

Challenges of Data Collection for Research in a Developing Country

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Abstract: Data collection is a substantial step in conducting a research. Researchers usually face enormous challenges in this step. While they have to maintain the validity of inferences, they also must anticipate such unexpected factors that might intrude the results. One of the most important things in maintaining validity of research results is to keep validity of data through a good and correct data collection process. The challenges become greater when the data collection is carried out in developing countries where the levels of education, socio-economic status of respondents as well as the enumerators' capacity are significantly varied. The present study aims to investigate the challenges of research data collection process through interview by using questionnaire in a developing country of Indonesia. The study was conducted by qualitative method with Focus Group Discussion (FGD) as data collection method. The respondents were enumerators involved in a community based health survey in districts of Indonesia. Data were analyzed using the qualitative content analysis method to identify themes, categories, and sub-categories. The study had been identified two themes, namely: internal challenges (questionnaire, research status, sample election, enumerator) and external challenges (research permit, respondent and research location) as the challenges of data collection process. The themes were identified in the study will be guidance for researchers in planning and conducting data collecting process through interviews by using questionnaire for enhancing validity of research results in Indonesia and other developing countries.

1 INTRODUCTION

Data collection is an important step in conducting a study. Researchers wish to obtain valid and accurate data for rational finding. Survey is designed to obtain information about the prevalence, distribution and interrelation of phenomenon (Polit, & Beck, 2012). Therefore, researchers must design a well-structured plan to anticipate every challenge faced on the field where researchers take place in order to produce valid and accurate data.

With regard to the characteristics of respondents, the challenges of data collection between developed and developing country are different. In general, Hing et al., (2011) in a literature review mentioned that poor design and low response were two problems of health survey using questionnaire in both developed and developing countries. There are very few studies in developing country were conducted to explore the challenges of data collection from health survey

using questionnaire, including in Indonesia. Whilst enumerators who were involved in a community based health survey in districts of Indonesia reported some challenges faced in the field. Therefore, this study aims to reveal challenges of data collection as expressed by survey enumerators in Indonesian settings.

The current study focuses to explore the challenges were faced by enumerators in data collection process. The data were collected using interview and a Focus Group Discussion (FGD) approaches. A deep interview was used to explore more participants' experiences about the challenges of data collection. This article is expected to be a guideline for researchers in planning data collection procedure of health survey in developing country, especially survey data collection using enumerators.

2 METHODS

2.1 Study Design

This study was designed as qualitative method with explorative approach. The aim of study was to investigate the challenges of data collection process in a community based health survey.

2.2 Participants

A total of nine enumerators involved in a community based survey about mental disorders and diabetes in the districts of Banda Aceh and Aceh Besar, Indonesia.

2.3 Data Collection

Data were collected through focus group discussion (FGDs). The FGD was conducted in April 2018 and undertaken in a two hours meeting with two sessions and 15 minutes break between the sessions.

2.4 Data Analysis

Data were analyzed using qualitative content analysis. This method was used to search for manifest and latent meanings of transcript of interview to formulate condensed meaning units, codes, sub-categories, categories and themes (Graneheim & Lundman, 2004).

The analysis was done in the following steps: 1) created transcript of interview; 2) the transcript of interview read repeatedly to formulate

condensed meaning unit; 3) according to condensed meaning unit, then researchers formulated codes, sub-categories, categories, and themes that were suitable to study purposes. Data analysis are summarized in Table 1.

3 FINDINGS

Based on data analysis as shown in Table 1 above (Subsection 2.4 Data Analysis), the internal challenges consist of four categories, i.e. questionnaire, research status, sample selection, and enumerator. Whilst the external challenges were divided into three categories, i.e. research permit, respondent and research location.

Furthermore, each category was classified in some sub-categories. For example, questionnaire was distributed in two sub-categories (i.e. answer design and question design), research status was distributed in two sub-categories (i.e. professional research and undergraduate research), sample selection was distributed in two sub-categories (i.e. rigid and flexible), and enumerator was distributed in three sub-categories (i.e. enumerator's fees, enumerator status and enumerator capacity), research permit was distributed in two sub-categories (i.e. content of research permit and coordination of research permit), respondent was distributed in two sub-categories (i.e. education level and experience and perception and culture), and research location was distributed in two sub-categories (i.e. rural, remote area and urban area).

Table 1: The Data Analysis Using Qualitative Content Analysis Method.

Themes	Categories	Sub-Categories	Codes	Condensed Meaning Unit
Internal Challenges	Questionnaire	Answer design	Likert scale	Likert scale raise confusion of respondents Likert scale raise inconsistency of respondents' answer. Provide answer choices.
		Question design	Answer for financing questions	Too many questions make respondents bored & annoyed Repeated questions make respondents bored & annoyed
			The numbers of questions	Mental health question decrease response of respondents Mental health question make respondents uncomfortable. Economic question make respondents hope for humanitarian aid.
		Question context		

Themes	Categories	Sub-Categories	Codes	Condensed Meaning Unit	
External Challenges	Research Status	Professional research	Increase participation	Professional research more acceptable.	
		Undergraduate research	Lack of participation	Undergraduate research less acceptable	
	Sample Selection	Rigid	Time consuming	When respondents were not met, enumerators must back for interview again.	
		Flexible	Saving time	If respondents can be replaced when they were not met, enumerators not need to back for interview.	
	Enumerators	Enumerator's fees	Payment model of enumerator's fees.	It is not fair to pay enumerator's fees per questionnaire. For fair payment, enumerators must have contract with basic salary, transport fees, allowance and insurance.	
		Enumerators status	Education status	Students were considered less professional Graduates were considered more professional	
			Citizen status	The presence of foreigner increase respondents' acceptance. The presence of foreigner also can raise suspicion. The presence of foreigner triggered respondents dramatizes data for humanitarian aid purpose.	
		Enumerators capacity	Adaptability	Communication skills	Adaptability can increase acceptance. Technique of adaptation was different between urban and rural community.
				Questionnaire Understanding	Clear explanation of research purpose, procedures and benefits can enhance respondent's acceptance. Questionnaire understanding will enhance the smoothness of data collection process.
		Research Permit	Content of research permit	Containing all activities carried out	Complete information of research permit can enhance the smoothness of data collection process.
	Coordination of research permit			Coordinate and communicate the research permit with all government levels can enhance the smoothness of data collection process.	
	Coordination of research permit		All formal security levels.	Coordinate and communicate the research permit with all formal security levels can enhance the smoothness of data collection process.	
Coordination of research permit must be done before data collection process.			Coordination and communication of research permit early can anticipate various problems in data collection process.		
Respondents	Education level and experience	Education level will influence respondent's acceptance.	The higher level of respondent's education, it will be more critical. Respondents with lower levels of education will be more influenced by negative rumors from social media.		
		Experience will influence respondent's acceptance.	The higher level of respondent's education, the respondent's acceptance will be better. Positive experience will enhance respondent's acceptance.		

Themes	Categories	Sub-Categories	Codes	Condensed Meaning Unit
		Perception and culture	Perception and culture will influence respondent's acceptance.	Gender differences will influence respondent's acceptance. Respondent's participation was influenced by negative rumors. Stigma enhances reluctance of respondents to answer mental health questions. Respect for guest as a culture in Aceh society has been increased respondent's acceptance. Local habits influence respondent's acceptance.
	Research Location	Rural/ remote area	Distance Accessibility Distance	Difficult to reach and time consuming. Difficult and risk to find location. Respondents live in densely areas so that it is easy to meet.
		Urban area	Accessibility	Near and easy to reach.

4 DISCUSSION

The present study reveals a wide variety of challenges during a community based health survey in Aceh Province, Indonesia. Overall, two main themes presented as the challenges in data collection, the internal and external challenges. Internal challenges include the design of questionnaire and its contents, the research status – whether it's for academic or professional purpose, sampling methods, sample selection and the enumerators themselves. External factors include the difficulties in obtaining research permit from each health of villages, respondent selection, and research location.

Hing et al (2011) mentioned that the main source of error in survey include non-measurement errors such as survey design, sample frame and sampling, non-response and item non-response, and measurement errors such as survey instrument and data collection processes. Their statements somehow also expressed by the informants of the present study.

Questionnaire is one of challenging of data collection process. Design of questions and answers can influence accuracy and validity of data. Even though Hing, et al., (2011) mentioned that face to face interview is particularly useful for long questionnaire with complex questions. But in this study participants reported that too many and repeated questions made respondents bored and annoyed. Besides they have not so much time to sit and answer questionnaire.

Using Likert scale in a survey is quite popular for studying phenomena from opinion and attitudes in social and medical research (Janhunen, 2012; Gob, McCollin, & Ramalhoto, 2007). But using

Likert scale in this study was reported as a challenging because it can affect inconsistencies of respondent's answers. Participants said that some respondents changed their answer when enumerators validated their answer again. Some respondents, especially those with lower education level have difficulty in understanding the Likert scale, therefore their response on the questions might lead to bias. Therefore, enumerator should ensure that the answers provided by subject are valid. Here, enumerator's knowledge about Likert scale must be good prepared so that they can guide respondents to choose right answers according to their thinking about.

According to participants' statement, many of respondents in this study were difficult to answer questions of income and expenditure. Respondents with non-permanent worker have not fixed income and expenditure. Also, since the majority of Acehnese population work as farmer, where their incomes are not regular, but largely depend on harvesting time. Therefore for these types of questions, the researcher must provide some answer choices in minimum to maximum range. This manner of income should be considered in the future study.

Moreover, research status is also an internal challenge in data collection process. Respondents in the field asked repeatedly about research status (professional or undergraduate research). In commonly, society pays little attention for undergraduate research. Therefore enumerators must be able to convince respondents about direct and indirect benefits of the research for respondents.

Sampling method is very important in data accuracy and validity. Sample size and

representative are two things that must be considered to preserve data integrity and enhance the validity of study findings (Polit, & Beck, 2012). However, the challenge is when enumerators cannot meet the samples which have been selected. Participants reported that they spent much time for coming back for interview. This created more difficulties when interviews were in remote areas. Distance and accessibility are two challenges faced by enumerators. Whilst replacement of samples will disrupt data representation, therefore it is important for researchers to allocate enough time and budget in research planning.

Results of this study show that enumerators are important element in collecting data of survey. Skills, experience and capability of enumerator greatly influence the outcome of an interview (Sahu, 2013; Haunberger, 2010). Therefore in this study, enumerators were selected by considering of their education qualification and experience. It is reasonable because participants reported that many respondents in the field asked about enumerator's education status. As discussed above, respondents pay little attention for undergraduate research.

Before collecting data, enumerators must be trained because in the field, capacity of enumerators will determine validity and reliability of data. Clear understanding of questionnaire will enhance the smoothness of data collection process and respondents were pleased during the interview process.

Haunberger (2010) mentions that interviewer attitude and behaviour will influence respondent's response. Therefore, participants mentioned that enumerators must understand local culture for more adaptability. It is different way to adapt between urban, rural and remote communities. Therefore, the presence of a foreigner was responded differently. Some of respondents were excited, some others were suspicious, and the others thought would get humanitarian aid. Communication skills of enumerators are needed to explain research purpose clearly. Participants mentioned that clear explanation about research purpose and activities will increase participation of respondents.

Beside of internal challenges, we found also external challenges. The first external challenges are research permit. Enumerators faced problems in the field according to research permit. Some community leaders (*Geusyik*) asked enumerators to have recommendations of all civil administration levels (district, sub-district and village), and some

others asked to have recommendation of all security department levels (district and sub-district police station). Meanwhile, the enumerators just had recommendation of provincial government.

According to regulation, bureaucracy of research permit in Indonesia is regulated by at least four levels of formal regulation, namely: Constitution of Indonesia, Number 18, 2002, Regulation of Ministry of Home Affairs, number 7, 2014 and number 64, 2011. In addition, foreigners or foreign institutions are also regulated by government regulation, Number 41, 2006, and Regulation of the Minister for Research and Technology, Number 08/M/IX/2007. All the regulations oblige researchers to have recommendation from Central Government, Province, and Regency/City depend on research location or researchers background (Indonesia Ministry of Research & Technology, 2012; Augustine, et al., 2018).

In application of the regulations, different departments have different procedures which often raise negative implications for researchers and research institution (Augustine, et al., 2018). Furthermore, lack of information about research procedures both from institution providing research recommendation or others information resources make researchers be confuse. Meanwhile in the field, researchers must follow any unwritten rules of community leaders. Therefore it was very important to get information and complete all research recommendation before collecting data to minimize problems in the field. It was also recommended by participants in interview.

The second external challenge was education level of respondents in data collection. Participants reported that respondents with high levels of education were more cooperative in interview, albeit rather more critical. Furthermore, respondents' experiences, culture and rumors will influence the interview process. Instance, negative stigma makes respondents reluctant to answer questions of mental health. But cultures of Acehnese people in respecting guest make enumerators more acceptable. Even though, enumerators must spend more time to follow the tradition. Because of this, it is very good to select enumerators from local community who have been familiar with local culture, besides they have knowledge in relate to research theme.

The third external challenges are research location. Distance and accessibility were reported as a challenge in data collection process. For remote area, participants faced some difficulties

like: difficult to reach location, time consuming and high risk for enumerators. Therefore, participants suggested to extend data collection time and to create a fair scheme of payment for enumerator's fees. It was not fair to pay enumerators fees per questionnaire, because enumerators will face different difficulties according to research location. For fair payment, some participants proposed to make a contract with basic salary, transport fees, allowance and insurance.

5 CONCLUSIONS

There were two challenges that were faced by enumerators in conducting survey in developing countries, namely internal challenges (questionnaire design, research status, sample selection, and enumerators) and external challenges (research permit, respondent, and research location). Researchers must pay attention to eliminate the challenges to get data validity and reliability.

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