AREA OF INTEREST OF INDONESIAN RESEARCHES IN MEDICAL AND HEALTH PROFESSIONS EDUCATION: FUTURE DIRECTION

Mora Claramita*, Gandes Retno Rahayu*, Rahmi Surayya, Abu Bakar**, Murti Mandawati**, Michael Andreas Leman**, Ova Emilia***

* Faculty of Medicine, Universitas Gadjah Mada, Yogyakarta - INDONESIA

** Masters of Medical and Health Professions Education, Faculty of Medicine, Universitas Gadjah Mada, Yogyakarta - INDONESIA

ABSTRACT

Background: Medical education research has been flourished in the past two decades in Indonesia. It is highly important to study results of medical education researches in Indonesia to provide future direction for medical education. Six published literature in medical education from Asian context was used as the basis of this study.

Method: We used the narrative review in which quantitative data were interpreted qualitatively. All national and international publication and the unpublished research in medical education from Indonesia between 2000 - 2013 were collected with multiple methods based on 8 criteria of inclusion/ exclusion. We also grouped the articles into quantitative and qualitative groups based on each method in each study.

Results: Total articles interpreted was 151 and grouped into 17 areas of interest and level of evidences from 'very rarely' to 'very frequently' studied. Studies in the area of understanding problem–based learning (PBL) are still dominating the area of interest including the student-assessment within PBL program. Other areas are still rarely done, especially research in health professions education other than medical doctors.

Conclusion: Research in medical education in Indonesia should be more stimulated; in terms of numbers and quality, more importantly to strive for future agent of culture, socio-economic and political changes based on the actual community problems in the universal coverage era toward solid interprofessional team work to accomplish patient safety.

Keywords: medical and health professions educational researches, narrative review, problem based learning

ABSTRAK

Latar belakang: *Ilmu pendidikan kedokteran telah berkembang di Indonesia sejak dua dekade terakhir. Sangat diperlukan kajian mengenai hasil-hasil penelitian dalam keilmuan ini untuk memberikan arah dan rekomendasi bagi pendidikan kedokteran di masa mendatang. Enam literatur pendidikan kedokteran di lingkup Asia kami gunakan sebagai dasar penelitian ini.*

Metode: *Metode narrative review kami gunakan dalam penelitian ini, data kuantitatif berupa jenis dan jumlah penelitian diinterpretasikan secara kualitatif. Publikasi ilmiah nasional dan internasional serta penelitian yang tidak dipublikasikan dari tahun 2000-2013 dikumpulkan menggunakan berbagai metode pengumpulan data dan 7 kriteria inklusi/eksklusi. Kami juga mengelompokkan penelitian ke dalam grup kuantatif dan kuantatif sesuai metode yang digunakan masing-masing peneliti.*

Hasil: *Total artikel yang dimasukkan dalam penelitian ini berjumlah 151 dan digolongkan dalam 17 area interes serta Level of evidences dalam grup 'sangat jarang' sampai dengan 'sangat sering' diteliti. Penelitian di area pemahaman terhadap fungsi fasilitator dalam problem –based learning masih mendominasi, termasuk pemahaman mengenai sistem*

contact: mora.claramita@ugm.ac.id

ujian dalam kurikulum berbasis kompetensi. Penelitian di bidang lainnya belum banyak dilakukan, juga penelitian di bidang tenaga kesehatan selain kedokteran.

Kesimpulan: *Penelitian di bidang Ilmu Pendidikan Kedokteran dan Tenaga Kesehatan masih harus digiatkan dalam hal jumlah maupun kualitasnya. Terutama yang berhubungan dengan upaya mendidik tenaga kesehatan di masa mendatang sebagai agen-agen perubahan budaya, sosial-okonomi dan politik global, berdasarkan masalah kesehatan di era Jaminan Kesehatan Nasional menuju kerjasama tim untuk mewujudkan keselamatan pasien.*

Kata kunci: *penelitian pendidikan kedokteran dan kesehatan, narrative review, belajar berdasarkan masalah*

INTRODUCTION

One of the main roles of medical education is to provide valid evidences for stakeholders about decision making in education, education management, proposed changes to the education system, and the changes in medical practice direction. Current studies in medical education in Asian context recommended several topics to explore and to emphasize: basic studies in critical reasoning, problem-based learning (PBL), student assessment, continuing medical education, contextual learning, community-based education (CBE), learning process based on health problems reality (MDGs target), patient-centered education, public health center, leadership, interdisciplinary education, and local culture-based learning.[1-6]

In developed countries, researches in medical education are based on needs and the results are used as the basis for decision making for the direction of medical education. The development of researches in medical education in Asia, Southeast Asia, and Indonesia still faces some obstacles, such as unpublished researches in medical education, less mastery in research methodology, and researches which based on funders, so that may not relevant to community needs. Even though, to be able to affect policy making, research results must be accessible, convincing, and relevant. Meanwhile, studies from abroad cannot be applied directly in Indonesia because of different conditions e.g. different races, genetics, culture, values, and etiquettes. To educate future doctors we need not only biomedical sciences, but also learning about culture, norms, and local uniqueness of that particular country.[7-8]

At this point, it is highly important to know what researches in medical and health professions education that have been conducted, including recommendations given by researchers for the development of medical and health professions education in Indonesia. This study aims to do a narrative review and to give recommendations for medical and health professions education in Indonesia.

METHODS

This study is a narrative review of the results of medical and health professions education researches conducted in January 1st, 2000 until July 31st, 2013, either of medical, nursery, or midwifery area. Systematic analyses were performed by sorting the studies according to medical education research categorization recommended in Asian context.

In this narrative review study, 8 inclusion criteria were established by all authors: (1) the study was conducted in Indonesia (authors might be a foreigner), (2) the study were published between 2000 to 2013; (3) the publication could be fully accessed; (4) the studies we published in an international medical education journal or medical science journal with an expert of medical and health professions education as one of authors; (5) or published in an accredited domestic journal and reviewed by an expert of medical and health professions education; (6) or studies by undergraduate medical students with a supervisor who has formal background in medical education; (7) or thesis about medical and health professions education with a supervisor who has formal

background in medical education; (8) or in the form of dissertation about medical and health professions education with an expert of medical education as a supervisor. Meanwhile, the exclusion criteria in this study was only one, which was invalid and unreliable research design to answer the aims of the study.

The sampling in this study used total sampling method from all researches from Medical and Health Professions Institutions. A table presents the basic data of researches in medical and health professions education in Indonesia and the inclusion and exclusion criteria established by the authors of this study.

Several ways were done by the authors to obtain all researches in medical and health professions education published or reported in writing, i.e:

I. Exploring several national journals published in 2000 – 2013 by a few Medical and Health Professions Institutions that included researches in medical education, dentistry education, nursery education, public health education, midwifery education, and other health professions education that had been accredited and reviewed by medical education experts.
II. Exploring undergraduate papers, theses, or dissertations about medical and health professions education in Indonesia by: (1) contacting the Department of Medical Education in each faculty of medicine or other health professions in Indonesia (by phone, emails, facsimiles, or application letters) to send research results in undergraduate papers, theses, or dissertations; and (2) contacting alumni and students of Postgraduate Program of Medical Education of Universitas Gadjah Mada and Universitas Indonesia and of Postgraduate Program of Health Education of Universitas Sebelas Maret about researches conducted during their time as students or as research supervisors in their own institutions.
III. Exploring several medical and health professions education journals published scientifically in national journals in Indonesia, Southeast Asia, Asia, and in international journals using internet-based survey method by searching through search engines (Google, Google Scholar) and by using free access services (EBSCO, ScienceDirect, Elsevier, NCBI, Medline), as well as available printed publications.
IV. Directly contacting masters and doctoral graduates of medical and health professions education incorporated in *Asosiasi Profesi Pendidikan dan Tenaga Kesehatan di Indonesia* (AIDIPROKESI) by emails, phone, social networks, and text messages and asking for their published or reported research results in the official format of DIKTI or other formats of many universities and study program of medical and health professions education in various centers of medical and health professions education in many countries.
V. Directly contacting the Program of Medical Education in some faculties of medicine in Indonesia (Universitas Indonesia, Universitas Sebelas Maret, Universitas Padjadjaran) and directly meeting the administrators to obtain data of scientific publications, theses, dissertations, or other articles about education.

Data were collected and coded with numbers. Therefore, blind data analyses were performed to know the distribution of researches categorized in aspects of areas of interest according to six international publication that we referred:[1-6] clinical reasoning, problem-based learning (PBL), student assessment, continuing medical education (CME), contextual learning, community-based education (CBE), learning process based on health problems reality (MDGs target), patient-centered learning, leadership, interdisciplinary education, and local culture-based learning. All authors in this narrative review exercised to code according these 6 established basic references before coding all the researches (Table 1). The following coding process were based on the results in Table 1. All authors performed the coding independently with a briefing prior the coding to uniform the perception on how to code. Collected researches were coded generally, then coded whether they were qualitative or quantitative studies.

Table 1. The basis references for coding process

No.	Authors	Range of agreed categories of topic										
		CR	PBL	Ass	CME	CBE	Con	Cul	PHC	PC	IT	Lea	Int
1	Norman (2012)	√	√	√	√								
2	Majumder *et al.* (2004)		√	√	√	√	√		√				
3	Shankar (2009)					√				√	√		
4	Majumder (2004)					√	√	√	√		√	√	
5	Lam & Lam (2009)		√			√		√					
6	Chen *et al.* (2004)									√	√		√

(Ass = assessment; Con = contextual; Cul = culture; PC = patient-centred; Lea = leadership; Int = interdisciplinary)

Level of evidences referred in this study was as follows: Qualitative studies were divided into 4 levels: Level 1: Systematic/ narrative review, Level 2: Conceptual, Level 3: Descriptive, and Level 4: Single case study.[9-10] Meanwhile, quantitative studies were divided into 7 levels: Level 1: Meta-analysis/narrative review, Level 2: Experiment – Randomized Controlled Trial (RCT group comparison), Level 3: Experiment – Group comparison without randomization, Level 4: Cohort studies, Level 5: Case studies, Level 6: Descriptive analytics, survey, Level 7: Opinions/Editorials.[11-12]

The research procedure is served as a guidance to elaborate research results data with research plans presented in Figure 1.

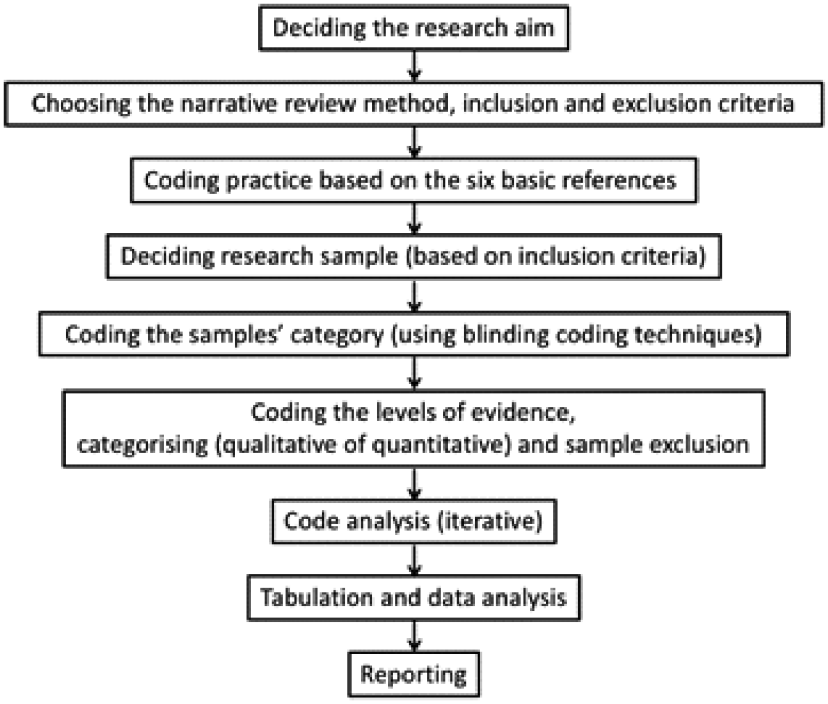

Figure 1. The procedure in this narrative review study

The study was conducted in May – December 2013 at the Department of Medical Education, Faculty of Medicine, Universitas Gadjah Mada. The schedule was as follows: May 2013: TOR finalization, ethical clearance process, and internal coordination. June 2013: searching literatures of finished Indonesian researches (all undergraduate papers, theses, and dissertations in medical and health professions education area as well as Indonesian scientific publications), either published or not published, based on established time. Authors contacted several researchers to obtain their permission to include their works in this narrative review. Authors searched literatures of foreign researches (all international scientific publications in medical education from Southeast Asia, Asia, and international journals). July 2013: Analyses were performed by: determining the area of interest and level of evidences for qualitative and quantitative studies; coding the unanimous area of interest individually (each author and co-author). Making an agreement between coders 3 times was done between July – August 2013, so that 17 research areas of interest were obtained. Tabulating was done in: September – October 2013. November-December 2013: Drawing up reports and recommendations of the direction of medical and health professions educations.

This study had been approved by the research ethic committee of the Faculty of Medicine, Universitas Gadjah Mada (No. KE/FK/829/EC Sept 2013)

RESULTS AND DISCUSSION

From a total of 306 researches in medical and health professions education that we found from January 1st, 2000 – July 31st, 2013, we included 151 studies according to the inclusion criteria and they are presented in Table 2. Those researches were then selected and 17 were excluded because they did not fulfill the reliability and validity conditions that we established. We found a few researches with similar method with previous studies, but the results were not as significant (re-inventing the wheel). Moreover, several studies also did not answer the aims of the study, so based on the exclusion criteria we established, those were excluded from this narrative review. Therefore, the total number of researches we included in this narrative review was 134 researches in medical and health professions education.

We obtained 17 areas of interest that we established during the agreement process and was the expansion of the results of the reference codes 1-6 (Table 2). These 17 areas of interest were sorted from the first to last according to the hierarchy of complexity in medical and health professions education accredited in Indonesia.[13] According to authors' perception, Areas of Interest No. 1 – 3 are the basic learning process and learning facilitation, while Areas of Interest No. 4 – 10 tend to be the variation of the occurring learning process context. The next Areas of Interest are Learning Resources, Learning Evaluation, Curriculum Development, Evaluation Program, Teachers Capacity Improvement, and Leadership and Professionalism is the last and deemed most advanced.

We sorted these seventeen Areas of Interest into 4 criteria, i.e.: Rare (0-40 coding frequency), Low (41-80 coding frequency), Medium (81-120 coding frequency), Satisfactory (121-160 coding frequency), and High (161-200 coding frequency). Only two Areas of Interest were considered as high from these 17 established Areas of Interest, which were PBL and Student Assessment. Meanwhile, other Areas of Interest were still unsatisfactory quantitatively or qualitatively. Each author also coded the researches according the level of evidences and sorted either qualitative or quantitative studies based on two references we agreed upon.[9-12] Agreement process was done repeatedly until 3 times in July 2013 by all authors.

Table 2. Medical and Health Professionals Education Researches in Indonesia (January 1st, 2000 - July 31st, 2013)

No.	Article Category	Discipline	Inc	Exc	Total
1	***International publication in health education***, may be in health science journals (n = 38)	Medicine	27	-	27
		Nursing	7	-	7
		Midwifery	2	-	2
		Others (Pharmacy)	1	-	1
2	***National publication in medical education***, in nationally accredited health sciences and peer-reviewed medical education journals (n = 2)	Medicine	2	-	2
		Nursing	-	-	-
		Midwifery	-	-	-
		Others	-	-	-
3	***Doctoral dissertation in medical education***, which supervised by experts in medical education (n = 19)	Medicine	8	1	7
		Nursing	2	-	2
		Midwifery	-	-	-
		Others	-	-	-
4	***Master thesis in medical education***, in which at least one of the supervisors is an expert in medical education (n = 137)	Medicine	41	6	35
		Nursing	11	1	10
		Midwifery	6	-	6
		Others (Pharmacy)	1	-	1
5	***Unpublished research in medical education***, from Jan 2000 - Jul 2013 with at least one author who is an expert in medical education (n = 5)	Medicine	5	-	5
		Nursing	-	-	-
		Midwifery	-	-	-
		Others	-	-	-
6	***Undergraduate thesis in medical education***, in which at least one of the supervisors is an expert in medical education (n = 105)	Medicine	34	7	27
		Nursing	1	-	1
		Midwifery	2	1	1
		Others	-	-	-
N =	**306**		**151**	**17**	**134**

(Inc = included; Exc = excluded)

Table 3 shows the general coding results to find the Areas of Interest from 134 researches in medical and health professions education in Indonesia based on 6 basic references referred in Table 2. The coding results of these Areas of Interest did not show the number of the studies, but it shows the Areas of Interest studied the most in Indonesia. Therefore, one research might be coded into more than one Areas of Interest. What we included in Table 3 were the highest 3 areas of interest agreed by all authors. Therefore, the number showing the areas of interest is not the same with the number of researches.

Table 3. Results of coding from qualitative and quantitative studies (January 2000 – July 2013)

Code (Area of Interest)	Total	Occurrence
1 (Critical reasoning)	40	R
2 (Problem-based learning – PBL)	199	H
3 (Clinical teaching and learning)	107	M
4 (Contextual study)	28	R
5 (Community-based education – CBE)	57	L
6 (Patient-centred)	97	M
7 (Culture)	34	R
8 (Primary health care – PHC)	41	L
9 (Interdisciplinary)	98	M
10 (Continuing medical education)	12	R
11 (Learning resources)	77	L
12 (Information technology)	28	R
13 (Student assessment)	191	H
14 (Curriculum development)	47	L
15 (Program evaluation)	53	L
16 (Leadership)	19	R
17 (Faculty development and professionalism)	17	R

R = rare = very rarely researched (0-40); L = low = rarely researched (41-80); M = medium = occasionally researched (81-120); S = satisfactory = frequently researched (121-160); H = high = very frequently researched (161-200)

Table 4 and 5 presents the overall results of this narrative review. Results in Table 4 and 5 are not the exact number of all researches we coded. To maintain the results of Areas of Interest coding, the number showing the Areas of Interest was not the same with the total number of the coded researches. This was because in one study, it was most likely to find more than one Areas of Interest as the basic of recommendation process of medical and health professions education in the future. For qualitative researches, Areas of Interest of Patient-centered Care, Contextual Learning, and PBL were studied the most. Meanwhile, for quantitative researches, Areas of Interest of Clinical Teaching and Learning, PBL, and Student Assessment were studied the most.

The coding process based on level of evidences was not easy because authors simultaneously excluded several researches that fell into exclusion criteria. One of the advantages of this narrative review was to give an objective picture of the existing researches as the basis to establish the exclusion criteria. Therefore, if there was a rationally invalid and unreliable study, we did not recommend it. Table 4 shows that for qualitative studies, many studies are in level of evidences 3 and 2, where the studies were descriptive or conceptual.

Studies with an Area of Interest of Contextual Learning were found the most and we found scientific publication as the most common form, compared to other research forms in qualitative studies. Area of Interest of Patient-centered Learning followed after.

Table 4. Narrative review of the qualitative studies (January 2000 – July 2013)

Level of Evidence	Total Results (based on the area of interest codes)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Level 1: Narrative Review																	
International publication																	
National publication																	
Doctoral dissertation																	
Master thesis																	
Unpublished research																	
Undergraduate thesis																	
Level 2: Theoretical Analysis																	
International publication		1		1		4	2		1	1				3			
National publication																	
Doctoral dissertation		1			1	1	1							2	1	1	
Master thesis		1		2	1						1			1	1		
Unpublished research																	
Undergraduate thesis		1															
Level 3: Descriptive Study																	
International publication			3	6	3	5	1	2	2					1		1	
National publication						1											
Doctoral dissertation	1		1				1							1		1	
Master thesis		2	3		1								1		2	2	
Unpublished research						1			1								
Undergraduate thesis		3	2			1		1					1		1	2	
Level 4: Single case study																	
International publication				1		1								1			
National publication																	
Doctoral dissertation																	
Master thesis	1	1															
Unpublished research																	
Undergraduate thesis					1	1											
TOTAL	2	10	9	10	7	15	5	3	4	1	1	0	2	9	5	7	0

Table 5 shows that for quantitative studies, one study fell in the highest level of evidence in the form of systematic review and it was an international publication. Other quantitative studies were dominated by master theses, followed by international publications. Experimental RCT studies dominated more, compared to non-RCT ones. Meanwhile, the most frequently studied Area of Interest was Teaching and Learning, including Clinical Learning. Problem-based Learning (PBL) followed after.

Table 5. Narrative review of the quantitative studies (January 2000 – July 2013)

Level of Evidence	Total Results (based on the area of interest codes)																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Level 1: Narrative Review/Meta-analysis																	
International publication																	
National publication																	
Doctoral dissertation			1														
Master thesis																	
Unpublished research																	
Undergraduate thesis																	
Level 2: Experimental: Randomised-controlled trials (RCT)																	
International publication			1	1	2	1		1					1				
National publication																	
Doctoral dissertation		1	1		2									1			
Master thesis			2								1						
Unpublished research																	
Undergraduate thesis			1		1							2	1				
Level 3: Experimental: Non-RCT																	
International publication																	
National publication																	
Doctoral dissertation																	
Master thesis																	
Unpublished research																	
Undergraduate thesis																	
Level 4: Quasi Experiment																	
International publication																	
National publication																	
Doctoral dissertation																	
Master thesis																	
Unpublished research																	
Undergraduate thesis																	
Level 5: Case Study/Descriptive-Analytic																	
International publication																	
National publication		2	2			1							3				
Doctoral dissertation																	
Master thesis						1											
Unpublished research																	
Undergraduate thesis																	
Level 6: Descriptive Study																	
International publication	1	3	3	3		5		1		2			2	1		1	
National publication			1														
Doctoral dissertation			1										1				
Master thesis	1	11	10	1		1	1				1		4	1	1	1	1
Unpublished research			1						1								
Undergraduate thesis	4	6	8		1			1		1			7	2		1	
Level 7: Opinion/Editorial																	
International publication																1	1
National publication																	
Doctoral dissertation																	
Master thesis																	
Unpublished research																	
Undergraduate thesis																	
TOTAL	6	23	32	5	6	9	1	3	1	3	2	2	19	5	1	4	2

Previous studies in Asian context recommended several Areas of Interest to study further: Clinical Reasoning, PBL, CBE, Patient-centered Learning, IT, Interprofessional Education, Student Assessment, CME, Contextual Learning, and Leadership.[1-6] In this narrative review, we found two frequently studied Areas of Interest in Indonesia until late 2013, namely PBL and Student Assessment. This showed that Indonesia were trying to deepen its understanding about learning process and assessment based on the student-centered learning. The next Areas of Interest that gained the attention to study were: Teaching and Learning method including clinical teaching, Patient-centered Care, and Interdisciplinary Learning. Attention towards learning process, attention towards patient interest, and cooperation in several health areas, community-based learning, and primary care had already been seen in studies in medical and health professions education in Indonesia, although still far from satisfactory.

Studies in 'medical' education still dominated this area compared to other 'health professions' education. This showed that medical science development was faster compared to other health science. Therefore, the next recommendation is the effort to encourage studies in other health professions education, especially through interdisciplinary studies.

Area of Interest in Problem-based Learning (PBL)

Southeast Asian context, specifically Indonesian, attempted to understand the philosophy of Problem-based Learning (PBL) that entered Indonesia in the early 1980s. Research domination in this area shows the efforts to understand it, including understanding the changed paradigm that teachers are not the center of learning anymore, but they are learning facilitators who make various efforts to prepare students to learn. However, studies in this area from Indonesia were mostly a master thesis and most of their level of evidences was descriptive. This shows that Indonesia is still in the stage of developing PBL. Studies in this area were mostly about tutorial process in order to develop the function of teachers as facilitators.[14-16] Studies about self-directed learning in PBL were still minimal, so it needs to be developed further.[17]

Medical and health professions education in Indonesia could be said to be in the stage of trying to understand what PBL is and has not been explored the independent learning paradigm towards self-directed learning emphasized in PBL. The self-directed learning view gets huge challenges due to the hierarchical culture background, where teachers or older people often get more chances to express their opinions compared to students or younger people.[18] When studies about PBL in Indonesia reach the stage of self-directed learning, the questions about hierarchical culture limiting learning independence are expected to be answered. This, surely, is not easy, let alone changing social hierarchic culture that strongly roots in Asia and Southeast Asia.[18-20]

Area of Interest in Clinical Teaching and Learning

Many quantitative studies in this narrative review studied the Area of Interest of Teaching and Learning, including in the clinical setting. Quantitatively it was still low, while qualitatively it was still at the stage of studying learning process and learning facilitation. This Area of Interest is strongly related to many other Areas of Interest, such as Learning Assessment, Learning Resources, Curriculum Development to answer the needs of community, etc. A few studies explored learning processes using simulated patients or simulated mannequins.[21-22] We still explored the process of small-group learning and interaction with the peers. Studies about the effectiveness of tutorial and the capability of a clinical instructor, were also seen many times here.[23-24] However, studies about curriculum development in clinical teaching or learning process according to competency principles outline, were still minimal.[25] Furthermore, the form of the studies was mostly unpublished thesis compared to international publications.[21-24] Studies about advanced clinical education of residency have not been explored much and in itself is a challenge. Particularly, now it has been recommended to use Entrusted Professional Ability (EPA) in achieving and delegating clinical authority in residency education.[26]

Studies about clinical reasoning fell into the rare category of Area of Interest. Therefore, there is still much to do to improve medical and health professions education. The variation of learning process still needs as much attention as expected in

exploring basic psychology and learning motivation that support the framework of clinical reasoning ability of a prospective healthcare providers.[27]

Area of Interest in Patient-centered Care

It is good that in this study, attention towards patient-centered care were found according to the recommendation based on scientific evidences from abroad. Researches in this area in Indonesia were mostly qualitative and were internationally published in high rank journals. This showed that Indonesia has started to pay attention to soft skills, such as communication and professionalism, which are challenges in medical and health professions education worldwide. Studies in this area are closely related to local context and culture. More studies are still needed in this area to explore local cultural treasures that are expected to help PBL implementation. Studies in this area were also dominated by the findings of hierarchical culture in doctor-patient relationship and teacher-student relationship, which may affect the process or results of clinical decision making.[28-29] A doctor's or a patient's expectation to be able to communicate with partnership principles is eroded by one-way communication and not a dialogue, which usually dominates medical practice in Indonesia.[28] This hierarchical culture is most likely the main challenge in teaching and learning process of medical doctor and other health professions in Southeast Asia in general.[29]

Area of Interest in Interprofessional Education

Indonesia's attention towards interprofessional education was shown through many studies with international publication. Communication dominated interprofessional work effort in interdisciplinary studies that we found.[30-32] The effort to integrate various scientific areas was also seen to care about education in emergency science areas, such as the effort to respond the needs of education in disaster preparedness.[33] It is so interesting where in a hierarchical culture like Indonesia, young researchers are interested to develop areas to erode this hierarchical culture. Several researches of doctor-patient communication, nurse-doctor communication, nurse-patient communication, integration of areas, are excellent studies as the agents of change in a hierarchical culture such as Indonesia. Therefore, we are optimistic that PBL will be able to be applied in a hierarchical culture such as Indonesia and will be able to prepare agents of change as transformative leaders.[34]

Area of Interest in Community-Based Education, Primary Health Care, and Local Resources Utilization

Although many international publications in community-based education (CBE) area and primary health care (PHC) area were found in this narrative review, generally the development of medical and health professions education in Indonesia still has not responded community health problems adequately. Aside from six scientific publications by two researchers that we found, there were not many master theses or other dissertations or other international publications that developed learning based on the needs of community.[35-40] Quantitatively, studies about community-based learning are not sufficient. Even though, community-based learning is one of the recommended areas by previous studies in Asia.[1-6] Indonesia, with 17,000 islands, 13,000 ethnic languages, and 80,000 general practitioners, should put forward education, researches, and community service based on the real needs of community.

Universitas Gadjah Mada is one of the pioneers in community education by starting the program of *Kuliah Kerja Nyata* (KKN) for higher education students in Indonesia. Currently, Faculty of Medicine, Universitas Gadjah Mada just implemented a community-based education and interprofessional education program for students since their first year in medical school, nursing school, and nutrition school in the form of Community and Family Health Care (CFHC) program, which is a rebirth of a similar program in the 1970s and 1980s, community-oriented medical education (COME).[41] Various programs were also developed in several faculties of medicine. Among the pioneers is a program of Faculty of Medicine, Universitas Hasanuddin, Makassar called "First One Thousand Days of Life". Each student gets a family to attend to since his/her first day as a medical student, and the first day at school starts in primary health care and not in class. Collaboration

among healthcare providers stands out, so maternal mortality rate in the families was pushed to zero percent for three years since the program had been implemented.[42] Collaboration among health education institutions, community, and local government came to a realization to improve public health. However, scientific publications in this area should be written and published.

Sensitivity to real health problems in the community needs to be developed since early days in college and cannot be achieved when education reaches its final stage.[35-41] Currently, WHO emphasizes affordable, easy, and high quality primary health care for all populations in the world. Community-based medical education is the entry point for social sensitivity and the implementation of general medical sciences for community interests. Indonesia in the future will face the triple burdens, i.e. elderly with chronic diseases, children and adolescents with acute and communicable diseases, and the emergence of diseases that should have been overcome, such as helminth infections, polio, diphtheria, and other diseases.[43] Health promotion by far is more needed considering that health problems in Indonesia have shifted from acute diseases to chronic diseases due to shifted demographic profile in Indonesia.[44]

Studies about medical and health professions education curriculum that are able to answer real problems in community are needed. Learning process in Indonesia still emphasizes the cognitive process of a prospective doctor and still explore diseases and not their impact to patients' life.[25] Therefore, attention towards real health problems needs to be improved through medical and health professions education researches in Indonesia.

Area of Interest in Learning Resources and Information Technology

Studies about learning resources in this narrative review fell into rare category. However, several studies in the form of theses made use of low cost and accessible learning resources.[24,45,46] This is the excellence of medical and health professions education researches in Indonesia. Those studies also cited international researches about learning resources.[47,48] The power of these studies about learning resources is in the utilization of local learning resources that are close to daily learning environment, which still needs improvement.

However, IT utilization is also worth considering, in accordance with previous studies.[1,5,6] Many ways may be applied, including ones that do not rely on internet access, but generally they make use of mobile phones owned by Indonesian community.

Area of Interest in Student Assessment

Studies about student assessment were found many in this study, especially the effort to strengthen the validity and reliability of learning evaluation, including studies about clinical rotation assesment.[49-51] This showed that Indonesia attempted to strengthen student assessment area. Studies about student assessment fell in the third place in quantitative Areas of Interest. However, if we look closely, studies about pure assessment, especially the development of validity and reliability of learning evaluation tools, is still low.[51] Therefore, the development of researches in this area in Indonesia is still needed. Researches in student assessment in the future should also be developed and directed to advanced clinical education, residency, consultant, and continuing medical education, which are rarely studied in Indonesia.

Uji Kompetensi Dokter Indonesia (UKDI) or Indonesian Doctor Competency Test, which is similar to the standardized American young doctors test USMLE, is expected to be the learning assessment to improve learning process.[52] However, further research is needed to study the accuracy of the assessment, the tools, data collection process, and data analysis in student assessment. Research in this area requires more detailed development, especially the validity and the reliability of the tools used.

Furthermore, the development of learning assessment process in clinical education is needed as the basis of medical and health professions education. Eventually, clinical education would involve direct observation and feedback aspects, which are documented through teacher-student communication, where hierarchic culture still stands as a real challenge in Southeast Asia, including Indonesia. The efforts to study and to explore learning evaluation process in clinical

education will complete Miller's Pyramid, where the peak is clinical education with direct observation as the assessment with constructive feedback and participative learning process as its backbone.[53,54]

Area of Interest in Curriculum Development, Program Evaluation, and the Development of Staff and Leadership

The Area of Interest of curriculum development, program evaluation, and the development of staff and leadership still gets minimal portion qualitatively or quantitatively in medical and health professions education in Indonesia. Only one master thesis and one dissertation that reviewed quality insurance, but unpublished.[55,56] Therefore, in the stage of advancement of research in medical education, Indonesia is still a beginner, where researches about medical and health professions education has not reached the hierarchic stage of advanced medical education, such as leadership.[57]

It is so interesting if we take a look at this leadership area. In the philosophical formulation of the basic life of Indonesia, the 4th Pancasila, we do not encounter an adequate explanation about leadership.[58] What was stated in Pancasila was the decision making through a community discussion and community decision making. However, *leading* individuals with initiatives tend to be hidden under the decision making from a community decision making. This is truly critical from medical education point of view because leaders actually are individuals with advanced vision and initiatives that are useful for the community. Meanwhile in Indonesia, an individual's initiative is likely to be camouflaged by community-oriented culture, where the decision is made by the forum. Although in this case we must prioritize collective competence, it does not mean that going forward together might neglect the initiative from the individuals. After all, a community competence comes from individual's competence.

Frenk et al (2010) clearly said that in the future, medical education would not be directed just to produce experts or professionals anymore, but to produce leaders or agents of change.[33]

The Founding Father of Indonesian Education, Ki Hadjar Dewantara, left a message clearly in his articles that noble character, intelligence, and learning skill development is very important for each next generation individual for their own future and independence.[60] Teachers' role as facilitators in their learning process is to let them lead themselves, so that eventually they will be able to lead other people excellently.

> "The 'Among method' is caring towards children's development based on their basic individual characters."
> "A child should never be forced to do anything, he has his own will and determination and he should be independent based on his own thinking and abilities."
> **Ki Hadjar Dewantara "Wasita"** 2nd Edition, August 1930[59]

This is the biggest challenge of medical education today and in the future: to produce individuals who are leaders of change for community at large.

RECOMMENDATIONS

Several significant researches in medical and health professions education were just published after this study had been analyzed and interpreted. A few of them is a study by Rahayu et al. (2015) about quality improvement of medical education through national structured clinical skills assessment.[61] This is in accordance with the effort to standardize medical graduates mentioned above. Another study that is not less important is a study by Wistiono et al. (2015) about the effort to make primary doctors to be equals with specialists, in the context of primary health care improvement in the era of National Health Coverage this decade.[62] In line with WHO recommendations about primary care reformation centered in individuals, medical education studies directing to primary care improvement are much needed in the future. A study by Widyahening et al. (2016) emphasized the importance of evidence-based medical education and how to make a clinical guide in the context where there is minimum scientific researches.[63] A study by Sedyowinarso et al. (2014) and Randita et al. (2016) emphasized the importance of interprofessional education and collaboration to actualize patient and healthcare workers safety.[64,65]

Studies in medical and health professions education keep arising towards medical and health professions education improvement in Indonesia. Basically, health workers are agents of change, not just to change health education through various scientific researches, but also to change community culture and characters towards prosperous civil society. A good change starts from the exploration of recent, continuous scientific evidences to be applied wisely in local context and to be constantly updated.[66] Therefore, the challenge of medical education in the future will be about skills mastery to support leadership, i.e. assertive communication, sensitivity to health problems and local culture, always searching for recent evidence-based scientific information sources in initiating improvement of all sectors, prioritizing teamwork, including the inevitable use of electronic technology.

CONCLUSION

Areas of interest of studies in medical and health professions education are still oriented towards the understanding of problem-based learning as well as student assessment process. A few areas of interest still require a series of evidence-based scientific explorations, especially ones involving teamwork in order to actualize patient safety in the era of Universal Health Coverage reformation. Health workers should be transformed to be future agents of change towards healthier global economic-social-political, and culture; based on scientific medical and health professions education researches.

REFERENCES

1. Majumder AA. Issues and Priorities of Medical Resaerch in Asia. *Annuals Academy of Medicine*, 2004;33:256-63.
2. Norman G. Research in medical education: three decades of progress. *BMJ*. 2002; 324:1560-62.
3. Al Shawwa L. The establishment and roles of the medical education department in the faculty of medicine, King Abdul Aziz University, Jeddah Saudi Arabia. 2012;27(1):4-9.
4. Lam, TP, Lam YYB. Medical Education Reform: The Asian Experience. *Academic Medicine,* 2009; 84 : 1313 – 17.
5. Shankar, PR, Piryani RM. Medical Education and Medical Educators in South Asia- A Set of Challenges. *Journal of the College of Physicians and Surgeons Pakistan*, 2009;19:52-5.
6. Chen FM, Bauchner H, and Burstin H. A Call for Outcomes Research in Medical Education. *Academic Medicine,* 2004;79(10):955-60.
7. Wynia M. The physicians obligation to participate in quality improvement activities. In: Baily MA, Lynn B, Jennings B.ed. Ethical Issues in Health Care Quality Improvement Activities. In press; 2007.
8. Sudoyo AW. Researches should be based on Community s Need. Kompas; 2012, 4 April. http://health.kompas.com/read/2012/04/04/03441445/Riset.Perlu.Berbasis.Kondisi.Masyarakat [Accessed 18 Agustus 2013]
9. Cesario S, Morin K, Santa-Donato A. Evaluating the level of evidence of qualitative research. *JOGNN*, 2002;31: 708–714. DOI: 10.1177/0884217502239216
10. Straus SE, Richardson WS, Glasziou P, Haynes RB. Evidence-based medicine: how to practice and teach EBM, 3rd ed. Philadelphia: Elsevier Churchill Livingstone; 2005.
11. Oxford Centre for Evidence-Based Medicine. Levels of evidence and grades of recommendation. Available from http://www.cebm.net/levels_of_evidence.asp
12. Sutherland S.E, Evidence-based dentistry: Part IV. Research design and levels of evidence. *J Can Dent Assoc.* 2001 Jul-Aug;67(7):375-8.
13. Rahayu G and Claramita M. Masters in Medical Education Faculty of Medicine University of Gadjah Mada: The Core competences. Yogyakarta: Faculty of Medicine UGM; 2013.
14. Fitri AD. Relationship between tutor style and efficacy of tutorial; students and tutors perception. Unpublished master thesis in medical education. Yogyakarta: Faculty of Medicine University of Gadjah Mada; 2011.
15. Memah MF. Characteristics of Tutors and Tutors Perception as Facilitator in Tutorial of a Problem Based Learning at University of Sam Ratulangi Manado. Unpublished master thesis in medical education. Jakarta: Faculty of Medicine University of Indonesia; 2011.
16. Yulistini. Tutors' perception as facilitators during tutorial in a problem based learning approach Faculty of Medicine University of Andalas. Unpublished master thesis in medical education.

Yogyakarta: Faculty of Medicine University of Gadjah Mada; 2008.

17. Nurrohmanti H. Do Students Perception about Group Discussion and Learning in Problem Based Learning Differ Across Java, NonJava and International Students? Unpublished master thesis. School of Health Professional Education. Maastricht: Maastricht University The Netherlands, 2012.
18. Claramita M, Pratidina A, Kharismayekti M, Van Dalen J, Van der Vleuten C. Introducing a partnership doctor-patient communication guideline to teachers in a culturally hierarchical context of Indonesia. Accepted in *Education for Health 12-4-2013*
19. Geertz C. The Religion of Java. Chicago and London: The University Chicago Press; 1976.
20. Hofstede G. Culture's Consequences, Comparing Values, Behaviors, Institutions, and organizations across nations. Newbury Park-CA: Sage Publications; 2001.
21. Hidayah RM. Teaching Strategies for Integrated Communication and Physical Examination Skills. Unpublished master thesis. School of Health Professional Education. Maastricht: Maastricht University The Netherlands; 2012.
22. Hasdianda A. Evaluation of the Resuci-Gama Resucitation Manequin for Basic Life Support Skills Training Using Measurenment of Students and Teachers Perception. Unpublished master thesis. School of Health Professional Education. Maastricht: Maastricht University The Netherlands; 2013.
23. Setiawan IP. Instrument for Evaluating Teachers Didactical Performance. Unpublished master thesis. School of Health Professional Education. Maastricht: Maastricht University The Netherlands; 2011.
24. Shitarukmi S. Students', Tutors' and Experts' Perceptions towards The Quality of PBL Problems. Unpublished master thesis. School of Health Professional Education. Maastricht: Maastricht University The Netherlands; 2013.
25. Claramita M, Sutomo AD, Graber MA, Schrepbier A. Are patient-centered care values as reflected in teaching scenarios really being taught when implemented by teaching faculty? A discourse analysis on an Indonesian medical school s curriculum. *Asia Pacific Family Medicine*, 2011;10:4 doi:10.1186/1447-056X-10-4
26. Ten Cate O. Entrustability of professional activities and competency-based training. *Med Educ*, 2005;39(12):1176-7.
27. Rahayu GR and McAleer S. Clinical reasoning of Indonesian medical students as measured by diagnostic thinking inventory. *South East Asian Journal of Medical Education*, 2008;2(1):42-7.
28. Claramita M, Nugraheni MDF, Van Dalen J, Van der Vleuten C. Doctor-patient communication in Southeast Asia: A different culture? *Adv Health Sci Educ*, 2012;18(1):15-31.
29. Nugraheny E, Claramita M, Rahayu GR, Kumara A. Feedback in The Non-Shifting Context of The Midwifery Clinical Education in Indonesia: A Mixed Methods Study', *Iranian Journal of Nursing and Midwifery Research*, IJNMR_188_15R6 Accepted to be published in October 2016.
30. Susilo AP, Eertwegh V, van Dalen J, Scherpbier A. Leary's rose to improve negotiation skills among health professionals: Experiences from a Southeast Asian culture. *Education for Health Change in Learning & Practice*, 2013; 26(1):54-9.
31. Susilo AP, Nurmala I, van Dalen J, Scherpbier A. Patient or physician safety? Physicians' views of informed consent and nurses' roles in an Indonesian setting. *Journal of Interprofessional Care*, 2012; 26(3):212-8.
32. Susilo AP, van Dalen J, Scherpbier A, Tanto S, Yuhanti P, Ekawati N. Nurses' roles in informed consent in a hierarchical and communal context. *Nursing Ethics* 01/2013
33. Indah R. The Design of Disaster Management Block. Unpublished master thesis. School of Health Professional Education. Maastricht: Maastricht University The Netherlands.
34. Frenk J, Chen L, Bhutta ZA, Cohen J, Crisp N, Evans T, Fineberg H, Garcia P, YangKe, Kelley P, Kitnasamy, Meleis A, Naylor D, Pabloz-Mendez A, Reddy S, Scrimshaw S, Sepulveda J, Serwadda D and Zurayk H. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *The Lancet*, 2010;376(9756):1923-58.
35. Kristina TN, Majoor GD, van der Vleuten CP. Comparison of outcomes of a community-based education programme executed with and without active community involvement. *Med Educ*, 2006 Aug;40(8):798-806.

36. Kristina TN, Majoor GD, van der Vleuten CP. Does CBE come close to what it should be? A case study from the developing world. Evaluating a programme in action against objectives on paper. *Educ Health* (Abingdon). 2005 Jul;18(2):194-208.
37. Kristina TN, Majoor GD, Van Der Vleuten CP. A survey validation of generic objectives for community-based education in undergraduate medical training. *Educ Health* (Abingdon), 2006 Jul;19(2):189-206
38. Widyandana D, Majoor GD, Scherpbier AJ. Comparison of three clinical environments for pre- clinical clinical skills training. *Med Teach*, 2011;33(11):928-32.
39. Widyandana D, Majoor GD, Scherpbier AJ. Patients' appreciation of pre-clinical student performance in primary healthcare centres in indonesia *Educ Health* (Abingdon), 2012 Nov;25(2):81-6.
40. Widyandana D, Majoor G, Scherpbier A. Transfer of medical students' clinical skills learned in a clinical laboratory to the care of real patients in the clinical setting: the challenges and suggestions of students in a developing country. *Educ Health* (Abingdon), 2010 Nov;23(3):339.
41. Community and Family Health Care Program. Yogyakarta: Fakultas Kedokteran UGM; 2016.
42. Seribu Hari Pertama Kehidupan. Makassar: Fakultas Kedokteran Universitas Hassanuddin; 2015.
43. WHO. Primary Health Care is Now More than Ever. Geneva: WHO; 2008.
44. Kemenkes RI. Laporan tahunan Kementrian Kesehatan Republik Indonesia. Jakarta; 2015.
45. Metha JM. Effectivity of "Gymsofika" model for learning clinical skills of manual placenta. Unpublished master thesis in medical education. Yogyakarta: Faculty of Medicine Gadjah Mada University; 2012.
46. Widyandana. Developing Simulated Patients towards Standardized Clinical Competence. Unpublished master thesis. School of Health Professional Education. Maastricht: Maastricht University The Netherlands; 2007.
47. Kneebone R and Nestel D. Learning clinical skills: the place for simulation and feedback. *Clin Teach*, 2005;2(2):86-90.
48. Kneebone R, Nestel D, Bello F and Darzi A. An Integrated Procedural Performance Instrument (IPPI) for learning and assessing procedural skills. *Clin Teach*, 2008;5:45-8.
49. Susani YP. Accuracy of students self-assessment on clinical skills. Unpublished master thesis in medical education. Yogyakarta: Faculty of Medicine Gadjah Mada University; 2009.
50. Demak IPK. Peer assessment to increase clinical performance. Unpublished master thesis in medical education. Yogyakarta: Faculty of Medicine Gadjah Mada University; 2011.
51. Prihatanto FSI. Application of Script Concordance Test on fresh graduate doctors Faculty of Medicine University of Airlangga: validity & reliability study. Unpublished master thesis in medical education. Yogyakarta: Faculty of Medicine Gadjah Mada University; 2011.
52. Syafruddin A. Correlation between cognitive assessment during undergraduate and clinical education with national examination of medical doctors competences examination at the University of Muhammadiyah Jakarta. Unpublished master thesis in medical education. Yogyakarta: Faculty of Medicine Gadjah Mada University; 2012.
53. Ramani S, Leinster S, AMEE Guide no 34: Teaching in the clinical environment. *Medical Teacher*, 2008:30(4):347-64.
54. Miller GE. The assessment of clinical skills/ competence/ performance. Acad Med. 1990;65:s63-7.
55. Prihatiningsih TS. Quality Assurance in Health Care and Health Education System in Indonesia. Unpublished Master Thesis. Dundee: Dundee University; 2000.
56. Prihatiningsih TS. Quality Assurance in Health Care and Health Education System in Indonesia. Unpublished Dissertation. Dundee: Dundee University; 2003.
57. Neufeld V. Leadership for change in Education of Health Professional. Maastricht: Network pub; 1995.
58. Indonesian Parliament Act 2006. Pancasila– Sila 4 Explanations Section. TAP MPR. Penjelasan Butir-Butir Pancasila Sila ke-4. Jakarta: Indonesian Board of Parliament; 2006.
59. Tauchid M, Soeratman, Sajoga, Lahade RS, Soendoro, Surjomiharjo A. *Articles by Ki Hadjar Dewantara* - Book 1 (1st edition). Yogyakarta, Indonesia: Taman Siswa Pub; 1962.

60. Claramita M. Introducing "Tut Wuri Handayani" - a student-centred learning approach to facilitate life-long self-directed learning - and its applications by Ki Hajar Dewantara 2012. *Jurnal Pendidikan Kedokteran Indonesia*, 2016(1).

61. Rahayu GR, Suhoyo Y, Nurhidayah R, Hasdianda MA, Chaniago Y, Wikaningrum R, Hariyanto T, Wonodirekso S, Achmad T. Large-scale multi-site OSCEs for national competency examination of medical doctors in Indonesia. *Med Teach*, 2016;38: 801-7.

62. Istiono W, Ekawati M, Gayatri A, Claramita M, Kusnanto H, Sutomo AH, Graber MA. Physician's self-perceived abilities at primary care settings in Indonesia. *Journal of Family Medicine and Primary Care*, 2015; 4(4): 551-8.

63. Widyahening IS, Wangge G, Van Der Graaf Y, Van Der Heijden GJ M G. Adapting Clinical Guidelines In Low-Resources Countries: A Study On The Guideline On The Management And Prevention Of Type 2 Diabetes Mellitus In Indonesia.*J Eval Clin Pract*, 2016 Sep 4. Epub 2016 Dec 4.

64. Randita A.B.T, Widyandana, Claramita M. Assessing inter-professional competencies in a community-based learning for medical and midwifery students: a pilot study. Derived from the unpublished Master Thesis in Medical Education, Universitas Gadjah Mada.

65. Sedyowinarso M. Pendidikan Interprofesi untuk tenaga kesehatan. Unpublished dissertation. Program Doktor Universitas Gadjah Mada; 2014.

66. Widyahening IS, Van der Heijden GJMG, Moy FM, Van der Graaf Y, Sastroasmoro S, Bulgiba A. From west to east; experience with adapting a curriculum in evidence based medicine. *Perspect Med Educ*, 2012;1:249–61.