THE CONTRIBUTION OF RESEARCH TO HUMAN RESOURCES ON HEALTH

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ABSTRAK

Penelitian ini merupakan suatu studi kepustakaan yang mengkaji seluruh publikasi yang berkaitan dengan ketenagaan/sumber daya manusia (SDM) di bidang kesehatan. Publikasi tersebut baik berupa hasil penelitian, kebijakan, peraturan maupun pemikiran-pemikiran baru yang diterbitkan oleh sebagian besar negara-negara di lingkungan regional WHO. Studi ini bertujuan untuk mengetahui penerapan berbagai pendekatan serta metode-metode penelitian yang dipakai untuk mengkaji aspek-aspek SDM kesehatan, khususnya di negara-negara berkembang.

Dalam studi ini dikumpulkan berbagai publikasi yang berkaitan dengan aspek SDM kesehatan baik dengan menghubungi perpustakaan di dalam dan luar negeri, serta melakukan searching *lewat* web site. *Meskipun disadari bahwa telah banyak negara yang melakukan penelitian di bidang tenaga kesehatan, ternyata tidak terlampau banyak publikasi yang dapat ditemukan karena kesulitan dalam melakukan* searching, *sehingga hanya ditemukan sebanyak 23 hasil penelitian/kajian dari para peneliti dan para ahli kesehatan masyarakat di hampir semua wilayah regional WHO.*

Hasil studi ini menggambarkan adanya kontribusi penelitian pada perencanaan penerapan kebijakan serta manajemen SDM kesehatan. Penelitian di bidang SDM kesehatan pada umumnya dititikberatkan pada empat dimensi yaitu perencanaan dan kebijakan, pendidikan dan pelatihan, distribusi dan pemanfaatan SDM, serta reformasi SDM kesehatan. Penelitian-penelitian di bidang SDM kesehatan antara lain dapat memberikan kontribusi pada: (a) pengembangan dalam pelaksanaan manajemen SDM kesehatan yang berkaitan dengan keempat dimensi di atas; (b) tipologi dari metode penelitian yang appropriate *serta instrumennya, kelemahan dan kebaikan dari masing-masing pendekatan yang digunakan menurut bidang kajiannya; dan (c) jenis pertanyaan utama yang akan dijawab dalam penelitian SDM kesehatan yang juga meliputi keempat dimensi di atas.*

Kesimpulan serta rekomendasi yang dikemukakan pada publikasi-publikasi yang dikaji menunjukkan bahwa masalah utama SDM baik tenaga medis maupun non-medis adalah distribusi yang kurang merata, pelatihan yang menghasilkan ketrampilan yang kurang appropriate, *manajemen yang lemah sehingga mengakibatkan pelayanan kesehatan yang kurang efisien, serta pertanyaan yang berkaitan dengan bagaimana melakukan reformasi di bidang SDM kesehatan agar dapat mengantisipasi era-globalisasi. Di samping itu dianggap perlu untuk membuat agenda prioritas (*priority setting*) penelitian di bidang SDM bagi setiap negara, juga mekanisme serta instrumen penelitian harus dikembangkan dengan baik. Dengan demikian akan diperoleh data/informasi tentang SDM yang akurat dan lengkap. Sedangkan metode yang dipilih harus betul-betul berdasarkan pada tujuan penelitian/kajian yang ingin dicapai sebab masing-masing metode mempunyai kelebihan dan kekurangannya sendiri. Kapasitas peneliti khususnya yang menangani SDM kesehatan dirasakan perlu ditingkatkan mengingat seringnya negara berkembang dihadapkan pada masih kurangnya kapasitas tenaga termasuk peneliti di bidang SDM kesehatan. Terakhir, publikasi penelitian SDM kesehatan sulit untuk diperoleh, maka sangat mendesak untuk dikembangkannya* networking *(jejaring) antara peneliti dan pengambil keputusan serta pelaksana program baik di dalam suatu negara maupun antar negara.*

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A. Introduction

Health System is essentially labor intensive and therefore the human resource constitutes its most critical component utilizing 60 to 75 percent of the budget, even in the certain developing countries it occupies more than that proportion. In general it is agreed that some issues play as the main keys to the development, improvement and efficient functioning of comprehensive health systems, such as: relevantly trained human resources for health and the optimal use of the right kind of trained personnel, produced them in the appropriate quantities and qualities at the right time in both public and private health sectors. In some countries, they carry out adequate training on human resources on health, especially in terms of quantity, but they may be inadequate in terms of quality.

In other countries, quantity and quality of health services may be not a serious problem, but they are still facing difficulties in staffing rural areas with sufficient and qualified health personnel. The consequence of distribution disparity of health personnel between urban and rural areas mainly that the rural areas are generally inadequate served and suffer from the highest morbidity and mortality rates.

In developing countries, human resources on health problems vary from country to country. Certain countries might be faced by problem in production of health personnel, while the others might be faced by distribution and utilization of the personnel. Shortages and imbalance in the number, type and distribution of nurse and midwife -for example- at all levels continue to persists in the some developing countries despite achievements in the expansion and reorientation of basic and post basic nursing and midwifery education programs. Training facilities and resources are particularly inadequate to meet the increased demand for nursing and midwifery personnel with advanced preparation to assume leadership roles in nursing services delivery, management and education.

In general, the major problems of human resources on health development revolve around four main issues i.e., (1) the numerical and distributional imbalance of human resource that are contributing to the poor coverage of health services, (2) the irrelevant training and technical skill of health personnel that impede the effective health care delivery, (3) the inefficient skill mix of health personnel, poor personnel management and other factors that lead to inefficient of health care delivery, and (4) the application of human resource on health in line with the on going reforms happened in health sector and globalization. To overcome those problems, the main mechanisms generally used are:

1. Development of appropriate human resource on health policies and plans
2. Sufficient production -both quantity and quality- of health personnel that meet the needs of health services
3. Strengthening the human resources on health management and improving the utilization of health personnel
4. Adjustment of human resources on health policies based on the current and reform development policies and globalization

The mechanism above are very much dependent upon an adequate and appropriate information. Some information might be available through routine statistical information, such as, number and type of health personnel and training facilities. However, the routine statistical information, especially in developing countries, usually area very limited and may be unable to respond to the need for timely and valid information on a wide possibilities of unpredicted problems that can arise any time. Considering the limitation of routine statistical information, policy-linked research in human resources on health development will play a main role to provide timely and valid information required by decision makers if realistic and accurate policies are to be decided.

In the past, research concerning human resources on health or others were not the main focus to obtain data/information which ideally needed for supporting the decision making process to make a policy. A policy concerning the human resources on health was decided mostly based on the data originated from service statistics[31] or even sometimes based on a common sense. It is not rare that something like 'a trial and error' occurred in implementation of policy regarding to human resource on health. Therefore, in most of developing countries, contribution of research to human resources on health was still questionable either its mechanism, methods or its implications.

Nowadays and in the future, decision making processes have to be based on the evidence which most of it could be provided through research or data collected by principles of research. In developed countries, evidence from service statistics can be used in decision making process, but in developing countries, adopting data/information from these sources should be very careful considering those data usually are not highly accurate, consistent and up to date. Policy and planning on human resources for health based on accurate data/information should basically avoid from 'a trial and error' policy and planning implementations that have consequences a costly expenditure.

In the future, research will become very important to answer the challenges of human resource on health, particularly in developing countries which will be facing globalization, health sector reform, efficiency and effectiveness of health systems and so on. In the future, research on human resources on health should have a meaningful added value and contribution for the equity of health development, especially in developing countries. In order to improve future research on human resource on health, review of contribution of research of human resources on health needs to be carried out. The review has been focused for developing countries, especially Indonesia.

B. Objectives

This paper overviews the current evidence on the application of different approaches to research and research methods in examining aspects of human resources on health sector, especially in the developing countries.

C. Methodology

In general, most of the developing countries have ever conducted research on human resources for health. Unfortunately, it is difficult to find these research results in publications, periodicals, as well as searching from web-sites. Efforts on searching the publication in internet have been conducted as well as collecting the publications from various sources, however, very limited literature related to research on human resources on health can be found. Therefore, besides purely research works, what have been collected are included literature on human resources on health review, situation analysis, compilation, part of a study which is not specifically addressed human resources on health and so forth.

After literatures collection, review of each literature and some interviews to the resource persons on human resources have been conducted. The results have been compiled in a matrix which consists of: topic, author, countries, year of publication, publisher, abstracts (if available), methodology, results and recommendation. Analysis to the weaknesses and strength of each literature has also been conducted especially its research methodology and implication for policy.

D. Results

From August to October 2000, there were only about 32 publications related with study or research for human resources on health. Out of those publications, only about 23 have been considered to be included in this review paper. The topics of those 23 publications are as follows: (Abstract of each research or review can be seen in **APPENDIX A.**)

1. Preliminary Study on Utilization of Contract Doctor in Indonesia[1]
2. Study on Factors Influencing the performance of Contract Doctor in Indonesia[2]
3. The Usage of Working Time and Task Variation among Health Workers in the Health Centers in Indonesia[3]
4. What do Doctors want?: Two Empirical Estimates of Indonesian Physicians' Preferences Regarding Service in Rural and Remote Areas[4]
5. Gender - a Missing Dimension in Human Resource Policy and Planning for Health Reforms.[5]
6. Human Resources: A Critical Factor in Health Sector Reform.[6]
7. Health in the Americas (Excerpt: HRD Situational Analysis)[7]
8. Health Reforms and Human Resources: Understanding the Incentives.[8]
9. Doctors Incomes, Productivity and Training Towards a Strategy for Health Care Professionals in Low and Middle Income Countries[9]
10. Human Resources and Health Reforms in the Caribbean: How Historical Analysis can Provide Explanations on the Introduction and Implementation of Recent Health Reforms.[10]
11. Additional Resources in Extending Health Coverage.[11]
12. Evaluation of Health Center Worker Performance In East Java Province, Indonesia[15]
13. Evaluation of Pre and Post Training on Universal Precautions Practices at

Putat Jaya Health Canter and Its Sexual Transmitted Diseases Clinic in Surabaya, Indonesia.[16]
14. Determining the Feasibility of Using Distance Education as a Means of Providing Continuing Education for Nurses in Nepal.[17]
15. Evaluation of the Placements of Midwives in the Villages of East Lombok and Malang Regencies, Indonesia[18]
16. Changing Medical Education Using Continuing Medical Education as an Entry Point.[19]
17. Multi-center Study on the process and Outcomes of Collaboration Between Nursing Services and Nursing Education in South-East Asia Countries (Thailand).[20]
18. Multi-center Study on the process and Outcomes of Collaboration Between Nursing Services and Nursing Education in South-East Asia Countries (Myanmar).[21]
19. Multi-center Study on the process and Outcomes of Collaboration Between Nursing Services and Nursing Education in South-East Asia Countries (India).[22]
20. Trend Analysis on Utilization of Human Resources for Health[27]
21. Overall Policy Formulation Process and Implementation method with a Special Focus on Human Resources for Health: a Learning Experience of Indonesia Case[28]
22. The Role of Workforce, Services Availability, and Number of Bed toward Inpatient Service Utilization among District Hospitals in Indonesia[33]
23. Assessment on National Health Policy: Human Resources on Health (Indonesia)[31]

Based on the region of WHO, the literature found to be used for this paper are as follows: 1. Eighteen publications were originated from WHO-SEARO; 2. One publication was written by author from WHO AFRO; 3. Three publications were carried out by countries in WHO AMRO; and 4. One global publication.

Based on the type of the research, study, review or others, the literature can be divided as follows: 1. Review document and literature: seven studies; 2. One study could be classified as historical analysis study; 3. Two studies could be included as situation analysis; and 4. The remaining thirteen studies were classified as action research, evaluation research and others.

Major methods used in the research, study, review or others are as follows: 1. FDG, in-depth interview, RTD, observation, interview and mailing questionnaire (twelve studies); 2. Review literature and secondary data analysis (ten studies); 3. Pre-post design (one study). However, 12 studies used the multi-methods in achieving their objectives.

Looking at the objective, subject and area of research, they can be divided as follows: 1. Utilization of human resources on health (three studies); 2. Performance of human resources on health (four studies); 3. Reform of human resources on health (five studies); 4. Planning of human resources on health (four studies); 5. Training and education of human resources on health (five studies); 6. Others (two studies).

According to the objectives of the above studies, it seems that the studies already covered four main issues of human

resources for health development i.e., 1. policy and planning, 2. training and education, 3. utilization and performance, and 4. reform of human resources for health. Unfortunately, those studies came from all over of WHO regions where their majority members were developing countries. Ideally, from each region, studies or research related to human resources on health for each country member should be reviewed and should be covered all of the forth main issues of human resources on health development. This ideal review was required in order to obtain comparative situation and analysis among them. Also, none of the issues could be neglected due to each issue was the main component in developing human resources on health. Development of human resources on health in each country will be fruitfully achieved if policy and planning were done appropriately, health workers received appropriate knowledge and skills through training and education, well performance and highly utilization of human resources on health, and reform of human resources on health could be carried out in line with development changes and globalization era.

In addition, data collection techniques in the studies vary in accordance to the type and objectives of the study. Each of the method had its strength and limitation, thus it was understood that most of the studies applied more than one data collection techniques in order to get a satisfactory results.

E. Discussion on the Contribution of Research for Human Resources on Health

As stated in the introduction the four dimensions of the human resources on health development are policy and planning, production (training and education), distribution and utilization of health personnel and reform of human resources on health. Consequently, research on human resources on health should be emphasized on those four areas. Actually, almost each of the developing countries had experience in conducting study/research on human resources for health. Unfortunately, due to some difficulties to get the publications of these research, only some issues could be explored from those 23 topics mentioned before as follows:

1. Contribution of research in improving the practice of human resource on health

Considering the limitation of information obtained from existing service and routine statistics in most of developing countries, the only way to get a certain information is through research or improving the service based information system on human resources on health. In this evidence based era, effective research should be able to lead and to supply data, information and to translate research findings into appropriate actions to decision makers [29]. Regarding the human resources on health development, researchers should play their main roles in providing the data and information, not only for policy and planning but also for production, distribution and utilization of health personnel [28, 31, 33].

a. *Issues of Policy and Planning*: some of the research results that were reviewed in this study showed that they were already used as evidence based of developing policy and planning[1,3,4,5,10,11,18]. For example: (1)

the results of the study on utilization and factors influencing the performance of contract doctor in Indonesia[1,2] were used for further planning in deployment of new medical graduation to reach equity distribution of doctors between urban and rural areas, (2) the findings of the study on working time and task variation, and evaluation of performance of HC workers[3,12] were used as basic information in planning of the possibility of giving additional tasks and emphasizing tasks with less attention before, and (3) in the study on Additional Resources in Extending Health Coverage[11] tried to calculate a projection for five categories of human resources for health. However, it is still very often -especially in the developing countries- that due to limited information obtained from research results, the policy and planning of human resources on health is based on the existing service statistics[26]. For example: (1) in the placement of midwife in the village[15], when the program was started, demand of the services provided by midwives in the village was estimated mostly from existing data -service statistics- i.e., number of pregnant women and number of under five children in the village, (2) in the development of human resources for health policy[26] some data were obtained from service statistics such as data on existing type and number of health workers.

b. *Issues of Production (Education and Training):* some research result related to production of health personnel could be identified from the abstract and publication that had been discussed above. Doctors and nurses were more frequent to be the subject of the study.[17,19,20,21,22.] For example: (1) Feasibility study on Using Distance Education as a means of providing Continuing Education for <u>nurses</u>[17] , (2) Study on changing medical education using continuing medical education (CME)[19] that one of its objective was to identify CME needs of <u>the medical practitioners</u> and provision of education intervention, and (3) study on the Process and outcomes of collaboration between nursing services and <u>nursing education</u> in South East Asia Countries (Thailand, Myanmar, and India)[20,21,22] .

c. *Distribution and utilization:* most of the developing countries were faced by the imbalance of distribution of health personnel between rural and urban areas in terms of quantity and quality[1,2,4,6,7,11,18,23,26] as well as gender issue[5]. For example: (1) in the Preliminary study on the utilization and factors influencing the performance of contract doctor in Indonesia[1,2] could be identified that even though the doctors who wanted to work in the remote or very remote areas received more salary, but some of them still prefer to work in the ordinary area. It means that imbalance distribution between rural and urban still persists, (2) Study on the physicians' preferences regarding services in rural and urban areas[4] showed that doctors still prefer to work in urban than to work in rural areas, while (3) HRD Situation Analysis in America[7] showed the disparity of workforce distribution among countries. Low utilization of health personnel especially in the rural area is also shown in the research result [3,4,8,15,18] For example: (1) the study on The Usage of

Working Time and Task Variation among HC workers[3] showed that effective usage of working time in South Borneo Province was only two third than it was in Bali Province, while (2) study on the Evaluation of HC Worker Performance[15] and Two empirical estimates of Indonesian Physicians' preferences regarding service in Rural and remote areas[4] showed that utilization of HC services in urban areas relatively higher than that in rural or remote areas. Based on the research results, decision makers might do rearrangement or deployment of the health personnel or to make new strategy or policy to overcome the problem[1,2,4,8,11,16,18]. For example: (1) in the Preliminary study on the utilization of contract doctor[1]and Two empirical estimates of Indonesian Physicians' preferences regarding service in Rural and remote areas[4] showed that by modifying the existing 'reward system' motivation and encourage health personnel to work in rural or remote areas could be stimulated, while (2) study on the placement of midwives in the villages[18] showed that some constrains should be eliminated to maintain midwives 'felt at home' and stayed to provide services in the villages, (3) The Role of Workforce, Services Availability, and Number of Bed toward Inpatient Service Utilization among District Hospitals in Indonesia [33] indicated that the role of health personnel, particularly medical doctor was one of the most important in improving the utilization of District Hospital inpatients in Indonesia.

d. *Reform of human resources on health:* Some of the research for human resources on health were reflected to provide inputs for the reform of human resource on health. Some of them are: (1) Gender - a Missing Dimension in Human Resources Policy and Planning for Health Reforms [5]. This review suggested that more attention must be paid to equal opportunities for both gender in any type and hierarchies of health care labor force, several ways in taking gender seriously in Human Resource Policy and Planning through development of methodologies for data collection, monitoring and evaluation, and provided a framework for incorporating gender concern in the process of health reform., (2) Human Resources: A Critical Factor in Health Sector Reform [6], this review showed that the greatest challenge of human resources reform in educational aspect consist of equipping all future inhabitants with new skill for the future, a highly-developed capacity to define problems and capabilities in overcome future problems., (3) Health in the Americas (Excerpt: HRD Situational Analysis)[7] suggested that as a result of government modernization process, there were substantive changes in labor relationships included: significant growth of different types of temporary contract, hiring third parties to provide services, increased personnel turn over, creation of new types of private associations, flexibility of working hours and shifts, changes in personnel remuneration, especially by introducing different types of incentives for productivity and performance, changes in public sector career system, etc., (4) Health Reforms and Human Resources: Understanding the Incentives.[8] This

review suggested that planners and implementers of health sector reforms should have a better understanding all aspects of employment-related incentives, and monitoring the impact of the incentives should not be neglected, and (5) Human Resources and Health Reforms in the Caribbean: How Historical Analysis can Provide Explanations on the Introduction and Implementation of Recent Health Reforms[10], this review introduced health reforms including decentralization. The result showed that former colonial governors and political developments shaped the present-day health system in those territories and identified some factors that could explain how human resources have developed and health sector reforms been introduced and implemented in each setting. Besides geographical location, other factors that could be identified were: demographic and epidemiological profile, colonial style of rule and political systems, global trends in health policy, regional influences, the role of dynamic individuals and the contribution of the medical profession.

Derived from the above description, it could be identified that some research results were already used in policy and planning process, training and education, and in implementation of the human resources policy. However the studies seems fragmented and poorly linked among others. Considering this fact, the comprehensive study or research on human resources for health development in each country is absolutely needed, in order to provide sufficient and interrelation data or information for policy planning, training and education, and program implementation. As a consequence, to conduct the comprehensive study or research of human resources on health development need well trained researchers in this field and sufficient budget, whereas usually the type of researcher and budget were still limited in developing countries.

2. Typology of appropriate research methods and instruments

Most of the study were descriptive and explorative research. While data collection techniques used frequently were interview and observation. Some researchers applied a certain type of discussion i.e. focus group discussion and combined data collection technique also frequently used. In addition, one of the studies[1], which was reviewed, described that a type discussion i.e. a round table discussion was applied in the data collection. It seems that this data collection method was very useful for exploring ideas from decision makers, program managers, and professionals (as participants in the study) especially problems on human resources and how to solve them. Moreover, the study[1] also stated that a content analysis was used as a means of data collection. The technique had an advantage for gathering and searching information on the policy and program regarding the human resource development that usually released by policy makers and program managers in the news paper.

Each data collection technique has its strengths and weaknesses that be described in a matrix below.

STRENGTHS AND WEAKNESSES OF DIFFERENT METHODS USED IN SOME RESEARCH AREAS OF HRH

Area of HRH Research	Method Used	Strengths	Weaknesses
1. Planning of HRH	Situational Analysis 1. Primary Data	Gets information/data as needed	Needs time, qualified data collectors, and data collection tools
	2. Secondary Data	Fast, very practical	Frequently gets unsatisfactory data in terms of quality and completeness
2. Training and education of HRH	Survey	Wide coverage Gets the first hand information	Needs time, qualified researchers Costly
	Pre-post test comparative analysis	Gets information of successfulness of intervention	Needs specific intervention Needs time, qualified researchers and analyst Very costly
3. Utilization of HRH	Focus Group Discussion (FGD)	Fast, practical Better use if we have a very specific conceptual framework Encourage people participation Encourage openness and objective opinion	It has to carry out by experience researchers Need homogenous participants Qualitative results Needs experienced researchers as a good facilitator
	Round Table Discussion	Not necessary to have any conceptual frame work Gets a lot of facts and opinions	Needs experienced researchers as a good moderator Very qualitative
	Content Analysis	Gets a lot of current information, opinions, policies and programs	Needs time for continuous searching on news papers Usually very qualitative
4. Performance of HRH	Interview	Fast, practical Gets the first hand information	Needs trained interviewers
	Observation Time motion	Gets current information and step by step of activities Very practical to assess process and quality of services Gets both qualitative and quantitative data	Need experienced observer to avoid bias Needs more time
5. Review of HRH System, Gender on HRH, Incentive of HRH, etc.	Library Searching	Gets published and unpublished materials	Needs a good networking Limited collection due to expensive prices of books and publications
	CD ROM	Fast, very practical	Sometimes expensive CD
	Internet Searching	Fast, very practical	Needs a good networking Limited publication can be accessed

3. *Major research questions within human resources on health*

According to the research studies that were reviewed above, the research questions could be grouped into:

a. Production of health personnel

Regarding the production of health personnel, some of the studies and references tried to answer and to seek the appropriate techniques and strategies in continuing education and improving skills of health workers[12,16,17,19,20,21,22,26]. For example: (1) In the Evaluation of Pre-Post Training on Universal Precautions Practices[16], HC workers were trained - through in-service training - regarding methods and techniques in providing highly quality and safe services for patients as well as for themselves. This study emphasized on increasing knowledge, skills among Health Center personnel and practicing the skills in daily services. (2) Study in Nepal[17] showed that distance education could be used as a means of providing continuing education for nurses, even though some constrains might be emerged such as the postal service was not always reliable, not everyone access to telephone, and limited library. (3) In Myanmar study on Changing Medical Education Using Continuing Medical Education[19] had been conducted. The study designed educational interventions based on the needs of medical practitioners, whereas continuing medical education was used as an entry point. (4) Multi-center study regarding Collaboration between Nursing Services and Nursing Education was conducted in Thailand, Myanmar, and India[20,21,22]. The study was an action research through collaborative model between nursing services and nursing education, whereas the objectives were improving quality of care, upgrade knowledge and skill of junior nursing staff, better quality clinical learning experiences whereas both students and teachers were more active.

From those examples could be derived some learning experiences that Distance Education was identified as a feasible technique for continuing education[17], while in-service training was an appropriate method for improving skill of health personnel who could not leave their daily tasks[16]. Curricula were also one of the research questions discussed in the reviewed studies[17,19]. The content of the curricula might be a dynamic issue due to the demand of the health personnel -types and their skills- changed depend on 'workforce market'. For example: In the last decade practice in injection changed from using multiple used needle to disposable needle. Implication of the injection practice was there is no need of needle sterilization anymore, but the HC staff had to practice safe needle management. Thus the knowledge should be covered in a continuing education curricula for the health workers, and it should be covered in a new curricula for students[16]. New curricula can also be described in a study on using distance education as a means of continuing education[17] and multi-center study in Thailand, Myanmar and India[20,21,22]. Curricula should be modified in order to match with need and demand of profession as well as consumer of health services.

b. Distribution of health personnel

Several research results showed an inequity of health personnel distribution in terms of type, skill, and gender issue. In rural areas usually the number and skills of the health personnel might be less than they were in the urban areas[1,18]. While gender issue was discussed, it was sometimes very difficult to deploy a female health personnel in the rural areas due to some specific reasons such as her spouse already work in the urban area[1]. For example: the Preliminary study on contract doctor[1] identified that the female doctors whose spouses already work in a city were reluctant to work in rural areas. Other reasons are also stated, such as they have to comply their old parents or they have babies who need certain type of health services that are only available in the city. Other study discussed that female health workers were often concentrated in certain type of jobs and frequently have less chance to be senior professionals[5].

c. Performance and utilization of health personnel

Some of researches were concerned on the issues of health personnel performance[1,2,3,9,15,16,18,23]. For example: In preliminary study on the utilization of contract doctor[1] and the study of the usage of working time among HC workers[3] one of the objectives was to access the performance and utilization of doctors' services and compared it between urban and rural areas or between ordinary and remote areas. In addition the study also tried to get answers regarding influencing factors of the performance[1,2]. Performance of the health workers was closely related to the reward that they received. Performance and utilization seems like two side of a coin, if performance is good, consumers tend to utilize the services; and if utilization of the services is good then the personnel are motivated to perform as well as possible by providing good quality of services[3].

Relatively many researches/studies on performance and utilization of health personnel had been done, unfortunately most of the studies only covered doctors, nurses and midwives. Study on the performance of other staff such as nutritionist, sanitarian, pharmacist etc. are still very limited. In order to have a whole picture of performance of human resources for health the study on the other health personnel could not be neglected.

d. Reform of Human Resource on Health

Some researchers and experts of public health in America, Caribbean, Africa and Asia are concerned about the reform of human resource on health related gender balance, appropriate incentive, privatization, decentralization, medical education and so forth. However most of the studies or reviews did not mention how the findings could be translated into policy and actions. Some studies or reviews found that there were many factors which influenced the reforms of human resource on health such as geographical location, demographic and epidemiological profile, colonial style of rule and political systems, global trends in health policy, regional influences, the role of dynamic individuals and the contribution of the medical profession. How they overcame such factors in line

with on going health reform in their countries had not been mentioned at all in their studies and reviews. The multi-faceted factors of human resource on health as mentioned before, require a comprehensive translation of multi disciplinary research into multi dimensional interventions, while health providers will play a more supportive role for other actors in other sectors [29].

F. Conclusion and Recommendation

Human resources, either clinical or non-clinical staffs for individual and public health intervention are the most important of the health system's input. The major problems of human resources on health development in developing countries are distribution imbalance, inappropriate training and technical skills, poor management and other factors which lead to inefficient of health care delivery, and how the development of human resources on health are in line with on-going health sector reforms as well as globalization.

This paper has reviewed some of research and review related with human resources on health. There are 23 research and reviews conducted by researchers and public health experts in almost all of WHO Regions. However, due to difficulties in literature searching, the literature balance among the regions of WHO cannot be fulfilled. Also, this review is concentrated in developing countries, with some addition of some research in very few developed countries and global literature.

The results and discussion are mostly related to three aspects of research and human resources on health. They are contribution of research in improving the practice of human resources in health, typology of appropriate research methods and instruments, and major research questions within human resources on health.

Although all of developing countries have carried out research and reviews for human resources on health, however, some limitations are found in this review. Some research and reviews have been reported to contribute the development of human resources on health although their contributions are not as significant as expected, particularly their contribution to the policy application towards human resources on health. Some strengths and weaknesses of methods and instruments used by the researchers and reviewers have also been identified by this reviews. Some major research questions raised by the researchers and reviewers as well as their problems also discussed in this paper.

Based on the findings identified in this review, there are several recommendations that need to be followed up for future research of human resources on health as follows:

For areas of research of human resources on health. Priority setting for human resources on health should be carried out by each country in order to develop an appropriate research agenda for human resources on health. In order to obtain a good priority of research concerning human resources on health, a mechanism and a tool for priority setting should be developed. However, due to so many tools available to set the priority of research in various health fields, no new mechanism and tool of priority setting should be developed. Each country needs

to review those mechanisms and tools, and choose one of them that meet the country need or country can modify one of the most appropriate mechanism and tool. Based on the discussion of this paper, there are at least 4 major groups of research priorities that can be generalized. They are: 1. Research related to how to make more efficient use of available health personnel for geographical, gender, public vs. private and so forth; 2. Research related to multi-skilled, cross cultural as well as cross countries (globalization) used of health personnel with the same standard of better quality services; 3. Research related to develop appropriate interventions which resulted health personnel who have performance match with their function; and 4. Research concerning policy implication of human resources on health to health sector reforms in each country.

For research methods. In order to obtain better results of research of human resources on health, it is recommended that the research methods used should be based on the objectives, the strengths and weaknesses of each method, and the efficiency of resources used for the research. It is also recommended that methods for disseminating of research results and translating research into policy as well as actions should be developed and included in the research of human resources on health.

For capacity strengthening of researchers and research institutions. Capacity strengthening of researchers and research institutions is another important factor that should be carried out immediately. Capacity strengthening in setting of priority, in choosing appropriate research methods, in translating research results to policy and actions, in advocating stakeholders, in partnership and leadership and so forth are recommended in order to get a better contribution of research of human resources on health. Institutional strengthening for networking, partnership, negotiation and research management are recommended for research institution in order to support the researchers to obtain better results of human resources on health.

For networking within researchers and between researchers with decision makers/stakeholders. It is also recommended to establish a networking between researchers and between research institutions. This networking is really important for efficiency of research resources in health manpower. The establishment of a networking between researchers and decision makers/ stakeholders are important to empower them to link research into policy and action. This networking also important to develop an ownership of the research of human resources on health by the decision makers/stakeholders as well as electronic dialogue between decision makers/ stakeholders and researchers. This network provides an opportunity for advocacy to the decision makers about the importance of evidence based planning.

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