allocated to health by the Indonesian government in 2012 was equal to 3% of its gross domestic product. This is lower than the global average of 8.6%, as well as the average for lower-middle income countries, which is 4.1% [14]. Following decentralization in 2001, most of the country's health budget was derived from districts. For example, 73% of West Java's health budget is obtained from the districts it comprises [28]. Indeed, as noted by the Indonesian Ministry of Health, the lack of financial resources available to local governments for NCD prevention and health promotion poses a serious challenge [23].

4. Health information systems

The government's decentralization of the health system caused a partial disruption of health information systems and led to inaccurate reporting [24]. Consequently, it is difficult to access comprehensive data covering the entire nation. However, in 2007, the Indonesian Ministry of Health developed *riset kesehatan dasar* (basic health research, or *riskesdas*), and began conducting a survey every 5–6 years. The survey measures indicators such as health status (e.g., the morbidity of NCDs and their risk factors, including cardiovascular diseases, cancer, hypertension, and diabetes), health behaviors (e.g., food consumption, physical activities, and tobacco use), and various aspects of health care (e.g., accessibility and affordability) [29].

5. Human resources for health from a nursing perspective

According to Law No. 36 Year 2014, health workers are grouped into 13 types (Table 3) [30]. Among a total of 647,170 health workers in Indonesia in 2015, nursing personnel accounted for the most at 35% (223,910), followed by midwifery personnel at 17% (111,736) [1]. The number of nurses for every 100,000 persons varied between 48 and 211 depending on province. North Kalimantan had the greatest number of nurses for every 100,000 persons (211), whereas West Java had the least (48) [1].

Puskesmas include eight types of health workers (Table 3) [26]. Among a total of 219,860 health workers in puskesmas as of 2015, midwives accounted for the highest number at 36% (79,314), followed by nurses at 33% (73,311) [1]. The number of nurses at puskesmas for every 100,000 persons varied between 10 and 96 depending on province. North Kalimantan had the greatest number of nurses for every 100,000 persons (96), whereas Jakarta and West Java had the least (10 and 12, respectively) [1]. The Indonesian government is attempting to increase the number of health personnel in remote, underdeveloped, and bordering areas.

Table 3. Types of Health Workers (HWs)

	Types of HWs	HWs in puskesmas
1	Medical personnel	✓
2	Clinical psychology personnel	
3	Nursing personnel	✓
4	Midwifery personnel	✓
5	Pharmacy personnel	✓
6	Public health personnel	✓
7	Environmental health personnel	✓
8	Nutrition personnel	✓
9	Physical therapy personnel	
10	Medical technical personnel	
11	Biomedical technical personnel	✓
12	Traditional health workers	
13	Other health workers	

The duties of nurses are specified in Law No. 38 Year 2014 on Nursing. In addition to provisions for individual nursing care, the law promotes the facilitation of public nursing care through community assessment, planning, implementation/evaluation, health education, and community empowerment [31]. Moreover, if the number of doctors in a given community is limited, nurses are permitted to supply patients with medicine for common diseases [31]. Likewise, public health personnel are responsible for conducting statistical analysis and promoting health in communities [30].

Keperawatan kesehatan masyarakat (public health nursing or *perkesmas*) is one of the main activities of puskesmas; it involves professional preventive and promotive nursing services for entire communities, with emphasis placed on high-risk groups [32]. The areas covered by public health nursing include health promotion, maternal/child health, nutrition, communicable diseases, healthy environments, and treatment [32]. Sparse attention, however, is afforded to NCD prevention and control.

Basic nursing education in Indonesia has been shifting to the domain of higher education in recent years. Bachelor's degree programs in nursing increased from 9 in 2000 to 318 in 2011 [33-34]. As a result, the number of nurses with bachelor's degrees has grown. For instance, among nurses who work in puskesmas in the West Java province, only 0.6% possessed bachelor's degrees in 2007; however, by 2012 this number rose to 66.7% [35-36]. Indeed, steps to ensure the quality of students' education upon graduation have been taken, such as the national competency examinations that began in 2013 [37].

Regarding the basic nursing education program, there are five core courses comprising 96 credits, as well as 14–24 additional credits that are determined by individual institutions. Hence, the basic nursing program includes

110–120 credits (Table 4). As part of the nursing skills course, the subject of medical and surgical nursing accounts for the greatest number of credits (14 credits), followed by maternal nursing (6 credits), pediatric nursing (6 credits), community nursing (6 credits), mental health nursing (6 credits), gerontologic nursing (2 credits), family nursing (2 credits), and emergency nursing (2 credits) [38]. The subject of medical and surgical nursing covers clinical nursing care for people with diseases; however, the amount of time devoted to adult nursing from the perspective of preventive and promotive care at the community level is limited.

Table 4. Basic Nursing Education Program

Courses	Credits
Core courses	96
(Development and personality)	(6)
(Expertise and skill)	(16)
(Nursing skills)	(44)
(Working behavior)	(22)
(Social life)	(8)
Additional courses	14–24
Total	110–120

Finally, the education level of nursing lecturers has not reached the national target. According to the Ministry of Education, lecturers in bachelor's nursing programs should possess at least a master's degree; however, most (74%) have only a bachelor's degree [39].

Discussion

Key components of Indonesia's community health system for NCD prevention and health promotion were identified and assessed. Since the 2000s, the national strategic health plan for NCD prevention and health promotion has been maturing. The Indonesian Ministry of Health requires health policies for NCD prevention and health promotion to be developed at both the provincial and district levels; nevertheless, the status of such development has not been adequately documented. The Ministry of Health recently commenced national, community-based research, which includes conducting surveys in each district; such efforts are essential to developing and implementing health policies for NCD prevention and health promotion in each district, as well as for evaluating the progress of their implementations.

Although community health services for NCD prevention and health promotion are provided by posbindu-PTMs, their degree of implementation differs among provinces. Issues that hinder providing community health services for NCD prevention and health promotion include regional disparities with respect to nursing personnel, a limited understanding of what NCD prevention and control in relation to community health nursing entails, and sparse coverage of adult nursing in nursing curricula.

It is therefore imperative to integrate NCD prevention and health promotion into the national standard for community health nursing. It is likewise important for basic nursing education to place greater emphasis on life-course perspectives, prevention, and promotion by covering the subject of adult nursing. Both globally and nationally, health care with a life-course perspective is important for NCD prevention and health promotion [40-41]. Consistent with other countries, the risk of NCDs for Indonesians is greater among individuals aged 40 and over [42]. Thus, it is important to include adult nursing in nursing curricula so that nurses can provide preventive and promotive health care for adults.

Moreover, in Indonesia, 14–24 credits of basic nursing education curricula can be added by individual institutions to the number of credits required at the national level. Hence, individual institutions should include nursing care that takes a given district's unique health needs into account, thereby enabling nurses to address the specific needs of their patients.

In conclusion, strengthen the development and implementation of a community health program for NCD prevention and health promotion in Indonesia, it is essential to use the results obtained from the survey to develop and implement health policies for NCD prevention and health promotion that meet the specific needs of each district. It is also necessary to integrate NCD prevention and health promotion into the national standard for community health nursing. Likewise, it is important for basic nursing education to place greater emphasis on life-course perspectives, prevention, and promotion.

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