

ORIGINAL ARTICLE:**Rapid assessment of tiered referral system at a hospital of West Sumatra, Indonesia****Dian Furwasyih¹, Orsolya Varga²**¹Midwifery Profession Program, STIKes Mercubaktijaya, Padang, Indonesia ²Department of Preventive Medicine, Faculty of Public Health, Debrecen University, Hungary**ABSTRACT**

Objective: The purpose of this study was to assess patients' perception on tiered maternal referral system (during pregnancy, delivery, and postpartum) in a hospital of West Sumatra of Indonesia.

Materials and Methods: The design was a cross-sectional interview survey. A convenient sampling technique was used to recruit 134 sample. Our study was approved by the Committee of the Research Ethics of the Faculty of Medicine, Andalas University number 002/KEP/FK/2018. An interview guideline was prepared and translated into Bahasa Indonesia. There were two interviewers recruited and trained to collect information for the study. Each interview took approximately 12 minutes and were recorded using mobile phone. Data from the interviews were analysed by using QSR NVIVO 10 and MS Excel 2010.

Results: The vast majority of the respondents reported that there was sufficient understanding of the services and the structure of the overall tiered referral system. The complaints addressed the issue of administrative procedure, accessibility, and equity, waiting time and card activation, ease of obtaining referral letter in the primary level of healthcare, and transport duration when the patient has to be referred to advance level of healthcare.

Conclusion: The functional use of electronic referral system is an urge for solution. Future studies on patients' perception and assessment toward healthcare providers' opinion should be carried out to increase the service quality.

Keywords: Assessment of perception; referral system; tiered referral system; health insurance; West Sumatra

ABSTRAK

Tujuan: Tujuan penelitian adalah untuk melakukan asesmen tentang persepsi pasien terhadap sistem rujukan berjenjang (selama kehamilan, persalinan, dan masa nifas) di rumah sakit di Sumatra Barat, Indonesia

Bahan dan Metode: Desain penelitian adalah survei potong lintang dengan metode wawancara. Teknik convenient sampling digunakan untuk merekrut 134 orang sampel. Studi ini telah lolos uji etik dari Komite Etik Penelitian Fakultas Kedokteran Universitas Andalas dengan nomor 002/KEP/FK/2018. Panduan wawancara dipersiapkan dan diterjemahkan ke Bahasa Indonesia. Dua orang enumerator dilatih untuk mengumpulkan data penelitian. Wawancara berlangsung lebih kurang 12 menit dan direkam menggunakan telepon genggam. Data dianalisis menggunakan QSR NVIVO 10 dan MS Excel 2010.

Hasil: Sebagian besar responden cukup memahami tentang pelayanan dan struktur dari sistem rujukan berjenjang. Komplain yang disampaikan pada saat wawancara meliputi prosedur administrasi, akses dan kesetaraan dalam pelayanan, waktu tunggu dan aktivasi kartu, kemudahan pengurusan surat rujukan di Puskesmas, dan lama perjalanan ketika menuju tempat rujukan.

Simpulan: Pemanfaatan sistem rujukan elektronik (digital) adalah salah satu solusi yang harus segera dilakukan. Studi lanjut tentang persepsi pasien dan asesmen kepada tenaga kesehatan juga perlu dilakukan untuk meningkatkan kualitas pelayanan kesehatan.

Kata kunci: Asesmen persepsi; sistem rujukan; sistem rujukan berjenjang; asuransi kesehatan; Sumatra Barat

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INTRODUCTION

The maternal mortality rate (MMR) and infant mortality rate (IMR) in Indonesia are still high. The latest data show that MMR and IMR in Indonesia in 2015 are within the range of 305/100,000 live births to 22.23/1000 live births.¹ MMR fluctuates annually in the Central Sumatra regions (West Sumatra, Riau, Riau Islands, and Jambi).² The latest data in 2016 recorded that the MMR in this region was averagely 94.37/100,000 live births in these four provinces.³⁻¹⁰ In 2013, the MMR was still far from the target of 102/100,000 live births. Data from the Central Data and Information in 2013 showed that the birth increase in health workers reach up to 90.88% throughout Indonesia.¹¹ A big challenge is how to make the referral system as the key pillar solution for a more effective healthcare facility in emergency situation.

All Indonesians are entitled to have a good quality of health services according to the national constitution

(1945). Health development aims to improve the level of public health to achieve the best quality of services; healthy and productive status of Indonesian people.¹² In January 1st, 2014, the Indonesian government launched the National Health Insurance (BPJS Kesehatan) program.¹² that provides access to healthcare for everyone. However, its overall satisfaction index of participants decreases gradually.¹³

Although the program has been running for almost 4 years, the coverage of health services has not been equally distributed partly due to the ineffective patients' referral system. Therefore, there is a need to make the referral system more efficient through establishing a structured and tiered regional referral system.^{14,15} Moreover, the referral system for health services should be carried out in stages according to the medical needs of the patients by respecting to the primary, secondary, and tertiary level of healthcare system.¹⁶ The process of tiered referral system in Indonesia is presented in Figure 1.

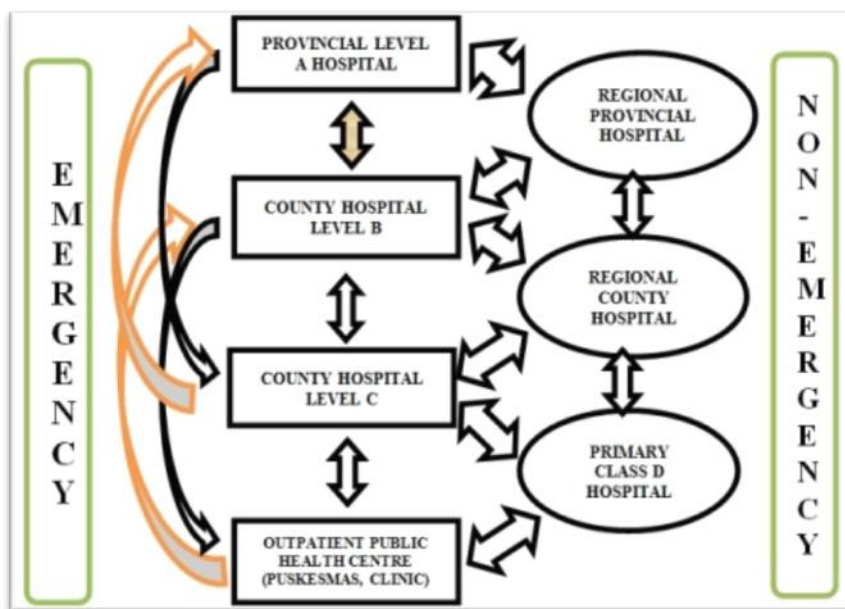


Figure 1. Referral system in Indonesia nowadays.¹⁷

Legend:

Public Health Centre (Puskesmas): a functional health organization which as a center for community health development that also fosters community participation in addition to provide comprehensive and integrated services to the community in its working area in the main activities such as mother and child welfare, family planning, nutrition improvement efforts, environmental health, prevention and eradication of communicable diseases, treatment includes accidental emergency services, public health education, school health, sports health, community health care, occupational health, dental and oral health, mental health, eye health, simple laboratory, recording and reporting in the framework of the health information system, elderly health, and traditional medical coaching; Primary Class D Hospital: is transitional hospitals because at one time will be upgraded into hospital class C. The ability of class D hospitals only provide general medical and dental services. Class D hospitals also accommodate referral services originating from public

health centers; County Hospital level C: is the hospitals that are able to provide limited specialist medical services, namely, internal medicine services, surgical services, child health services and obstetric, and gynecological services. Class C hospitals are established in each regency capital (regency hospital) which houses its referral services from puskesmas; Regional County Hospital: health service institutions owned by local governments; County Hospital level B: hospitals capable of providing broad specialist medical services and limited subspecialists. Class B hospitals are established in each provincial capital (provincial hospital) which houses the referral services from district hospitals. Teaching hospitals that is not included in class A, are also classified as class B hospitals; Regional Provincial Hospital: hospital owned by the provincial government; Provincial Level A Hospital: Hospitals that are able to provide specialist medical services and a broad range of specialist. Class A hospitals are designated as the highest referral hospital services or central hospitals.

Although, there were several studies conducted to assess the perception of healthcare providers respected to the implementation of tiered referral system in order to reduce the maternal mortality rate, the assessment of patients' perception has not been carried out.^{15,18-20} Also, these studies were only published in local or regional journals. Based on the writers literature experience, this study is the first study on investigating patients' perception at the hospital level.

MATERIALS AND METHODS

This study was based on a cross-sectional structured interview questionnaire to assess the patients' perception about tiered referral system in maternal cases. A convenient sampling technique was used to recruit the sample of the study. The interviews were carried out at Maternity Ward of Dr. M. Djamil Padang hospital. Using the cross-sectional formula,²¹ the number of samples for the study was 134 of women that were eligible for the study if they (1) willing to be a respondent, (2) refer to the hospital with BPJS Kesehatan coverage, and (3) cooperative and well conscious. This study was authorised by the Education and Research Department of Dr. M. Djamil Padang Hospital on December 19, 2017 with a license number "LB.00.02.07.1509." Moreover, the study was also approved by the Committee of the Research Ethics of the Faculty of Medicine, Andalas University number 002/KEP/FK/2018. Around one hundred thirty-four women treated in the maternity ward of Dr. M. Djamil hospital were included in the study. Each respondent signed an informed consent form before the interview was conducted. The interview guideline contained twelve questions related to the referral system based on recommendations from "Rapid Assessment of Referral Care; A guideline for manager"²² and then modified according to research needs. The interview guide is provided as a supplementary file. The interview guide was translated into Bahasa Indonesia by a sworn translator. There were two culturally and socially acceptable interviewers were recruited and trained to collect information for the study, including pilot-

interviews prior the field-work. Before the actual interview, a pilot interview was taken on November 2017. The interviews were held in Bahasa Indonesia. Each interview took approximately 12 minutes. Interviews were recorded and transcribed. The response rate of the study was 100%. The respondents' answers were categorized into two or three broad themes, which are "positive assessment", "negative assessment", and "lack of assessment" according to each question. Data from the interviews were analysed by using QSR NVIVO 10 and Microsoft Office Excel 2010.

RESULTS AND DISCUSSION

Results

Sample characteristics

The respondents' characteristics were classified by age, level of education, and employment status. Most of the respondents (30%) were between the age of 31–35, more than half of the respondents (50.75%) reported having a middle level of education and in a small scale of the respondents (16.42%) was employed.

The quantitative assessment included categorization by distance from the hospital, duration of transport, cause of referral/diagnosis when transfer or transportation used for referral, reason for choosing the hospital, treatment class, and obstacles for going to the referral hospital. About 84.33% of the respondents had a distance of more than 5 km from home to the hospital while 58.20% of the respondents reported having more than an hour travel time. Around 64.93% of the respondents were referred by ambulances from initiating facilities. The major cause of mothers' referrals to the hospital was pre-eclampsia/eclampsia (25.37%).

Respecting to the cost of referral, 11.20% of the respondents spent more than two million rupiahs from the referral time to the interview time which is 43% of the average monthly wage in Indonesia.²³ This cost covered food, drink, transportation, and ambulance transfer

expenses. In 73.0% of the respondents stated that the reason for choosing Dr. M. Djamil hospital was mainly due to recommendations from General Practitioners' and/or midwives at the initiating facility. For the treatment class, about 81 respondents (60.45%) were the

3rd of low class patients. Out of 81 people, 27 people (33.33%) were supported by the government. Hence, the distance (29.85%) and the cost other than transportation (10.45%) were the top two obstacles of going to the hospital. The details are provided in Table 1.

Table 1. Characteristics of respondents and quantitative assessment of tiered referral system

Characteristic	n	%
Age (year)		
15 – 20	3	2.24
21 – 25	20	14.93
26 – 30	35	26.12
31 – 35	40	29.85
35 – 40	24	17.91
>40	12	8.96
Level of Education*		
Low	39	29.10
Middle	68	50.75
High	27	20.15
Employment Status		
Employed	22	16.42
Unemployed	112	83.58
Category	n	%
Distance to the hospital		
0 – 5 km	21	15.67
>5 km	113	84.33
Duration of transport (hours)		
≤1	56	41.80
>1	78	58.20
Cause of referral		
Preeclampsia/Eclampsia	34	25.37
HAP	19	14.93
PROM	10	8.21
Hypertension	7	5.22
HPP	7	5.22
IUFD	7	5.22
Anaemia	6	4.48
Former Section Caesarean	6	4.48
Malpresentation	5	3.73
HIV	4	2.99
CPD	4	2.99
Others**	25	18.66
Cost other than health care services or medication (transportation, food and beverages for patients and companion) (IDR)		
0 – 1 million	107	79.86
>1 million – 2 million	12	8.95
>2 million	15	11.20
Transportation used for referral		
Ambulance	87	64.93
Motorcycle	11	18.66
Private Car	25	7.46
Rent	1	8.21
Public vehicle	10	0.75
Reason for choosing the hospital		
Instructed to do so	98	73.13
The doctor is always standby	10	7.46
Medical equipment is complete	19	14.18
Comfortable	1	0.75
Always come to this hospital	2	1.49
Near the house	2	1.49
Others	2	1.49
Treatment class		
1 st	13	9.70
2 nd	40	29.85
3 rd	81	60.45

Category	n	%
Obstacles for going to the referral hospital		
Waiting time	2	1.49
No transportation	2	1.49
Unpleasant experience	5	3.73
Another child at home	6	4.48
Distance	40	29.85
Weather	1	0.75
Transportation Fee	12	8.96
Fee other than transportation	14	10.45
Another constraint	2	1.49
No obstacles	50	37.31
Total	134	100

*based on Act No. 20 of 2003 concerning the education system in Indonesia; low: no school to Junior High School level, middle: Senior High School/Madrasah Aliyah and the like, high: Undergraduate and more

**group of diagnoses for others namely: puerperal infection (2), ABO incompatibility (1), Polyhydramnios (1) hepatitis (3), Gemelli (1), prolonged labour (3), history of epilepsy (1), post forceps extraction (2), dengue haemorrhagic fever (1), febris observation (1), spontaneous parturition (1), gravid with ovarian cyst (1), old primipara (1), thalassemia (2), oligohydramnios (2), tractus urinarius infection (1), pro induction (1)

Respondent’s perception about referral system before tiered referral system implemented by BPJS Kesehatan

Structural understanding

During the qualitative assessment of the level of understanding regarding to the structure, accessibility, evaluation of administration, waiting times, and BPJS Kesehatan card activation, they were categorized according to the positive or negative opinions. The italicized quotations in Tables 2 illustrate some excerpts from the received answers.

Our findings demonstrate that 29 respondents did not understand how is the tiered referral system operated by BPJS Kesehatan. Some of them only followed the instructions told by the officers (general practitioners (GP’s), obstetricians, or midwives) without proper understanding the actual procedures of the referral system.

Respondents’ perception about referral system before tiered referral system implemented by BPJS Kesehatan

Most of the respondents indicated that there was a disparity in access and inequity of health care before the BPJS era came out. They underlined that healthcare was only for the high-income community and not for the poor. As stated by Mrs. 30 that she could easily access the healthcare, even though she was a non – contribution participant. One the other hand, one-quarter of the respondents reported that the right to choose services has been broken in the new system (see Table 2).

Two third of the repondents underlined the increased adminisitrative burden in the new system. Surprisingly, more than one third were not willing to assess the changes in administrative requirements. Our investigation indicates that the respondents preferred the administrative procedure for getting health care before the BPJS era. The participants also highlighted that the health services at that time were faster before the BPJS era (29 respondents).

Respondents’ perception about referral system after tiered referral system was implemented by BPJS Kesehatan

Equity, accessibility, and administrative procedure of healthcare

One hundred and thirty-four (134) respondents provided their opinions regarding the equity of the tiered referral system. There were 24 people who gave further feedback about the accessibility of the tiered referral system. Hereafter, 17 people commented on the administrative procedures of the tiered referral system. Excerpts from the answers are shown in Table 2.

Ease of obtaining referral letter in tiered referral system

During the ease assessment of obtaining a referral letter from the first level health facility, the responses of 134 participants were categorized into positive, negative, and some are unable to evaluate. Some examples of the answers are given in Table 2. Almost all respondents (90%) stated that in a tiered referral system, they easily obtained a referral letter when they needed that. On the contrary, around 9 respondents mentioned that the ease was depending on the health workers at the first level

health facility. Additionally, there were two respondents complaining about the unfair card activation system.

Table 2. Qualitative assessment of tiered referral system

Category of Assessment	Category of Responses		
	Positive	Negative	Unable to Evaluate
Structural understanding	105/134 respondents <i>"I understand, from the clinic to the first level hospital, after that to the central referral hospital." (transcript 69 37)</i>	29/134 respondents <i>"I do not understand, I just followed the procedure which was told (by the midwife)" (transcript 48 15)</i>	
Perception of Respondents about Accessibility to Healthcare before BPJS Era ¹			
	Positive	Negative	Unable to Evaluate
Access to healthcare	97/134 respondents stated that access to health services in the before BPJS was only for the middle-upper class, while the poor could not access health services because of limited resources <i>"to get (healthcare) service, you have to pay first." (transcript 102 E)</i>	37/134 respondents stated that access to health services was more accessible in the before BPJS because they could choose any hospital or doctor without insurance rules <i>"... hospital choices are more before using the BPJS." (transcript 100 NA)</i>	
Administrative burden		82/134 respondents stated that health service administration procedures before the BPJS applied were better than after the BPJS era <i>"The procedure before was clear. I did not need to prepare many letters." (transcript 103 J)</i>	52/134 respondents could not provide the answer to this question
Waiting time	29/82 respondents stated that there was no difference between waiting time for doctors or midwives before or after BPJS <i>"good in practice, but need a long time waiting for the doctor." (transcript 13 K)</i>	53/82 respondents stated that before the BPJS era they were served faster and did not have to wait long <i>"..., Everything is quick." (transcript 90 J)</i>	
Perception of Respondents about Referral System after Tiered Referral System was implemented by BPJS Kesehatan ²			
	Positive	Negative	Unable to Evaluate
Accessibility of healthcare	19/24 respondents stated that the BPJS referral system did not complicate access to health services. <i>"If there is a BPJS we can go directly to the hospital when necessary." (transcript 103 J)</i>	5/24 respondents stated that they could be referred only to the hospital which collaboration with BPJS. <i>"... we can't choose where (we want to go) because the BPJS has determined" (transcript 122 49)</i>	
Administrative Procedure of Healthcare	5/17 respondents said that administrative procedures were easy to understand and followed by patients. <i>"Easy if administrative requirements are met" (transcript 28 L)</i>	12/17 respondents stated that the procedure were quite disturbing. <i>"....., too many letters must be photocopied" (transcript 119 RD)</i>	

Ease of Obtaining Referral Letter in Tiered Referral System	121/134 respondents stated that it was not difficult to get referral letters from first level health facilities <i>"...it is easy to get services because now the BPJS system is better" (transcript 38 a 001)</i>	4/ 134 respondents stated that it was difficult to get referral letters from first level health facilities <i>"It was a little difficult for me to get a referral letter at the Puskesmas (the first level of healthcare facility) even though I had come many times because the medication given at the beginning did not reduce my pain, so I asked to be referred, but the Puskesmas did not want to give me (the referral letter)." (transcript 39 A)</i>	9/134 respondents stated that the ease of obtaining referral letters was varied, some were difficult there were also easy ones <i>"Depending on the Puskesmas," (transcript 108 DW)</i>
BPJS Kesehatan Card Activation	2 respondents stated that card activation was too long from the time of registration and became a problem when they needed the service at the hospital using a BPJS Kesehatan insurance. <i>"when you need to use it, you can not use the card immediately but have to wait 15 days, while I was in need (to go to the hospital soon) because the amniotic membrane has broken out." (transcript 100 N)</i>		

¹The assessment was interpreted based on the question number 6.4 from the interview guideline "What is your opinion of the referral care system before the implementation of referral care system from the Indonesia national health insurance (the BPJS Kesehatan)?" The answers were categorized based on the response(s) given by the respondents during the interview in regards to the referral care system before the new system was implemented. Positive response(s) could be explain as the respondents provide the comments in contradictions regards to the new system, whereas negative responses) should understand as a positive opinion regards to the new system in comparison to the prior one.

²The assessment was interpreted based on the question number 6.5 from the interview guideline "What about the referral care system nowadays?". The answers were categorized based on the response(s) given by the respondents during the interview in regards to the referral care system nowadays.

DISCUSSION

The vast majority of the respondents (84.33%) had more than 5 km distance from home to Dr. M. Djamil hospital. More than half of the respondents (58.20%) had travelled to Dr. M. Djamil hospital for more than 1 hour. These results indicated that there was limited access for respondents to the hospital. As a national referral hospital covering the Western and Central Sumatra region, patients from out of province region found challenges to reach Dr. M. Djamil hospital, particularly those in emergency conditions. This may explain the reluctance of patients coming to this hospital, even though their treatment is only available at the hospital.

Distance and travel time could also cause delays for mothers to get adequate health services in emergency conditions. The results of this study are in line with a research from Osoro et al. (2013) stating that distance and travel time were one of the causes for mothers' reluctance to be referred which will lead to the delay in getting the necessary health services, resulting in death.²⁴ The tiered referral system implemented by BPJS aims to offer a solution for this problem.

Our study confirmed that the BPJS Kesehatan also covers the disadvantaged community. More than half (60.45%) respondents were 3rd class treatment patients, and 33.33% of them were non-contribution participants, which means that the government pays contributions for them to get the coverage from BPJS Kesehatan.

The respondents also stated that they could go directly to the healthcare facilities when they were in an emergency situation. However not only in emergency condition, but also for non-emergency patients, the healthcare services should also be easily accessible. As nearly 98% of respondents stated that they could obtain the referral letter from primary level of healthcare without any difficulty. The BPJS Kesehatan aims to ensure the accessibility and equity of healthcare for the entire Indonesian society.¹⁶

This study shows that patients found the administrative system of the BPJS Kesehatan quite troubling and disturbing. To address this issue, the Dr. M. Djamil hospital implemented an online registration system in 2017. With the application of such this online registration system, reduction in waiting time was expected. However, according to our findings, only two patients used this online registration system. This may be

explained by the lack of education on the registration system or by the limited digital health literacy.

Additionally, according to the rules of BPJS Kesehatan since June 1st, 2015, the BPJS card can only be used 14 days after the activation of Virtual Account (VA). This rule applies to the participants with new registration including independent (PBPJ) and non-worker participants. Our finding captured a case for this complain by Mrs. 100 NA. She could not register as BPJS patient in an emergency condition due to having invalid BPJS Kesehatan card. This issue can surely be avoided if the regulations made by BPJS Kesehatan do not contradict the rules set by the hospital.

Implications for the future referral system

The study captured 4 cases of pregnant women with HIV (+) who were referred to Dr. M. Djamil hospital to get controlled ARV therapy. Two of them were from another provinces. They should come to the hospital every month in order to get the medication. Despite sending the patients to the hospital, the regional provincial hospital could order the drugs from Dr. M. Djamil hospital, which later would distribute to the patients. Furthermore, antenatal cares could be done in this hospital. It would reduce patient expenses and increase safety for mothers and babies.

Strength and limitations

The strength of our study is that this study provides important and unique data regarding the latest referral system implemented in Indonesia from the patients' perspective. As long as our literature experiences, the other studies assess the tiered referral system exclusively from the health workers or stakeholders point of view. We believe that our investigation yielded the public health important issue on the health care services.

An important limitation of our study is that not all of the respondents were able/willing to provide answers and express their opinions about the referral system. This could be explained by that some respondents had never been referred to the hospital before, or they never used the health insurance before their referral by BPJS Kesehatan. We must note that we did not limit the inclusion criteria of our sample on this issue. Therefore, the upcoming investigation ought to consider this issue as an additional requirement for the eligibility of respondents.

CONCLUSION

Vast majority of the respondents understand well about the tiered referral system. Even though, there are still many complaints coming from the patients. The complaints do address administrative procedure, accessibility and equity, waiting time and card activation, the ease of obtaining referral letter in the primary level of healthcare, and duration of transport when the patient have to be referred from the primary to the advanced level of healthcare. Involving patients into the process of protocol and system development seems to be crucial for a more effective referral system in Indonesia.

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