Factors That Influence the Quality of Doctor's Services in Children's Diarrhea Cases in Indonesia

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ABSTRACT

Diarrhea is one of the diseases that can increase child mortality rate. More than 2.3 billion cases and 1.5 million children under five years die from diarrhea. Good quality doctors can have positive influence on the quality of service. Outcome of good service is the increased level of health, including reduced child mortality caused by diarrhea. Analysis of the quality of doctors in Indonesia needs to be done to improve the quality of health workers. **Methods:** This study was a quantitative study using secondary data analysis Indonesian Family Life Survey (IFLS) 2007 using cross-sectional design. IFLS 2007 data were collected from 13 provinces. Number of doctors as respondents were 786. Analysis of the quality of doctor was assessed from vignette questions on the health centers block and private practice block by scoring each question that can be answered. Data was analyzed by bivariate test with independen T test using STATA. **Results:** The average correct answer of doctor was 22.25 ± 7.9 out of 56 questions. Doctors who worked for < 6 years had a score of 2.43 points higher than who worked for > 15 years and 2.18 points higher than who worked for 6-15 years. The quality of doctors who received diarrhea training were 2.18 points higher than those who did not. Doctors who worked in eastern Indonesia had an average quality of 3.42 points higher than who worked in Sumatra and 1.84 points higher than who worked in Java-Bali. The work place was not influenced on doctor quality. **Conclusion:** The quality of doctors in handling child diarrhea cases in Indonesia needs improvement. Doctors who have a working period of less than six years, attend diarrhea training and work in eastern Indonesia have a better quality than the other.

***Keywords**: diarrhea, quality of doctors, IFLS*

Diarrhea is one of the diseases that can increase child mortality rate. More than 2.3 billion cases and 1.5 million children under five die from diarrhea. According to National Survey 2007, there were 17.2% mortality due to diarrhea in children under 5 years old.[17)] Survey in 2012 data also stated that 65% of children with diarrhea are treated in primary health facilities.[18)]

The quality of human resources for health (HRH) affects the health status in Indonesia, including diarrhea in children.[10)] The low quality of health workers leads to inadequate health services. The outcome of the condition is the declining health status of the community.[4,19)] In Papua New Guinea it was mentioned that 69% of health workers examined only 2 of 4 criteria for the diagnosis of pneumonia, and only 24% of health workers were able to diagnose malaria appropriately. Only 56% of health workers in Pakistan are able to diagnose diarrhea caused by virus, and only 35% can provide standard therapy. These conditions lead to a decrease quality of public health.[15)]

Doctor is one of the important human resources for health. Sang O Rhee et al states that factors that affect the quality of doctor's performance in handling the patient is the participation of doctors in training. The length of a person in participating practice also influences the doctor's performance. Sang O rhee also mentioned that doctors who practice for 6-15 years have better performance compared with doctors who practice less than 6 years or more than 15 years. The location of a doctor's practice also affects the doctor's performance in the provision of health services.[16)]

This study attempts to analyze the various factors that affect the quality of doctor's services, especially in children diarrhea cases in Indonesia. The analysis covers various aspects related to factors influencing the attitude of doctors in Indonesia.

METHODS

It was a quantitative study with cross sectional design and using large-scale secondary data from the 2007 Indonesian Family Life Survey (IFLS) collecting through Survey Meter website. Data were collecting in 13 provinces in Indonesia, consisting of North Sumatra, West Sumatra, South Sumatra, Lampung, DKI Jakarta, West

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Java, Central Java, Yogyakarta, East Java, Bali, West Nusa Tenggara, South Kalimantan and South Sulawesi. The number of respondents were 786 doctors. The independent variables were period of work, participation in diarrhea training, region area (Java-Bali, Sumatra, Eastern Indonesia), workplaces in community health centre (CHC) and private practice, location (underdeveloped - developed area). This study used IFLS 2007 questionnaire data on CHC and private health facility section H (vignette of child health care facility). This data was available on the Survey Meter website in STATA format. In the data there were vignettes that can be used to score the quality of doctors.

We focused on assessments of technical quality for child curative care using clinical case scenarios. A scenario was read aloud to one service provider per facility. Then, the subject was asked with a series of questions about history taking, physical examination, diagnostics, and therapy. The interviewer evaluated the subject's answer based on the clinical guidelines. The scenarios used in the IFLS were pilot-tested before implementation with direct observation to ensure clarity and minimal measurement error. The case scenario methodology has been validated in other settings. The raw scores were expressed as the sum of the criteria spontaneously mentioned as a proportion of the total. The scores aimed to capture knowledge about evidence-based procedures for child curative care.[2] We used all of the item in the scenario.

Data were analysed by using STATA program version 12.1. Bivariate analysis was conducted to explain the relationship between dependent and independent variable.

The study has received ethical approval from the Medical and Health Research Ethics Committee (MHREC), Faculty of Medicine, Gadjah Mada University with Ref: KE/FK/710/EC/2015 dated June 17, 2015. All data processed collected from Survey Meter by first doing registration of personal data on the RAND website.

RESULTS

The study were analysed 786 doctors, most of them (41.6%) have worked for 6-15 years and 60.8 % have received diarrhea training. Most doctors (74.1 %) come from Java-Bali province, 57 % respondents work in private practice and 14.1% work in underdeveloped areas (Table 1).

Table 1. ***Characteristics of respondents (doctor)***

No	Variable	n	%
1	**Working period**		
	· 6-15 years	327	41.6
	· >15 years	298	37.9
	· ≤ 5 years	161	20.5
2	**Participation in diarrhea training**		
	· Yes	478	60.8
	· No	308	39.2
3	**Region Area**		
	· Java-Bali	582	74.1
	· Sumatra	115	14.6
	· Eastern Indonesia	89	11.3
4	**Workplaces**		
	· Community health center	338	43.0
	· Private practice	448	57.0
5	**Location**		
	· Underdeveloped area	111	14.1
	· developed area	675	85.9

Table 2 showed the average ability of doctors to answer the right questions of anamnesis, physical and laboratory examination questions, therapy, and the ability to answer total questions in vignette. From table 2 it can be seen that the average ability to answer the right questions of anamnesis was 42.3% (11 of 26 questions), about physical and laboratory examination questions was 41.1% (7.62 of 19 questions), about therapy was 32.9% (3.62 of 11 questions), and the ability to answer the total question was 39.7% (22.25 of 56).

Table 2. Average score of doctor's ability in answering question of IFLS vignette

Question's Group (Number of question)	Mean Score of Correct Answer	%
Anamnesis (26)	11 ± 4.1	42.3
Physical and laboratory examination (19)	7.62 ± 3.1	41.1
Therapy (11)	3.62 ± 1.8	32.9
Total (56)	22.25 ± 7.9	39.7

Table 3 showed that there was a significant difference between doctor quality and working period (p <0.05). Doctors who worked < 6 years have a score of 2.43 points higher than who worked more than 15 years and 2.18 higher poin than who worked 6-15 years.

Participation in diarrhea training also affects doctor quality. Doctors who received diarrhea training 2.18 points higher than those who did not follow diarrhea training. Doctors who work in eastern Indonesia have an average quality of 3.42 points higher than who work in Sumatra and 1.84 points higher than who work in Java-Bali. The work place was not influenced on doctor quality.

Table 3. Factors that influence the quality of doctor

Variable	Mean	Mean Different (CI)
Working periode		
– 6-15 years	21.90±7.6	-2.18{-3.67-(-0.68)}**
– >15 years	21.65±7.9	-2.43{-3.96-(-0.91)}**
– < 6 years	24.08±8.3	
Participation in diarrhea training		
– Yes	23.11±7.9	2.18{1.04-3.31}**
– No	20.93±7.8	
Regional		
– Java-Bali	22.28±8,2	-1.84{-3.61-(-0.06)}
– Sumatra	20.69±7.2	-3.43{-5.62–(-1.23)}
– Eastern Indonesia	24.12±6.8	
Workplaces		
– Community health center	21.98±7.9	-0.64{-0.49 - 1.77}
– Private practice	22.62±7.9	
Location		
– Underdeveloped area	22.75±7.0	-0.58{-2.18-1.03}
– Developed area	22.17±8.1	

**: p-value < 0.05

DISCUSSION

The quality of health workers especially doctor is crucial in providing quality health services. Nevertheless, assessing the quality of health personnel is not an easy things to do, especially in Indonesia that has various diversity. Vignette can be an alternative to assessing the quality of health workers.[9,15] In

the IFLS 2007 data there is a vignette of child health that more specifically assesses the quality of health personnel in the delivery of diarrhea health services in children. Questions on the vignette are in accordance with the guidelines and have been in the previous validation.[1,2)]

Sang O Rhee stated that health workers with a working period of 6-15 years have better quality than working period more than 15 years and less than 6 years. While the working period more than 15 years is better than the working period less than 6 years.[16)] Unlike the study, in this study found that doctors have higher score in working period less than 6 years. The results are consistant with John W Peabody's research which said that young doctors (less than 35 years), female doctors working in tertiary services, and specialist perform better than others.[14,15)] Another study by Payne mentioned that doctors with a working period of less than 10 years had better performance compared with doctors with working period of 10-19 years and more than 20 years.[12)]

Doctors who attend the training have better quality than those who did not attend the training. This is in accordance with previous study which states that training influences the improvement of knowledge.[5)] Health workers who have attended the training are able to work more effectively in addition to the latest skills and the competence of health workers can be improved.[7)] Conferences, workshops can not replace the knowledge gained by handling directly in patients. It is therefore important to carry out a combination of training including in practice.[3)]

The regional complexity in Indonesia also influences the research results. Doctors who working in eastern Indonesia have higher score compared to doctors who working in Sumatra, as well as those working in Java-Bali. This condition may be caused by the large number of exposure cases of diarrhea so it can improve the ability of doctors in dealing with diarrhea problems. Yasuko et al mentioned that the more cases handled correlated with the higher ability of doctors in providing health services.[6)] Eastern Region of Indonesia that participating in IFLS 2007 is West Nusa Tenggara, South Kalimantan, and South Sulawesi. The three provinces, especially South Kalimantan and South Sulawesi, have relatively developed area characteristics in an infrastructure that enables better quality of doctors. While the Eastern Region of Indonesia such as Papua, NTT or Maluku which has relatively less conditions in terms of infrastructure facilities did not participate in IFLS 2007.

In this study, there was no difference between physicians working in the public sector compared to health workers that working in private practice. This is in accordance with previous study which states that the quality of public and private health personnel is no different.[11)] But this study is in contrast with the previous study by R Bojalil who stating that health workers in the public sector have better quality than the private sector.[3)]

From the results of this study we found that there was no difference between the quality of health workers in underdeveloped areas compared to health workers in developed areas. A previous study by Ihsan Husain stating that health workers in villages with inadequate infrastructure condition have worse quality compared to health workers in the city.[8)] This is in accordance with the limited facilities and infrastructure, easy access to information and so on.

CONCLUSION

The quality of doctors in handling child diarrhea cases in Indonesia needs improvement. Doctors who have a working period of less than six years, attend diarrhea training and work in eastern Indonesia have a better quality than the other.

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