HEALTH WORKER PERCEPTIONS ABOUT FACTORS THAT CONTRIBUTE TO INFANT MORTALITY IN INDONESIA

Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Nursing (Coursework and Research)

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Abstract

Background: Indonesia had a high infant mortality rate (IMR) at 30.6 per 1000 live births in 2012, which decreased to 25.4 by 2016. However, a high rate of infant mortality remains an issue in disadvantaged regions, such as Papua Province. The purpose of the study is to investigate health workers' perceptions about factors that contribute to infant mortality in Papua Indonesia.

Methods: A qualitative descriptive method using semi-structured phone interviews was employed to investigate the perceptions of nurses, midwives and doctors about factors that contribute to infant mortality in Papua Indonesia. The results were analysed using NVivo 12 then discussed under two frameworks the three delays model and the primary health care principles

Result: This study identified local beliefs and practices related to pregnancy, birth and infants, infant health factors, maternal health factors, and barriers to seeking, receiving and providing infant health care are factors that contribute to infant death. In general, infant mortality in Papua was negatively impacted predominantly by delays in decision to seek care, delay in reaching care and delay in receiving care.

Conclusion: The local people's cultural beliefs about pregnancy, birth and infant and maternal health, poverty and geographic isolation were major factors that contribute to infant mortality in Papua Indonesia. This study has uniquely focussed on understanding the participant health workers' perceptions, and found that, in addition to government funding of health centres, cultural knowledge and sensitivity are central to the provision and acceptance of health care by local families, particularly for maternal and infant health.

Keywords: Infant mortality, The three delays, The primary health care principles, Health worker, Perception, Factors.

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Declaration

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signature: 

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Date : 10 December 2018

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CHAPTER 1: INTRODUCTION

1.1 Introduction

Globally, it is estimated that in 2017, 4.1 million (75% of all under-five deaths) occurred within the first year of life (WHO, 2017c). Factors that lead to infant deaths in less developed countries are rarely seen in high-income countries and, when those factors do appear in developed countries, they do not usually end in death. The three major causes of infant mortality in high-mortality settings are infections, complications of preterm birth, and intra-partum conditions. Those three factors are responsible for the vast majority of infant deaths globally (Lawn et al., 2014).

As infant mortality is one indicator that determines the health status of a community, the higher the infant mortality rate (IMR) of an area, the lower the health level of a society of a country. The IMR of a nation is the average of the IMR of all its regions or provinces. Indonesia had a high infant mortality rate (IMR) at 30.6 per 1000 live births in 2012 (UNICEF, 2012), which decreased to 25.4 by 2016 (UNICEF 2018). However, a high rate of infant mortality remains an issue in disadvantaged regions, such as Papua Province. Jones (2013) predicted that the IMR in 2030 in Papua Province may be as high as 37.8 per 1000 live births, while for Indonesia as a whole it will decrease from 34 to 21.5 per 1000 live births. The target of the Sustainable Development Goals (SDGs) is to achieve a mortality rate of no more than 25 infants per 1,000 births in each country by 2030 (Sustainable Development Goal 3, 2017). This shows that the population health in Papua Province is not only below expectation but is predicted to worsen.

Many studies have examined the determinants of neonatal and infant mortality in Indonesia. Debelew, Afework, and Yalew (2014) found that a lack of health workers resulted in insufficient antenatal and postnatal care might be one of the determinant factors of neonatal mortality. Similarly, Titaley, Dibley, Agho, Roberts, and Hall (2008) found the

reduction of infant deaths in some parts of Indonesia was associated with the availability of perinatal health services in those areas. A study in India conducted by Detterick, Jimenez-Soto, and Hodge (2014) concluded that socioeconomic and geographical factors play a pivotal role in regard to infant mortality. Martinez et al. (2012) also stated that newborn care costs, inadequate public service facilities, lack of health workers, and distance to public health services are barriers in neonatal care in developing countries.

However, there is a dearth of understanding of determinants of infant mortality specific to Papua Province. While the factors of IMR in general have been studied, determinant factors more unique to Papua Province have not been sufficiently investigated. There might be other determinant factors, specific to Papua, which explain its high IMR, such as culture and behaviours or customs and religious beliefs. Papuan health workers are well positioned to provide insights from their lived experiences of the factors contributing to infant death in these communities. This study therefore intends to explore health worker perceptions about factors that contribute to infant mortality in Papua Indonesia. In this chapter, the background of the study and the aims and objectives are presented. The research questions and significance of the study will be outlined. Lastly, the research setting and the overview of the subsequent chapters of the thesis will be provided.

1.2 Background

The province of Papua has been granted special autonomy status since 2000. By allocating a special amount of funds to Papua Province to support the fundamental rights of indigenous Papuans (Agustinus, 2013; Wael & Laurens, 2015), the aim of the Indonesian government was to improve development in Papua, which had been left far behind compared to other provinces in Indonesia, especially in the health field (Resosudarmo, Mollet, Raya, & Kaiwai, 2014). However, after 17 years of the implementation of special autonomy, the development in the province of Papua, particularly in health sector, remains far behind

compared to other provinces in Indonesia. In particular, development in the health sector in Papua has not reached optimal standards, as evidenced by the poor IMR (UNHDP, 2016). At 54/1000 births compared to the national average of 32/1000 births in 2012 (Papua Province Health Office, 2017), the Papuan under-five mortality rate was far below the target of the Sustainable Development Goals (SDGs). One of the most convincing explanations for poor health outcomes in Papua is because the government health budget is inadequate and there is a failure to spend funds wisely (Resosudarmo et al., 2014). This is also supported by Human Development Index (HDI) of Papua Province, which is still the lowest at 57.25 of the 34 provinces in Indonesia (Ministry of Health, 2015a).

Compared to Aceh Province, which also has special autonomy, there is a large gap in terms of health development programs. Aceh Province has a similar background with Papua Province regarding political issues. However, Aceh Province has almost achieved the IMR of SDG's target with 26 per 1000 live births in 2012 (Statistics Indonesia, 2013), in contrast with the 54/1000 IMR in Papua Province, which was the highest infant mortality rate in Indonesia (UNICEF, 2012). There is an urgency for the government to identify causes and establish viable programs to improve this statistic and in order to achieve the SDGs target. The Papuan government is planning to enhance development in various fields, such as infrastructure, economy, education and health, but has little regard for development related to the prevention of infant mortality.

According to the Indonesia Health Profile (Ministry of Health, 2015a), the number of health workers in Papua stands at 3,897 nurses, 1,132 midwives, and 755 doctors compared to the population of 3,207,444 and area of 316,553.07 km^2 (Statistics Indonesia, 2017). Given the difficulty of the geographic conditions of Papua with its remoteness and isolation, it is likely that the number of health workers serving a

community that is spread over the vast Papua region would be insufficient.

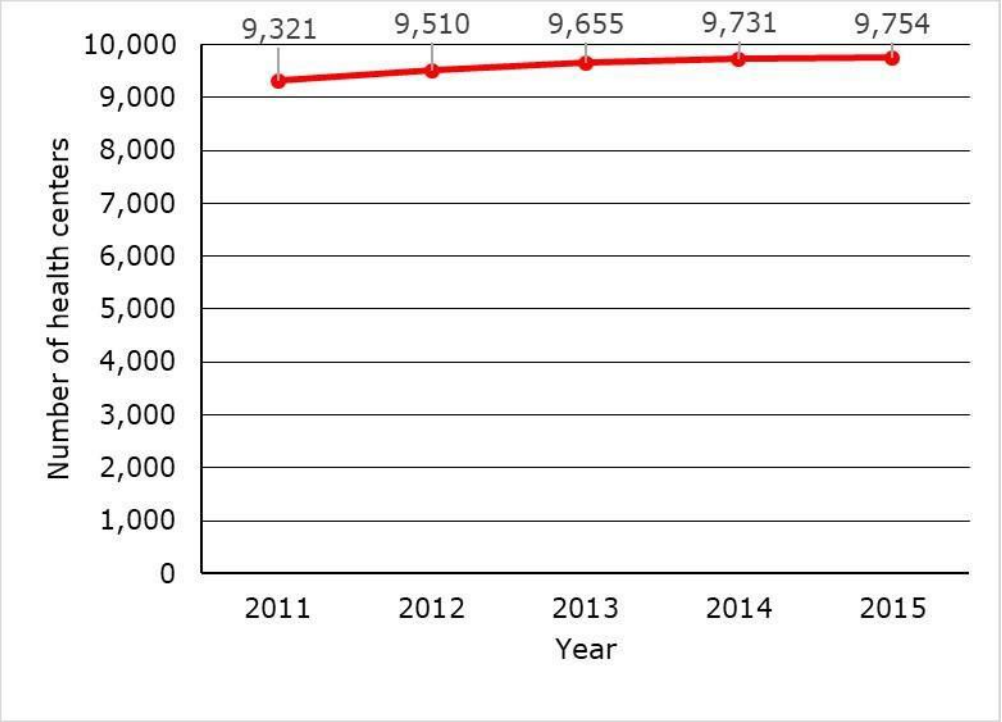
Several researchers have studied the contributing factors to infant mortality in Indonesia and found that the prevalence of stillbirth, low birth weight and short birth interval infants were causes of infant mortality (Titaley et al., 2008). Febriyuna (2015) also noted that bio-demographic characteristics are among the determinant factors of infant mortality in Indonesia. Likewise, Hodge, Firth, Marthias, and Jimenez-Soto (2014) found that the level of the economy, maternal education and the geographic area (rural/urban) are determinant factors of infant mortality rates in Indonesia. All of these studies used quantitative approaches to investigate causes of IMR. Studies regarding health worker perceptions about factors that contribute to infant mortality in Indonesia have not been conducted. Therefore, the aim of this study was to explore factors that contribute to infant mortality from the perceptions of health workers in Papua, Indonesia.

1.2.1 Health Development in Indonesia

Health development is one strategy to improve public health. Achieving an optimal health level is not just the responsibility of the health sector alone, but also other related sectors such as the education, economic, social and government sectors (Ministry of Health of Indonesia, 2015b). The level of public health of a country could be influenced by the number of health facilities (Ministry of Health of Indonesia, 2015b). Health care facilities provide promotive, preventive, curative, and rehabilitative health services by the government, local government, and/or society, as stated in the Republic of Indonesia Law Number 36 of 2014, concerning Health Workers, (Government of Indonesia, 2014). Health facilities in the Indonesian context consist of clinical facilities, pharmacy and medical services, and government health education institutions that produce health workers (Ministry of Health of Indonesia, 2017)

In December 2015 there were 9,754 community health centres across Indonesia, of which 3,396 provided inpatient care and 6,358 provided outpatient care only (Ministry of Health, 2015b). These figures represented an increase of community health centres from 9,321 units in 2011 and from 9,731 in 2014 (Ministry of Health, 2015a) (see Figure 1.1).

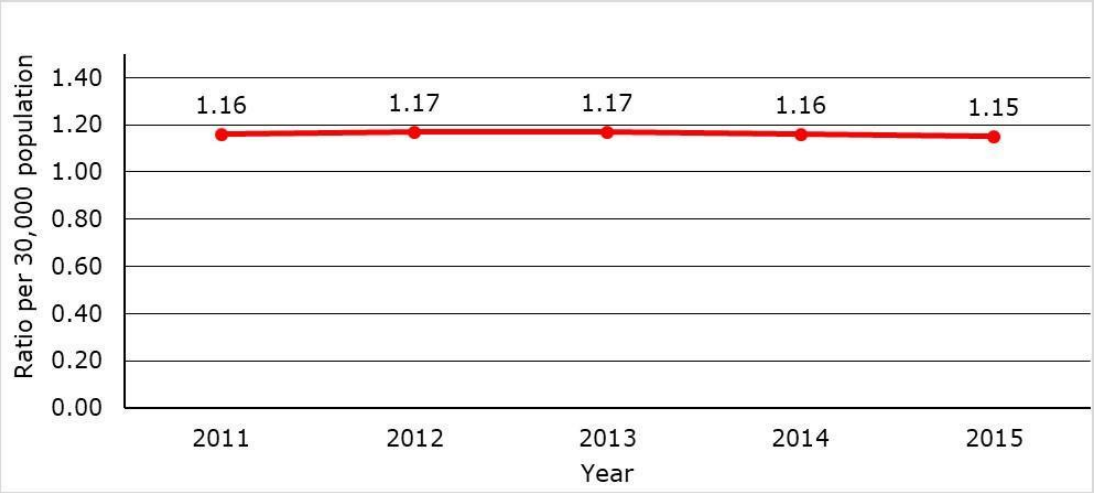
Figure 1.1: Number of Health Centres in 2011-2015



Source: Indonesia Health Profile 2015 (Ministry of Health, 2015a).

However, an increase in the number of community health centres does not necessarily indicate a fulfilment of basic health services needs in a region. The fulfilment of basic health services needs is more accurately reflected by the community health centre ratio to 30,000 inhabitants. In Indonesia, the community health centre ratio against 30,000 inhabitants tended to increase between 2011 and 2013, but decreased in 2014 by 1.16 and in 2015 by 1.15 (Ministry of Health, 2015a) (see Figure 1.2). This is because the rate of increase in the number of CHCs was lower than the rate of population growth.

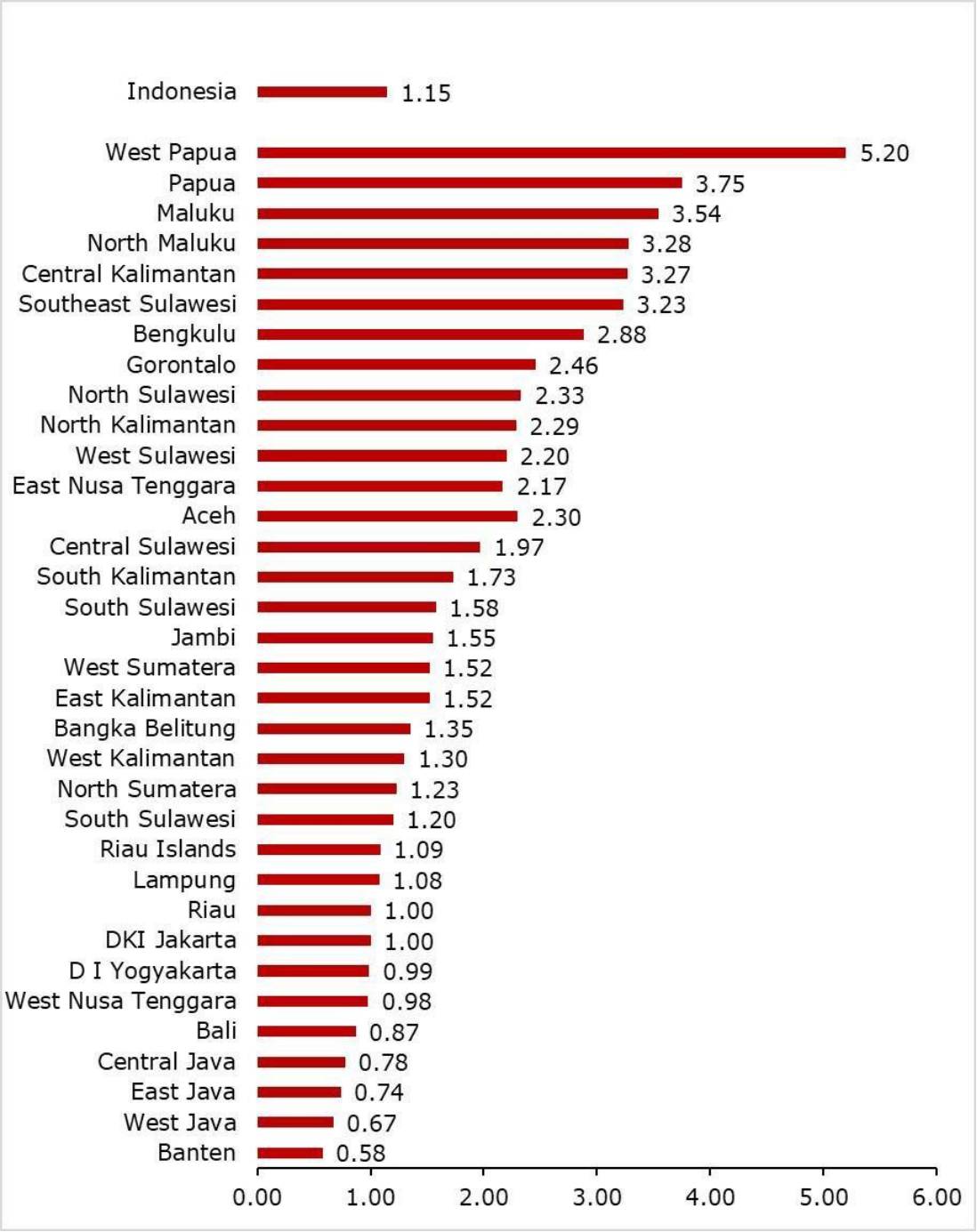
Figure 1.2: Ratio of Health Centres per 30,000 Population in 2011-2015



Source: Indonesia Health Profile 2015 (Ministry of Health, 2015a).

West Papua and Papua have the highest ratio of community health centres per 30,000 people (see Figure 1.3). However these ratios do not reflect the real condition of the people's access to primary health care services due to the relatively small populations living in extensive and remote geographical areas. The population density is lower than other areas of Indonesia, and the distances between health centres are significant.

Figure 1.3: Ratio of Health Centres per 30,000 Population



Source: Indonesia Health Profile 2015 (Ministry of Health, 2015).

Population as a determinant of development needs to receive serious attention. Further, development programs, including health sector development, should be based on population dynamics (Ministry of Health of Indonesia, 2015b).

By 2015, there were 2,488 public and private hospitals in Indonesia. Public hospitals in Indonesia are managed by the Ministry of Health, Provincial governments, and District/City governments, while private hospitals are managed by private non-profit religious and social organizations. There were 1,593 public hospitals in Indonesia in 2015, consisting of 1,341 General Hospitals and 252 Specialised Hospitals (Ministry of Health, 2015a). In Papua Province, which consists of 28 regencies, there are only 36 hospitals (Statistics Indonesia, 2017), while Keerom Regency, the research setting of this study, has only one hospital, the referral hospital of the regency community health centres (Statistics Indonesia, 2017).

1.2.2 Papua Special Autonomy

Papua Province is one of the provinces in Indonesia. Since integration with the Republic of Indonesia in 1969, both Papua and West Papua Provinces have often been subjected to political actions to split from Indonesia, as Papuans are dissatisfied with the policies and development undertaken by the Indonesian Government (Noch, Sudarma, Irianto, & Djamhuri, 2015). In response to this political turmoil, the Papua Province was offered a comprehensive solution in the form of special autonomy (Halmin, 2006. The special autonomy regulation was an attempt by the Government of Indonesia to reduce political turmoil and promote development in the Papuan region in various aspects. The priority aspects of development are education, health, economy and infrastructure (Halmin, 2006; Wael & Laurens, 2015).

The special autonomy was ratified into the Law of the Republic of Indonesia Number 21 of 2001 on Special Autonomy for Papua Provinces (Government of Indoesia, 2001). Through this law, the Indonesian Government showed that the provinces of Papua and West Papua had autonomy in regulatory matters and management of local government affairs in particular. This special regulation was a step aimed to bring Papua up to the living standards of other regions in Indonesia and to

protect the fundamental rights of indigenous Papuans. The central government allocated special autonomy funds (SAF) in addition to the general allocation fund (GAF) and special allocation funds every year. The SAF total funds comprise 2% of total national GAF, with the priority placed on health and education (Agustinus, 2013; Wael & Laurens, 2015). However, over nearly 17 years of special autonomy, development in Papua has not reached expectations, as evidenced by the poor IMR and the low HDI. Thus, research regarding factors that contribute to infant mortality in Papua is crucial.

1.2.3 Health Workers

Health workers are defined as people who work in the health sector and are engaged in actions where the primary intent is to enhance health (WHO, 2016a). Human resources in health are one sub-system in a national health system that has an important role to play in improving public health through various efforts and services. According to the Indonesian Health Law Number 36. 2014, the health worker is everyone who devotes themselves in the health field and has knowledge and/or skills through the required education in the health field for authority to take health actions. Health efforts and services should be undertaken by health personnel who are responsible, have high ethics and morals, expertise, and authority (Government of Indonesia, 2014).

In 2015, 38.53% of community health centres exceeded the standard requirements (of 35.9%) for adequate numbers of doctors staffing clinics, while 25.57% of community health centres lacked doctors (Ministry of Health, 2015a). By region, the largest proportions of community health centres with sufficient or excessive numbers of doctors are in the Java-Bali region (82.8%) and Sumatra (81.7%), whereas the largest proportion of community health centres lacking doctors is in the Nusa region Southeast-Maluku-Papua (52.78%). The largest proportion of community health centres with sufficient and excessive numbers of midwives are in regional Sumatra (78.57%) and Java-Bali (70.11%), while the largest proportion of community health

centres that lack midwives are in the Nusa Tenggara-Maluku-Papua region (68.85%). This region also lacks nurses (48.47%) as does Java - Bali (48.20%) (Ministry of Health, 2015a). These statistics show that Papua is significantly under-resourced in the health care provision.

The health worker team consisting of nurses, midwives and doctors play a pivotal role in improving health outcomes, as they have the greatest contact with infants and the families and provide both preventive and curative services. In this study, researchers investigated health worker perceptions (nurses, midwives and doctors) in order to achieve a rich understanding of the realities of mother and baby healthcare in Papua.

Papua Province is one of the most challenged Indonesian provinces in factors that support health care delivery. These include geographic and demographic issues, health budgeting, health facilities, and health workers, which have a direct impact on the infant mortality rate. This research project examines these factors, as well as cultural factors that impact on the IMR of Papua.

1.3 Research Setting in Indonesia

The setting for this research is the Health Department of Keerom Regency, Papua Province, Indonesia. Geographically, Indonesia lies between two continents, the Asian continent and Australia, and between two oceans, the Indian Ocean and the Pacific Ocean. Indonesia is the largest archipelagic country in the world, with the number of islands as high as 13,466, a land area of 1,922,570 km^2 and a water area of 3,257,483 km^2 (Ministry of Health, 2015b). Indonesia is divided over 34 provinces, 416 regions, 98 cities and 7,094 sub-districts with the total population in 2015 at 255,461,686, consisting of 128,366,718 men and 127,094,968 women (Ministry of Health, 2015b). Papua Province is the largest province in Indonesia with a total area of 316,553.07 km^2. The Papua population in 2016 was 3,207,444, distributed within 28 regencies (Statistics Indonesia, 2017). The largest regency in Papua is the Merauke Regency, which occupies 14.98% of the Papua Province

area, with a total area of 47,406.90 km^2. Conversely the smallest area is Supiori Regency with a total area of 634.24 km^2, which occupies only 0.20% of the total area of Papua Province (Statistics Indonesia, 2017).

The Keerom Regency is one of the remote areas in Papua Province and covers an area of 8,390 km^2, with a population of 59,723 (Statistics Indonesia, 2017). Jayapura, the capital city of Papua is in the Keerom Regency. The Keerom Health Department supervises 1 hospital and 10 public health centres with 21 doctors, 196 nurses and 80 midwives (Statistics Indonesia, 2017). Keerom Regency is one of the remote areas in Papua Province. In 2016 the Keerom Regency's IMR was 30/1000 live births (Keerom Regency Health Office, 2016) compared to the national average of 22.2/1000 (Statista, 2018). In addition, low birth weight is still high in Keerom with 55 cases/1000 births in 2016 (Keerom Regency Health Office, 2017), compared with the Papua Province number of 456 low birth weight babies out of a total 26,634 births (17.12 cases/1000 births) (Statistics Papua Province, 2017).

Keerom health workers face many obstacles in giving health services to the community. Insufficient health facilities and health workers are some of the barriers that the researcher found in that field. Poverty is considered as one factor that contributes to health problems. The monthly income in Papua falls in the category of poor people, with the Papua's poverty line at Rp 440,021 ($41.91) /person /month (Statistics Indonesia, 2017).

1.4 Aim of the Study

The aim of this research was to explore health worker perceptions about factors that contribute to infant mortality. The research was designed to identify factors that shape infant mortality in Papua Indonesia.

1.5 Significance of the Study

This research will provide insights into Indonesian health workers' perceptions about factors that contribute to infant mortality in Papua

Indonesia, contributing to the body of knowledge on infant mortality in Papua Province. This is important given that it is widely held that the infant mortality rate (IMR) is one of the indicators of population health. The outcomes of this study will inform the care provided by health practitioners in clinical and community health settings. Educators can use the findings to inform nursing, midwifery and students about infant mortality and to encourage students to take part in culturally appropriate health promotion in community settings. Additionally, the findings could be used by the Government of Papua as a reference for developing programs in the health sector.

1.6 Research Questions

The purpose of this descriptive qualitative study was to understand the Indonesian health workers perceptions about factors that contribute to infant mortality. Two questions arose:

1. What are health workers' perceptions about factors that contribute to infant mortality in Papua Indonesia?
2. What are the factors that shape infant mortality in Papua Indonesia?

1.7 Organisation of the Thesis

Chapter one of this thesis consists of an introduction to the research, including the background, aims, and significance of the study, the research questions, and description of the research setting. In Chapter two an overview is presented of the literature on the background of infant mortality and health worker perceptions and known factors that contribute to infant mortality. A critical analysis of this literature follows, with establishment of a knowledge gap in the existing research literature. In Chapter three a discussion and justification of the research methodology selected for this study are provided, including participant selection, data collection procedures and data analysis, ethical considerations and establishment of the rigor of the study. Chapter four comprises a report on the findings of the study along with selected

participants' quotations generated from the interviews with the participants. In the final chapter, Chapter five, the study findings are discussed, and the limitations of the study, conclusions and recommendations are presented.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The high Infant Mortality Rate (IMR) in developing countries remains an urgent global health issue. More than 4 million infants die within 1 month of life globally (Lawn, Kerber, Enweronu-Laryea, & Cousens, 2010). Indonesia, as a part of this global trend, is still facing many challenges in mitigating its IMR, particularly in its eastern provinces. This literature review explores the common and unique factors that the published literature has reported as contributing to the high IMR in developing countries including Indonesia. Anecdotal evidence would suggest that the high rates of IMR in Indonesia seem intractable. This review examines studies related to the research question regarding factors that contribute to infant mortality to identify gaps in the literature and challenges in the area of study.

2.2 Article Search and Selection Method

Initially, electronic scoping searches via Ovid were implemented to obtain information published between 2013 and 2018 concerning infant mortality and health worker perceptions. However the Ovid databases failed to retrieve articles using the specified search terms. Another search was undertaken through the Cumulative Index to Nursing and Applied Health Literature (CINAHL), SCOPUS and search engine Google Scholar to find literature about Indonesia and other developing countries on the same topics. This process was undertaken with synonyms of the keywords such as nurse, doctor, midwife, health provider, general practitioner, health professional, attitude, knowledge, understanding, beliefs, experience, believe, opinion, infant death, baby mortality, newborn death, infant mortality. From this process only three articles were identified that addressed the core topic. A manual search of articles about neonatal and infant mortality and health worker perceptions about factors that contribute to infant mortality was also undertaken. This strategy proved more successful; however not all found articles were

relevant to the search question. In order to obtain supporting literature in developing countries including Indonesia the article search was broadened to those published within the last ten years. The field inclusion and exclusion criteria were established as shown in Table 2.1.

Table 2.1: Inclusion and Exclusion Criteria

Inclusion	Exclusion
Participants were health workers (Specifically, were nurses, midwives or doctors)	People who are not health workers (Specifically, not nurses, midwives or doctors)
Studies focusing on health workers' perceptions about factors that contribute to IMR or neonatal care related to neonatal or infant mortality.	Studies not related to health worker perceptions, neonatal care or infant mortality.
Articles published in English.	Articles published in languages other than English.
Setting was developing countries including Indonesia.	Setting was developed countries.

There is considerable literature relating to infant mortality in developing countries. However, these published articles tend to focus on factors and causes of infant mortality rather than on the perceptions of health workers about factors that contribute to infant mortality, who are the target for the present study. Therefore, after a manual search, only 14 articles were selected for this review. Eight of these selected articles related to health workers' (nurse, midwife and health provider) perceptions regarding neonatal and infant health, and quality care of the infants. Six of these articles were associated with infant health and infant mortality in Indonesia.

2.3 Critical Appraisal

The 14 articles consisted of eight qualitative studies and six quantitative studies. All of these articles were scrutinised using the relevant appraisal tools to judge the quality of the research evidence and to identify the weaknesses and strengths of in order to assess the validity of the study findings. The Joanna Briggs Institute (Aromataris & Munn, 2017, p. 299) tool was used to critique the articles. This tool consists of ten questions to aid in critiquing the trustworthiness of qualitative studies and eight questions to critique quantitative studies for rigour (see Appendix 1).

The aim of the literature review was to understand health worker perceptions about factors that contribute to infant mortality. Of the six quantitative studies, four were within an Indonesian setting (Abdullah, Hort, Butu, & Simpson, 2016; Anggondowati et al., 2017; Sutan & Berkat, 2014; Titaley, Dibley, Agho, Roberts, & Hall, 2008) and two were within Nigerian and Nepali settings (Ezeh, Agho, Dibley, Hall, & Page, 2015; Lamichhane, Zhao, Paudel, & Adewuyi, 2017). These articles were about determinant factors of neonatal mortality and neonatal care related to neonatal outcomes.

Of the eight qualitative studies, three were conducted in Indonesia. One investigated community members' perspectives about women attending antenatal and postnatal care services (Titaley, Hunter, Heywood, & Dibley, 2010b); the second was about recognition of and care-seeking for maternal and newborn complications (Rosales et al., 2017), while the third study explored why some women preferred traditional birth attendants and home birth (Titaley, Hunter, Dibley, & Heywood, 2010a). The five other qualitative studies focussed on developing countries in settings such as Nepal, Vietnam, Ghana, and India, and explored the perception of care givers, including nurses, health workers, parents and health providers, regarding neonatal health (Eriksson et al., 2011; Gallagher, Partridge, Tran, Lubran, & Macrae, 2017; Martinez et al., 2012; Onta et al., 2014; Pomevor & Adomah-Afari, 2016). These studies did not always focus on the health worker perceptions about factors that

contributed to infant mortality. However, due to the shortage of relevant literature, studies presenting aspects of the factors of neonatal mortality were included for the contributions they made to the themes of this review. The strengths and the weaknesses of the studies are presented in a summary table in Appendix 2).

2.4 Integrative (Thematic) Analysis

Thematic analysis was used to summarise and synthesise the data by identifying themes and patterns that are relevant to and address the research questions (Coughlan, Cronin, & Ryan, 2013). Three main themes and sub-themes generated from this analysis are presented in the following table (see table 2.2).

Table 2.2: Themes and Sub Themes Generated from the Reviewed Studies

Main themes	Sub themes
Perceptions about neonatal care related to infant mortality.	
Common factors shaping infant mortality.	Maternal factors
	Infant factors
	Healthcare service factors
The factors of cultural practice relating to infant survival.	

2.4.1 Perceptions about Neonatal Care Related to Infant Mortality

Assessing health providers' perceptions of quality care for neonates is important to enhance the treatment of neonates (Onta et al., 2014; Pomevor & Adomah-Afari, 2016). A study conducted in Nepal reported that there is a need to upgrade the equipment and provide job training to improve health care skills in neonatal caring (Onta et al., 2014). Two studies in Nepal and Ghana also indicated that health care providers were aware of the essentiality of sufficient numbers of health workers,

advanced skills in neonatal caring and the availability of appropriate equipment (Onta et al., 2014; Pomevor & Adomah-Afari, 2016). Additionally, health providers and service users perceived the lack of availability and accessibility of skilled birth attendants in remote areas was detrimental to the care of neonates (Onta et al., 2014).

A qualitative study in Vietnam explored how health care staff perceived the importance of knowledge translation to the improvement of neonatal care (Eriksson et al., 2011). Health workers, including assistant doctors, medical doctors, midwives and nurses, said that, as well as additional training for the health worker, knowledge translation is vital for the improvement of quality care of neonates, as this enables health staff to keep improving their skills with the transferred knowledge of health workers who come from different disciplines (Eriksson et al., 2011). Health workers found that improving their skill is essential in order to minimize barriers of neonatal care (Gallagher et al., 2017; Martinez et al., 2012).

2.4.2 The Common Factors of Infant Mortality

2.4.2.1 Maternal Factors

Four studies (Abdullah et al., 2016; Anggondowati et al., 2017; Ezeh et al., 2015; Lamichhane et al., 2017) examined the influence of maternal factors on neonatal outcomes, exploring characteristics, such as age, education, socio-economic status, and mother's health history. Lamichhane et al. (2017) found no statistical significance of maternal factors as predictors of infant mortality in Nepal. Ezeh et al. (2015), on the contrary, found neonates born to mothers younger than 20 years in Nigeria had a significantly higher risk of infant death compared to those born to mothers aged between 30 and 39 years. Mothers with no formal education and from poor households have been positively correlated to producing high-risk babies (Abdullah et al., 2016; Ezeh et al., 2015). Maternal conditions such as malnourishment, maternal over-eating, and pregnancy complexities such as leg oedema and high blood pressure could lead to a high risk of neonates being unwell (Abdullah et al., 2016;

Sutan & Berkat, 2014). Mothers with multiple births and short birth intervals were also found to be more likely to produce a baby of poor health (Abdullah et al., 2016; Titaley et al., 2008).

2.4.2.2 Infant Factors

The common causes or factors of neonatal death are birth asphyxia, low birth weight, and hypothermia in some developing countries (Abdullah et al., 2016; Rosales et al., 2017; Sutan & Berkat, 2014; Titaley et al., 2008). Two studies that investigated risk factors associated with neonatal deaths found that neonatal complications during birth, and neonatal health problems, such as low Apgar score, were strongly associated with early infant death at age before seven days (Abdullah et al., 2016; Titaley et al., 2008).

Titaley et al. (2008) identified the associated factors for neonatal mortality with data from the Indonesia Demographic and Health Survey (Statistics Indonesia, 2012). The relationship between all possible factors and neonatal mortality was assessed using contingency table analysis and multilevel logistic regression. One major factor that was identified from the analysis was that the availability and use of perinatal health care services were associated with the reduction of infant deaths. However, Titaley et al.'s (2008) study did not represent all Indonesian provinces as some provinces, including Papua, were excluded for security reasons.

A qualitative study in Indonesia was conducted by Rosales et al. (2017) who investigated family and health workers' experience about care seeking and illness in relation to maternal and infants health. They found prematurity and improper feeding to be a cause of newborn illness and death. Similarly, a study in Nepal conducted by Lamichhane et al. (2017) identified baby's birth size and breastfeeding status as significant predictors of infant mortality.

2.4.2.3 Healthcare Service Factors

Six studies (Abdullah et al., 2016; Eriksson et al., 2011; Gallagher et al., 2017; Lamichhane et al., 2017; Onta et al., 2014; Titaley et al., 2010a) found that health care service factors demonstrated a significant relationship with infant mortality in/across Indonesia, Vietnam, and Nepal. Lack of skilled birth attendants and poor health facilities negatively impact on neonatal outcomes (Abdullah et al., 2016; Eriksson et al., 2011; Gallagher et al., 2017;). Inadequate health worker knowledge is also a known barrier to the improvement of neonatal care and the reduction of neonatal deaths (Martinez et al., 2012; Onta et al., 2014). Based on the perceptions of health providers and users, inadequate availability and inaccessibility of skilled birth care in remote areas result in poor neonatal outcomes (Onta et al., 2014). Such conditions often result in people delaying seeking health services. Poor knowledge and poor skills of health workers were also found in Ghana and Indonesia to be detrimental in neonatal care (Pomevor & Adomah-Afari, 2016; Titaley et al., 2010a; Titaley et al., 2010b). Two studies suggest that educational interventions were successful at improving nurses' clinical knowledge of the provision of care to neonates and contributed to the reduction of infant mortality and morbidity (Eriksson et al., 2011; Gallagher et al., 2017). Similarly, knowledge translation among primary health care staff was found to improve the quality of the performance of health workers (Eriksson et al., 2011).

2.4.3 The Factors of Cultural Practice Related to Infant Survival

Four studies examined the effects of cultural practice on neonatal survival (Onta et al., 2014; Sutan & Berkat, 2014; Titaley et al., 2010a; Titaley et al., 2010b). One case control study in Indonesia (Sutan & Berkat, 2014) analysed the contribution of cultural beliefs and practices to determinant factors of neonatal mortality. Both case control groups in this study were comparable for family income and distance from home to the capital of

the province, as those two factors are important in the assessment of neonatal and infant care behaviour related to cultural practices. This study found that cultural practices such as discarding the colostrum, relying on traditional healers and warming the baby with firewood inside the house full of smoke, are strongly seen to affect infant care (Sutan & Berkat, 2014).

Culturally, men still have more power than women in family decision making, resulting in women's lack of autonomy that could affect their health, for instance during pregnancy (Onta et al., 2014; Sutan & Berkat, 2014; Titaley et al., 2010a). Titaley et al., (2010b) indicated that the decision-making process of care-seeking during pregnancy was mostly dominated by the husband, which often resulted in delays in mothers receiving appropriate care. This was supported by Onta et al, (2014), who found that in Nepal some families did not allow women to deliver at the health centres because they feared an evil spirit might haunt the mother and the baby. This caused delays in obtaining appropriate care. A similar study conducted in Aceh province, Indonesia (Sutan & Berkat, 2014), found that cultural beliefs and practices such as discarding colostrum because of the belief that it will be harmful to the baby's health and not practicing exclusive breastfeeding were significantly associated with neonatal mortality.

2.5 Discussion

The literature review focussed on studies conducted in developing countries, which examined health worker perceptions about neonatal care related to neonatal death and the factors that contribute to infant mortality. Gallagher et al. (2017) explored changes in the perceptions and attitudes of nurses and parents towards their experiences in a neonatal unit in Vietnam, and found that implementing educational interventions could build health staff confidence leading to an improvement in professionalism. The finding of this study suggested that knowledge transfer among health workers could be a very important factor in reducing infant deaths. However, this study was a

longitudinal study over 18 months, so the possible loss of some participants during that time that might have affected the results of the study.

Health workers also perceived that one of the main obstacles in providing care to neonates is the limited skills of health care providers (Martinez et al., 2012). In Martinez et al.'s (2012) study, 198 parents and 212 newborn care providers (doctors, midwives, nurses, paediatric and nursing trainees) were interviewed using a survey questionnaire. However, the parental participants were already receiving care in regional referral centres. Therefore, results from their questionnaire are likely to under-represent the difficulties faced by parents in areas where little skilled neonatal care is available.

Additionally, a study conducted by Pomevor and Adomah-Afari (2016) indicated that poor health worker skills are detrimental to the quality of care. The finding of this study might have suffered bias, as the participants were interviewed on the premises of the health facilities, where they provide services. Furthermore, the results could not be generalised as the study was conducted in only a few selected facilities in Ghana. However, it had a good sample size for a qualitative study.

One quantitative study using hospital data collected prospectively (Anggondowati et al., 2017) reported that maternal risk factors were associated with low birth weight, very low birth weight, neonatal asphyxia, stillbirth, perinatal death and neonatal death. This study found that young maternal age significantly increased the risks for very low birth weight (AOR=6.39, 95% CI= 1.82, 22.35). This study relied on hospital records partially reduced by amplifying data through various sources. However, socio-economic data and access to care variables might have been subject to recall bias, as the data were obtained from patients and family during hospitalisation. In contrast, a study by Lamichhane et al. (2017) found no statistical significance of the maternal factors as predictors of infant mortality.

Abdullah et al. (2016) identified risk factors for neonatal death using a case control study, comparing two groups (n=154 neonatal deaths cases and n=308 matched controls/surviving neonates). The large and representative sample size enabled detection of risk factors of infant death in this study. However, the data relied on patients' reports, which might have been subject to recall bias and inaccuracy. As most studies in Indonesia are quantitative, there is a need for qualitative studies to better understand the issues.

The literature highlighted that health care service factors have a significant relationship with infant mortality (Abdullah et al., 2016; Eriksson et al., 2011; Gallagher et al., 2017; Lamichhane et al., 2017; Onta et al., 2014; Titaley et al., 2010a). This was also supported by Pomevor and Adomah-Afari (2016), who said that increasing health worker competence in neonatal care would reduce neonatal health problems. Thus, the quality care of health workers seems to be one of the key factors in reducing infant mortality in some countries, including in Indonesia. However, the researcher was unable to find more literature on the quality of care of health workers relating to infant deaths in the Indonesian setting.

The literature also found that cultural practices might affect neonatal care (Sutan & Berkat, 2014). Berkat and Sutan (2014) found that inappropriate antenatal care, inappropriate neonatal visits, reliance on traditional healers, warming the baby with fire at home, and discarding the colostrum seem to be determinant factors contributing to neonatal mortality. Their study did not mention any confounding variables, which may be considered as a limitation. As Sutan and Berkat's study was quantitative, it is important to further explore qualitatively the gaps in knowledge about the influence of cultural practices on infant care behaviour.

Two studies (Titaley et al., 2010a; Titaley et al., 2010b) found that, based on health worker perspectives, cultural behaviour was the main factor that prevented community

members from accessing and using skilled attendants and health care services. Furthermore, lack of public awareness of the importance of care during pregnancy and cultural behaviours that assumed pregnancy as a natural process and not a health problem, accounted for the nonattendance to antenatal and postnatal services. These studies were conducted in a remote area of the Java Province of Indonesia. However, the geographic conditions are totally different from other parts of Indonesia, including Papua, so the results of these studies cannot be generalised.

2.6 Conclusion

The focus of this review was to explore the issues and the knowledge gaps in the perceptions of health workers about factors that contribute to infant mortality. Most of the reviewed literature found similar factors, such as maternal health factors, infant health factors, health care provision factors, quality of care and cultural practice regarding infant survival. The perceptions of health providers about factors contributing to infant care were however varied, depending on the location studied.

This review found various weaknesses and strengths in the literature. Moreover, there is no recent qualitative literature reporting on studies of Indonesian health worker perceptions about factors that contribute to infant death in Indonesia. Therefore, there may be other factors, not covered in the literature, that need to be identified and studied in depth. The purpose of this present qualitative study was to contribute to filling this gap by examining health worker perceptions of the factors that contribute to infant deaths in Papua.

CHAPTER 3: METHODOLOGY AND METHODS

3.1 Introduction

This chapter outlines the methodology and methods used to explore health workers' perceptions about factors that contribute to infant mortality in Keerom Regency, Papua Province, Indonesia. Firstly, the methodological approach and the method used to conduct the study are described. The research setting, participant recruitment and ethical considerations are explained and finally, data collection and analysis, and the rigour of the study are outlined.

3.2 Research Approaches

Research questions can be answered through different paradigms, namely qualitative, quantitative and mixed methods. Qualitative research is defined as the study of phenomena through exploring people's life experiences, understandings, and behaviours deeply and holistically using certain procedures (Polit & Beck, 2017). Quantitative research is an approach to investigate phenomena using numerical analysis to produce findings that strive for generalisability (Polit & Beck, 2017). Mixed methods research is a study involving both qualitative and quantitative approaches in answering research questions (Creswell, 2014). Qualitative research in nursing and midwifery is used to explore participants' experiences, attitudes, beliefs and perceptions in the context of health and illness conditions (Schneider, Whitehead, Wood, & Haber, 2016). This method is particularly useful in addressing the research questions of this study, as it enables the perceptions of individuals to be examined in depth, using "sophisticated strategies" (Liamputtong, 2013).

In this study, the researcher's aim was to identify and explore factors that contribute to infant mortality in Papua, Indonesia, through health workers' perceptions. A qualitative descriptive approach was identified as the best method to achieve this. The strengths of this paradigm are

the in-depth information and understanding obtainable, as in qualitative research the researcher is the instrument that enables exploration of a new area of research (Munhall, 2012). On the other hand, the limitations of qualitative research are firstly, that the results cannot be generalised, although generalisability is not an aim of qualitative research. Secondly, the researcher is directly and intensively in contact with the participants in order to gain deeper information, which could result in a lack of anonymity, although this could be seen as either a limitation or a strength, depending on the context.

Schneider et al. (2016) described some traditional approaches to qualitative research, namely phenomenology, grounded theory and ethnography. According to Polit and Beck (2017), phenomenology reveals the life experience and perspective of people without offering causal explanations. In this study, the researcher did not use the phenomenological approach since the researcher does not intend to explore the life experience of health workers in Papua.

The grounded theory approach is designed to form theories from social and psychological processes (Polit & Beck, 2017). This approach focuses on the development of a theory as a part of the findings. Hence, grounded theory was also considered unsuitable in this research because the researcher did not plan to form a new theory concerning neonatal mortality.

Ethnography is concerned with studying the culture, customs and behaviour of a group of people (Polit & Beck, 2017). Ethnography was also ruled out since the researcher did not aim to study the culture and behaviour of a group in society related to neonatal mortality.

A quantitative approach was not used in this study since this approach would not allow the researcher to explore the area of study in-depth. Furthermore, the quantitative approach uses statistical analysis that might not capture the issues sought, such as people's interactions, and

individual perceptions and experiences (Creswell, 2007). Therefore, a quantitative approach did not fit this study.

The qualitative descriptive approach was considered the most suitable in this study as the researcher aimed to identify and explore factors that contribute to infant mortality in Papua through health workers' perceptions. Qualitative description depends on pure description, always relying on the research participants' perspectives or perceptions rather than on theory (Sandelowski, 2000). This distinguishes it from the traditional methodologies such as phenomenology, grounded theory and ethnography (Schneider et al., 2016). Additionally, when the classical methods do not fit the needs of particular research questions, typically, qualitative description is found as the best option (Thorne, 2016). In the qualitative descriptive method, the researcher is able to move away from methodological theory in order to remain close to the data (Schneider et al., 2016), which makes it the most appropriate method for this study.

The questions asked in this research were: "What are health workers' perceptions about factors that contribute to infant mortality in Papua, Indonesia". This will provide specific insider information about the factors that shape infant mortality in Papua Indonesia. Thus, the qualitative descriptive approach was considered the most appropriate for finding the answers. As Sandelowski (2000) noted, to find straight answers to relevant practice questions, the use of descriptions is best. Furthermore, a qualitative descriptive approach is appropriate when there is only limited knowledge about the study topic. Therefore, this research was conducted using the qualitative descriptive approach to glean data and information on the health workers' perceptions about factors that contribute to infant mortality.

3.3 Ethical Considerations

The researcher obtained ethics approval from the Social Behaviour Human Research Ethic Committee at Flinders University (SBHREC-FU),

approval number 7897 prior to data collection (see Appendix 3). There is no ethics committee regarding nursing research in the Indonesia Health Department in Keerom Regency. However, written permission via email was obtained from the Health Department of Keerom Regency (see Appendix 11) to conduct the research. The Health Department of Keerom accepted the ethical approval from SBHREC-FU and allowed the researcher to conduct research in the community health services in Keerom Regency. Participation was voluntary and no coercion was applied. Confidentiality, anonymity and the right to withdraw from the study were ensured and highlighted in participant information sheets (see Appendix 6). Participants signed consent forms, being informed of their rights in the research based on the researcher's explanation (see Appendix 8). Participants were assured they would remain anonymous in the resulting thesis with pseudonyms instead of real names used. Further explanation regarding ethical considerations will be discussed in the following section.

Schneider et al. (2016) highlights that the researcher is responsible to protect participants' autonomy by showing respectful attitudes and actions. A letter of introduction from the researcher's supervisor, an information sheet, a consent form, and fliers in English and Indonesian (see Appendices 4,5,6,7,8,9,12, and 13) were sent to the Head of the Health Office, Keerom and then distributed to potential participants. Willing participants were then free to contact the researcher, at which time the researcher introduced herself and described the aims and process of the research.

The researcher maintained the participants' privacy and confidentiality by not sharing participants' details with others, and by storing the participants' data on a password-protected computer. To maintain anonymity, the researcher used pseudonyms instead of using the participants' real names (Polit & Beck, 2017). Furthermore, during the interview, the researcher and the participants agreed on a convenient

place for the phone interview, with the participants' interest in view and to ensure non-disclosure to other people.

In conducting research, a researcher needs to be aware of minimising harms and maximising benefits to the participants involved in the research (Polit & Beck, 2017). As this study involved humans as the subjects of the investigation, possible risk and inconvenience might occur to the participants. For instance, there was a possibility of participants feeling upset or emotionally distressed during the interview as this research concerns infant mortality. Therefore, to protect participants and manage the burdens and risks associated with participation, the researcher offered information about confidential counselling services in Cenderawasih University, Papua, and reminded participants of their right to withdraw from the study at any time.

3.4 Research Method

This section presents the setting of the study, and the sampling and recruitment, data collection, and data analysis that were undertaken in this study.

3.4.1 Study Setting

The study was conducted in ten community health centres in Keerom Regency, Papua province. Keerom Regency was selected for this study as it has ten Community Health Centres across different areas that provide perinatal care. Secondly, Keerom Regency is one of the remote areas in Papua province, which is struggling with perinatal issues and high neonatal mortality. For example, in 2016, this region had a high rate of infants born with low birth weight at 55 cases/1000 births (Keerom Regency Health Office, 2016 compared with the Papua Province average of 17.12 cases /1000 births (Statistics Papua Province, 2017). Keerom Regency has an IMR of 30/1000 live births (Keerom Regency Health Office, 2016) compared to the national average of 25.4/1000 births (Statista, 2018). Thirdly, the Keerom Regency Health Department supervises one hospital and ten public health centres with

21 doctors, 196 nurses and 80 midwives (Statistics Indonesia, 2017). Thus, this regency provides a population of interest for this study.

3.4.2 Sampling and Recruitment

Purposive sampling is considered as a popular sampling strategy in qualitative research (Schneider et al., 2016). In this study, the researcher adopted purposive sampling with the intention of selecting a small number of participants who share perceptions and experiences related to infant mortality (Howie, 2013). Furthermore, purposive sampling was appropriate because the researcher intended to recruit participants who had the required knowledge, status and experience for the proposed research. Keerom Regency's limited number of public health centres and health workers, and its geographical remoteness makes purposive sampling the most appropriate for the recruitment of participants.

Polit and Beck (2017) stated that a common range of sample sizes in qualitative research is from 6 to 20 participants. In a qualitative approach the richness of the data collected is far more important than the number of participants; therefore, there are no rules to indicate when a sample size is too small or too large for the study (Schneider et al., 2016). The main consideration is data saturation, which occurs when themes and categories in the data become redundant and repetitive and no new data can be obtained by further data collection (Polit & Beck, 2017). Participants in this study were voluntary, and selected by purposive sampling according to inclusion and exclusion criteria.

To recruit the participants, the researcher sent invitations in the form of a letter of introduction signed by the researcher's main supervisor, an information sheet, a consent form and fliers in both English and Indonesian languages (see Appendices 4,5,6,7,8,9,12, and 13) to the public health worker managers, requesting participants. These research packages were then displayed on the notice board in each community health centre in Keerom regency. Participants who were interested

becoming involved in the study contacted the researcher and signed the consent form before the interview. The participants in this research were nurses, midwives, and doctors who meet the inclusion and criteria, as shown in Table 3.1.

Table 3.1: Inclusion and Exclusion Criteria for the Study

Inclusion	Exclusion
Health workers who are doctors, nurses or midwives and have: Knowledge about infant mortality in their region. Current duties associated with childbirth, and baby health care. Ability to provide information about their perceptions of childbirth and the care of live babies and infant mortality. Have work experience in Keerom for at least 3 years since with 3 or more years of work experience, a health worker would know more about health conditions concerning infants in Papua. Willing to voluntarily participate.	Health workers (nurses, midwives, and doctors) who have never handled infant death cases. Health workers who do not have experience with neonatal and infant deaths in Papua. Health workers who have not practiced in a pediatric/maternal clinic in the past 3 years.

Health workers, namely nurses, midwives, and doctors who currently work in community health centres in the Keerom Regency and have working experience in neonatal setting for at least three years, were assumed to have valuable experience and information about infant mortality in Papua Indonesia. The researcher contacted via telephone the participants who signed the informed consent form to arrange a time for the interview. The researcher and the participants organised the

details for the interview based on the participants' interests and with the consideration of ethical principles of the Social Behaviour Research Ethics Committee, Flinders University. Fifteen candidates contacted the researcher. However, two did not meet the study inclusion criteria, as their work experience was less than two years in a neonatal clinical in Keerom. One participant withdrew due to being on maternity leave. The researcher confirmed the participants' inclusion and exclusion criteria to manage bias in recruiting the participants. Finally, 12 participants (5 nurses, 4 midwives, and 3 doctors) were considered eligible as informants for data collection.

3.4.3 Data Collection

In qualitative studies, the interview is considered as the most popular method of data collection. Interviews could be structured, unstructured or semi-structured (Schneider et al., 2016). The most appropriate for this study was a semi-structured interview because it was flexible and the researcher may ask questions in any order. A research guide was provided to ensure research aims/questions were covered (see Appendix 14). The researcher conducted in-depth interviews to gain information from the participants for about 45 to 60 minutes each participant.

In this research, telephone semi-structured interviews were used to interview the 12 health workers. The interviews were conducted in quiet, private rooms to maintain privacy. The researcher ensured that at the time the interview was conducted each participant was truly alone in the room either at work or at home. with no one within hearing distance.

A set of questions for discussion was provided to guide the interview to gather data or information about factors that contribute to infant mortality in Papua Province from health workers' perceptions. Before conducting the interviews, researcher and the supervisor ran a pilot interview to ensure the relevancy of the question guide provided. The researcher along with supervisor then revised the question guide and created possible prompt questions to gain more information according to research question.

The interviews were undertaken in Bahasa (Indonesian language) since the participants in this research were unable to speak English. Before

the interview process started, the researcher explained the research project, clarified participants' data and confirmed the informed consent. The researcher then provided an opportunity to the participants to share if they had any uncertainty regarding the study that needed to be clarified. To maintain the participants' confidence, the researcher managed the interviews by asking questions in a friendly manner.

The interviews were recorded using audio recording device with the agreement of the participants, and notes were taken during the interviews. As they were semi-structured interviews, the researcher was able to follow up with further clarifying questions as needed. This gave opportunities to participants to extend their responses to the questions. Data saturation was reached after 10 interviews but the researcher interviewed the remaining two participants for confirmation.

The data were then transcribed verbatim by the researcher. The researcher used pseudonyms known by the participants to maintain participants' integrity and to ensure anonymity. The researcher then stored the recorded interviews and the transcribed interviews in a secure password computer and clearly documented them. The first and the second transcribed interviews were then translated to English and analysed by the researcher and the supervisory team manually. The supervisory team was confident with the researcher's analysis process after two rounds of feedback and discussion. From this point the researcher continued analysing the transcripts in Bahasa without translating them into English. Where the researcher was uncertain about coding a particular section, this section was transcribed into English and discussed with the supervisory team.

Saldana (2013) pointed out that a researcher might apply Computer Assisted Qualitative Data Analysis Software (CAQDAS) after gaining some experience with hard copy coding and basic qualitative data analysis processes. The software helps the researcher to organise, manage and store the data efficiently, and does not code the data, as the coding process is still the researcher's responsibility and task

(Saldana, 2013). Thus, the researcher in this study, continued data analysis using NVivo 12 since the researcher fully understood the fundamentals of qualitative data analysis. The supervisors assisted to check the accuracy of the analysis process throughout.

3.4.4 Data Analysis

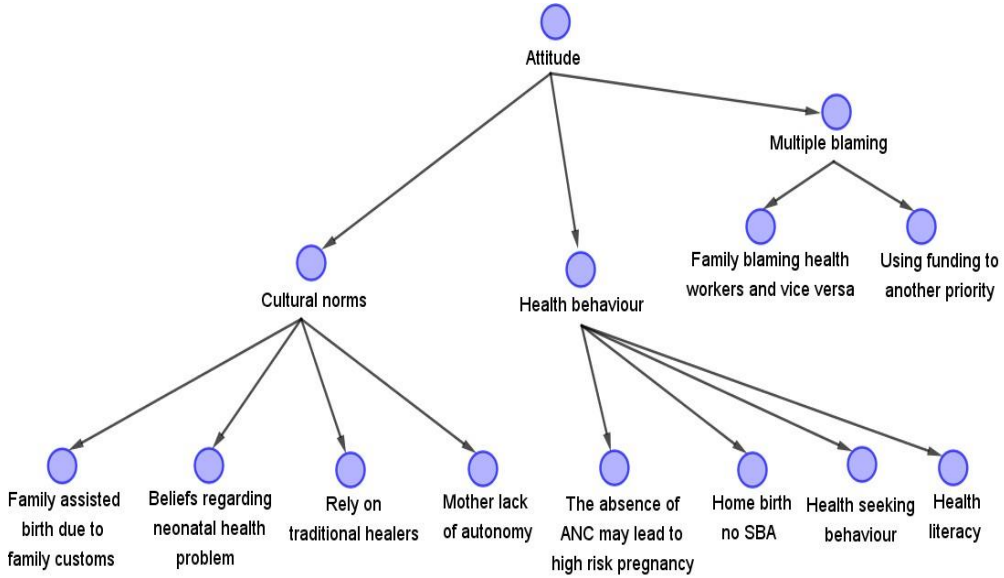
Polit and Beck (2017) describe data analysis as organising and clustering data in order to make it more meaningful. Clarke and Braun (2013) stated that thematic analysis is suitable for the novice researcher to develop their basic analytic skill. Thematic analysis is defined as the method of identifying patterns, categories and meaning of the data to answer the research questions (Taylor, Kermode, & Roberts, 2007). In this study, thematic analysis was applied as the researcher aimed to explain the interpreted data. This style of analysis treated the data set as a whole and did not break it up into sections (Schneider et al., 2016; Thorne, 2016). For this reason, thematic analysis enabled generation of themes by categorizing together similar topics of data that formed patterns.

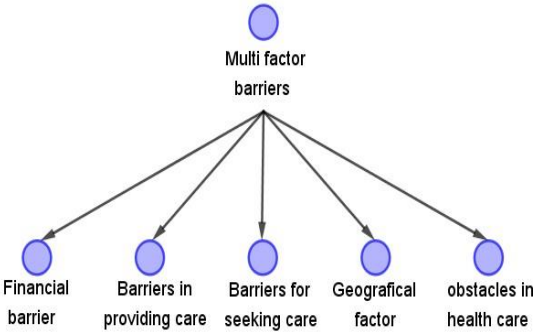
This study applied thematic analysis using the Clarke and Braun (2013) framework, which has six steps: familiarisation with the data, generating coding, searching for themes, reviewing themes, defining and naming themes, and writing the report. Explanation of how the six steps thematic analysis framework of Clarke and Braun (2013) was used in this research is provided below.

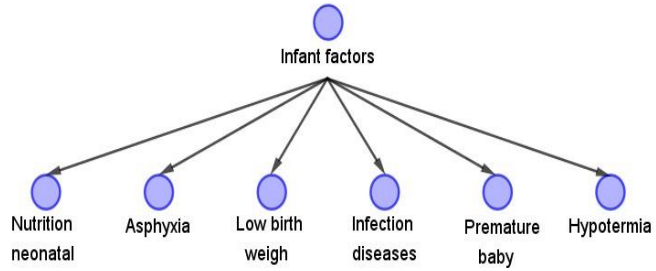
In the first step, the researcher read the transcripts carefully while listening to the audio-records, and typing up field notes to become familiar with the data. The second phase was generating codes, and in this instance, the researcher was guided by the research questions. As coding is not simply a process of data reduction (Clarke & Braun, 2013), the researcher also applied an analytic process to gain a general sense of the data during coding. Searching for themes as the next stage involves grouping codes into categories that formed potential themes.

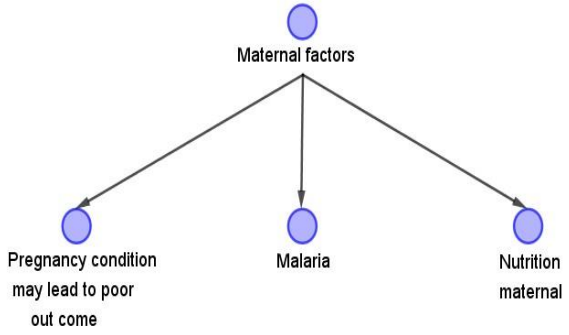
In this stage, the researcher created a mind map (see Figure 3.1) to assist sorting the different codes according to themes.

Figure 3.1: First Mind Map



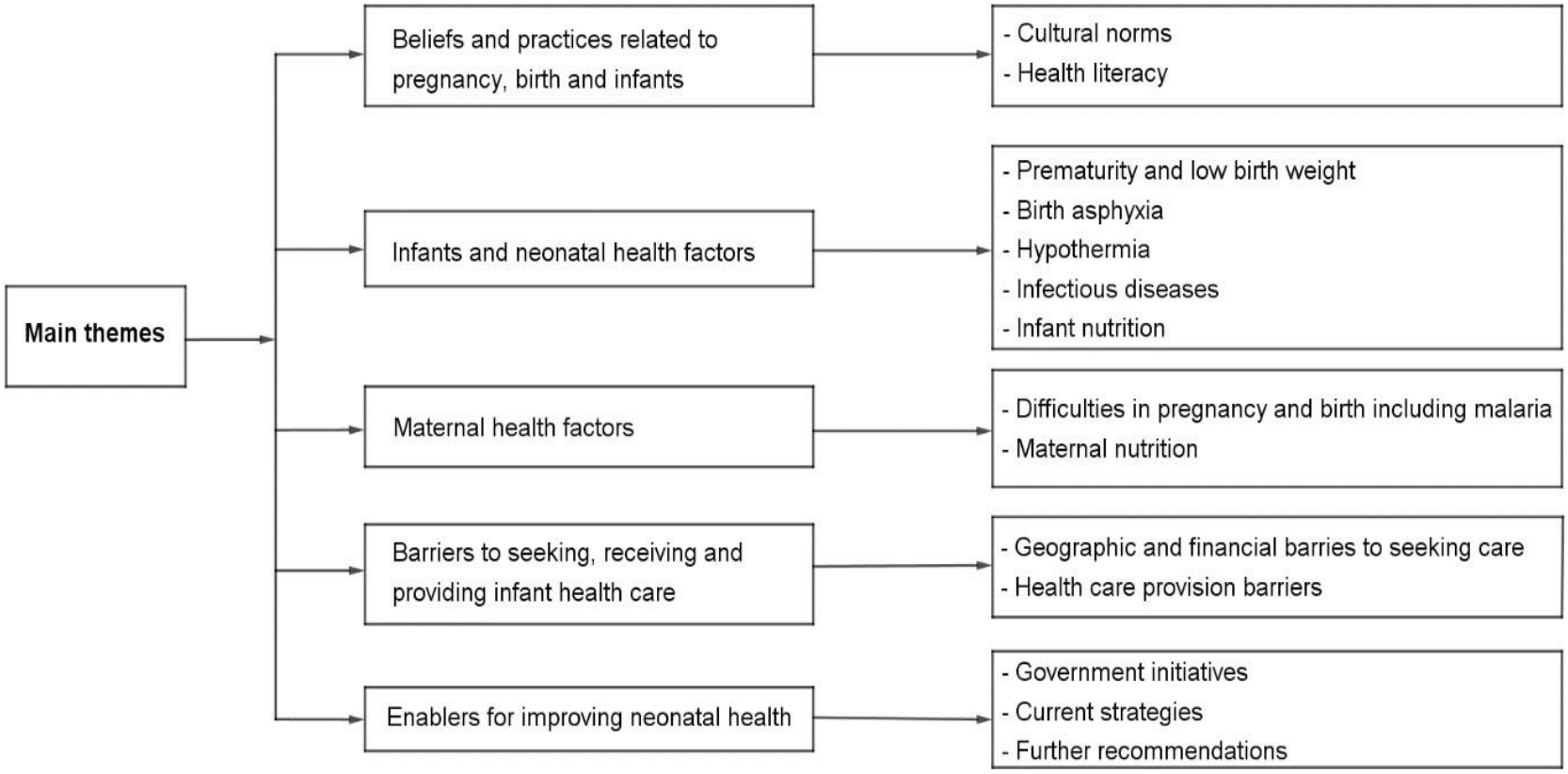






The next step was reviewing the themes, which involved checking whether the themes work in relation to initial codes and the entire data set (Clarke & Braun, 2013). In this step, the researcher reflected on both the coded extracts and the full data set and determined whether it might be necessary to split, to merge or to discard themes or to develop new themes (see Figure 3.2).

Figure 3.2: Defining and Naming Themes



The fifth stage is defining and naming themes. In this stage, the researcher began writing a specific analysis and overall story of each theme (Clarke & Braun, 2013). The researcher determined what element of the data was captured in each theme and identified what stories were captured in the themes. The last stage is writing report along with the final analysis (Clarke & Braun, 2013). Within this writing process, the researcher pulled together the analytic narrative and data extracts to inform the reader with rational arguments about the stories of the data and relates these back to the existing literature and the research questions. Reporting of this analysis is contained in chapters four and five of the thesis.

3.5 Rigour in Research

Qualitative research does not always use the terms "rigour" or "reliability" and "validity" (Schneider et al., 2016), but rather the term "trustworthiness". Lincoln and Guba's framework, described in Polit and Beck (2012), suggest four criteria for developing the trustworthiness of a qualitative inquiry: credibility, dependability, confirmability and transferability. How these are applied in this study is described below.

3.5.1 Credibility

Credibility means how convincing the truth of the data and its interpretation is (Polit & Beck, 2012). Credibility was ensured by collaborative analysis of the first two transcripts and subsequently seeking advice from the supervisors relating to the findings and interpretations. During the study process, all translated transcripts and the analysis process were verified by the supervisory team. In addition, participants were offered an opportunity for a one-page summary of key findings. At the conclusion of the project a one-page summary poster of key findings was written in Bahasa (Indonesian language) and provided to the Head of Keerom Health Service to distribute across the sites that had been approached for recruitment (see Appendix 16). The participants were encouraged to give feedback to the researcher.

3.5.2 Dependability

Dependability in a qualitative study resembles reliability and validity in a quantitative study and there is no dependability without credibility (Streubert & Carpenter, 2011; Polit & Beck, 2012). In this study, the dependability of the findings was ensured by demonstrating that the results could be similar to results of other studies with different participants with different characteristics. Furthermore, the involvement of the supervisors to examine the transcribed interviews and constantly review the process of thematic analysis supported the dependability of the findings.

3.5.3 Confirmability

Polit and Beck (2012) argued that there is a possibility for similarity in terms of data accuracy and meaning between researchers. The researcher and supervisors in this study comprised four independent persons. To assure confirmability, the researcher and supervisors discussed the researcher's interpretation of the data by confirming the content of the transcripts and the process of analysis as well as verifying the authenticity and accuracy of the English translations. Furthermore, the rationale of decisions made regarding the interpretation of the data was documented so an audit could be undertaken.

3.5.4 Transferability

Houser (2008) and Polit and Beck (2012) stated that transferability refers to the relevance of the findings to other groups or study settings. To ensure the transferability in this study, the researcher used semi-structured interviews, asking questions that came from other research related to infant mortality. It is essential to ensure that the study findings obtained from the study reflect the participants' perceptions and experiences of a particular setting, place and time. Transferability is further established by using purposive sampling to ensure that all participants interviewed come from a similar setting to the setting of health workers who fit the inclusion criteria.

3.6 Chapter Summary

The aim of this study was to identify and explore health workers' perceptions about factors that contribute to infant mortality in Papua. Therefore, a qualitative descriptive methodology was chosen, which enabled the researcher to obtain data through in-depth semi-structured interviews. This research was conducted in community health centres in Keerom Regency, Papua, Indonesia. The participants in this study were 5 nurses, 4 midwives, and 3 doctors, all of whom met the inclusion criteria. The interviews were conducted by telephone, lasting 45 to 60 minutes, and were audio recorded. The recorded interviews were transcribed verbatim and the first two interviews were translated into English. The participants' documents were stored securely and only accessible to the researcher and the supervisors. The process of recruitment and the process of data analysis utilising the thematic analysis of Clarke and Braun (2013) were outlined. To emphasise rigour in this study, credibility, dependability, conformability and transferability were applied.

The next chapter presents the findings of the study including an introduction to the participant group and the themes and sub themes generated from the data analysis process.

CHAPTER 4: FINDINGS

4.1 Introduction

The aim of this study was to explore and describe health worker perceptions about factors that contribute to infant mortality in Papua Province Indonesia. In this chapter the study findings are presented as themes. Generating themes from the data enabled the researcher to capture important information in relation to the research question (Clarke & Braun, 2013). This chapter presents the findings of the study in two parts. The first part provides the participant profiles, and the second part presents the thematic analysis of the interview transcripts. Five main themes and fourteen sub-themes were generated from the thematic analysis. These cover pregnancy, birth and infant related beliefs and practices of pregnant women and their families, the physical condition of mothers and infants, barriers concerning infant health care, and enablers for improving infant health.

4.2 Participant Profiles

Twelve health workers participated in this study, including five nurses, four midwives, and three doctors. All the participants worked in a remote Papuan community health centre and had from three to twenty-five years of work experience. The participants included seven females and five males, aged between 29 and 57 years. To maintain the anonymity and confidentiality of the participants and their personal data, pseudonyms have been used in this study with the participants' agreement. Table 4.1 depicts the participant's profiles.

Table 4.1: Participant Profile

No	Pseudonym	Gender	Education Background	Clinical Experience (years)	Age (years)
P1	Markus	M	Bachelor of Nursing	25	48
P2	Insos	F	Diploma of Nursing	22	48
P3	Obed	M	Bachelor of Nursing	12	38
P4	Tini	F	Diploma of Nursing	24	48
P5	Nanda	F	Diploma of Nursing	10	30
P6	Ansay	F	Diploma of Midwifery	20	45
P7	Yacoba	F	Diploma of Midwifery	22	57
P8	Reta	F	Master of Midwifery	10	49
P9	Nur	F	Diploma of Midwifery	9	38
P10	Nomensen	M	Bachelor of Medicine	10	35
P11	Filipus	M	Bachelor of Medicine	3	33
P12	Ricky	M	Bachelor of Medicine	3	29

4.3 Themes

This section presents the findings which emerged from the analysis of the interviews with the participants. Data obtained provides insight into the health workers' perceptions about factors that contribute to infant mortality. Thematic analysis of the data produced five main themes and fourteen sub-themes. Table 4.2 shows the themes and the sub-themes of the study.

Table 4.2: Main Themes and Sub Themes

No	Main themes	Sub themes
1	Beliefs and practices related to pregnancy, birth and infants.	Cultural norms Health literacy
2	Infant and neonatal health factors	Prematurity and low birth weight. Birth asphyxia Hypothermia Infectious diseases Infant nutrition
3	Maternal health factors	Difficulties in pregnancy and birth including Malaria. Maternal nutrition
4	Barriers to seeking, receiving and providing infant health care	Geographic and financial barriers to seeking care Health care provision barriers
5	Enablers for improving neonatal health	Government initiatives Current strategies Further recommendations

4.3.1 Beliefs and Practices Related to Pregnancy, Birth and Infants

The first theme "Beliefs and practices related to pregnancy, birth and infants" includes the behaviours of the local families that were perceived by the health workers as factors that contribute to infant mortality. The sub-theme "cultural norms" addresses family beliefs and behaviours influenced by local traditions. The sub-theme "health literacy" covers health education which participants reported significantly influences health behaviour related to pregnancy birth, and care of the infant.

4.3.1.1 Cultural Norms

Participants believed that cultural norms, particularly family traditions, are significant factors that play a role in neonatal health and infant mortality in Papua. In some remote villages, health workers found it difficult to give care to families that still hold to some customs and tradition, particularly around where birth takes place, who helps the

birthing mother, and the treatment of newborn babies, particularly ill babies.

A major cultural practice was the place and practices of birth. Participants reported that local people prefer to birth their babies in a *para para*, helped exclusively by the family. The *para para* is a hut in the field far away from the home. Ricky said, "*they usually deliver their baby in a special place outside the house or in a jungle".* Furthermore*, "birthing in a para para" usually occurs without a skilled birth attendant which increases the risk of poor maternal and neonatal outcomes"* (Reta). Participants reported that the distance of the *para para* from the home is important to families, so that the blood from the birth does not spread to any part of the house. This is because it is believed that the blood can cause other members of the family to become ill. For example, Yacoba said, "*this is very taboo for them because if blood is scattered at home it can affect the work of the husband badly*". Nur also said that blood near the house is considered "*dangerous and causes illness to other family members"*.

Participants explained during labour and birth only female family members are allowed to support the birthing mother. Participants pointed out that skilled birth attendants are generally not called. Ricky said birthing women are "*helped by their family or relative such as mother in law".* Participants described how, in families who hold these cultural beliefs, it is *"taboo"* (Yacoba) for strangers to help with the birth process or have the presence of a man during birth. This includes the women's husband and any strangers such health workers, both male and female. These family traditions, held over several generations, do not allow pregnant women to birth their babies at home with the assistance of a skilled birth attendant. These beliefs and practices were perceived by the participant health workers as *"putting babies at high risk"* (Markus). However, three health workers said that such cultural birthing practices as having birth assisted only by the family are *"becoming rarer"* (Filipus). This was particularly so in regions that have

a community health centre, as most families are aware of and accept the presence of a health carer. As Markus said:

> *The first time I worked here, some local people believed that their baby must be delivered far from home, for example in the garden or in the back yard. They believed that the blood must not spread at home because that would bring harm to the family. But that was in the past; nowadays such cases are getting rarer.*

Six participants spoke of cultural beliefs that influence infant health, such as believing that babies catch diseases due to *"magic powers"* (Nanda) that cannot be cured by health professionals. Some people believe that congenital problems are caused by *"evil spirits"* (Ansay), and there are taboos related to keeping babies in the home for the first month. As Ansay stated:

> *There is a family belief of local people that a newborn baby under one month is forbidden to go out of the home because they are prone to evil spirits. Therefore, they do not bring their baby to the health centre when their baby is sick or to have immunization.*

Participants reported that they struggled to convince families about the benefits of going to the health centre when their baby is sick. They even reported occasions when the family leave the baby to die. Nanda shared her experience:

> *When I found a sick baby in my workplace, the family were reluctant to bring it to the community health centre because they said, "It is useless to bring the sick baby to health centre. They cannot help the baby because this disease is caused by magic power; no one in the health centre can help magic power diseases".*

Other health workers observed similar cultural beliefs and practices about infant matters. Participants stated that many families still believed that their baby's sickness was caused by *"black magic"* (Reta), was a *"curse"* (Yacoba), or *"a talisman"* from their enemy (Insos). Participants suggested that due to these cultural beliefs families tend to go to traditional healers to seek initial care rather than to community health services. They found that most families are more confident with a *"shaman" or "jungle doctor"* (Obed) than going to a health centre.

Participants reported that local sick people are treated with leaves and herbs, sometimes combined with traditional dance, particularly for severe illness. Rather than using the free health service provided, the local people pay to use the traditional healer who has a strong connection to that particular community. Sometimes an individual has gone to those healers first because they are close and the community has a good relationship with them. However, *"sometimes the healers either do not recognise how sick the baby is or they might discourage the family from taking the baby to the clinic and to seek medical care"* (Nur). Some families seek care first from the traditional healer who gives them traditional remedies that are believed to *"do more harm than good"* (Obed).

Five participants stated that families rely more on traditional healers than on the health services and this causes delay in seeking care at public health centres. For example Obed pointed out:

> *In one of villages in hinterland Keerom, all of the sick people or pregnant women about to give birth are not allowed to go to the health centre to have health care before first going to the jungle doctor. The local people call the jungle doctor a traditional healer in that area. All the people respect and obey what the jungle doctor says. So we as health workers cannot do home visits or give care before we get permission from the jungle doctor. This is what causes danger for the mother giving birth and puts the baby at risk of death due to delays in medical help.*

Historic cultural practices appear to restrict pregnant women from access or trusting publicly funded health care services in Papua Province. Health professionals report that this tension leads to poor outcomes for both pregnant women and their infants.

4.3.1.2 Health Literacy

Most (11) of the participants believed that inadequate health literacy of the mother and her family influences the health related behaviours in the general community. The theme "health literacy" includes aspects of health care that participants were concerned about, such as knowledge about pregnancy, birth and infant health. Participants perceived that

lack of health knowledge is also a significant factor in mothers and families avoiding seeking health care services and preferring home birth without a skilled birth attendant Thus, the sub-theme "health literacy" can be divided into health seeking behaviour, and home birth without a skilled birth attendant.

Participants found that most parents, particularly mothers, especially in the remote areas, do not understand about the importance of health checks during pregnancy, or about basic maternal and infant health. Participants reported that most of the women in the remote area do not finish elementary school and their way of thinking about healthy living is very limited. For example, Obed, said, "*I think the factors that lead to the death of baby are more about the family education. Due to lack of education, the family level of concern for health is lower*". Ricky commented about the reluctance of local people to immunize their babies: "*the family is still hesitant to bring the baby for immunization because the family does not understand the benefits of immunization and the risk if the baby is not immunized"*.

"Low" or "poor" health seeking behaviour was also perceived by the participants as a factor that contributes to infant mortality in Papua. Family delay in seeking care, not seeking care at all, and seeking care only when a problem occurs are some of the behaviours endangering mother and child. Filipus expressed:

> *I understand the fact that because in some villages there is no health facility, people in that area cannot have health care, but I think that is not the point. Because even in the area that a health service is provide there are still local people who are not aware about the importance of antenatal care and do not come to check their pregnancy.*

Reta said, "*even though health care is free, there are still families with little awareness about bringing pregnant women or infants for immunization to the community health centre*".

Even when there is some knowledge, health seeking behaviour and birthing at home without a skilled birth attendant were perceived by the

participants as influenced by cultural norms. Delay in seeking care was considered by participants to be due to the very *"patriarchal society"* (Nur), which means that mothers have to wait for their male partner to come home from the fields to get permission to seek health care. Sometimes if the baby is sick in the morning and the husband does not return until late at night, mothers have to wait the whole day, which can lead to the baby's condition becoming serious.

Seeking care only when a problem occurs was perceived by nine participants as a factor that contributes to neonatal mortality. They reported that families do not support pregnant women to attend a health facility for antenatal care. They also described how families kept their sick infants at home, and only bring them to the health centre when their condition deteriorates. As Nur said, *"they feel pregnancy is not something you need to go to health centre for unless there is a health problem such as bleeding*".

Participants identified that families try to handle the process of birth by themselves, but when a problem occurs, such as the baby is stuck in the birth canal, then they seek help at the community health centre or hospital. For example, Markus pointed out:

> *Many people in my work place usually deliver their babies helped by their family. If there is a problem of complications, such as the baby is stuck in the birth canal or there is bleeding, then they come to the community health centre or hospital. But for people who live in remote areas where no health facilities are provided, I understand if they seek care only when problems occur.*

Most participants perceived that home birth without a skilled birth attendant is a factor that contributes to infant mortality. The participants said that this circumstance is common in remote areas that are far from community health centres, and related to the influence of culture even when the health facilities are available. Participants identified that most families either bring their pregnant women to the shaman or are helped by family to birth their baby. As Obed stated, "*shaman or family members who helped the pregnant women might work under unsterile*

procedure that could harm the baby, as they cut the umbilical cord using bamboo or razor blade". Participants reported that, birthing a baby without a skilled birth attendant is a high-risk process both for baby and mother, since if complications occur, such as bleeding or a baby with low Apgar scores, these can cause death to both mother and baby. Filipus said, *"I found one case in my work area when a mother delivered her baby by herself and the baby got asphyxia and ended up dying".* Therefore, health literacy, including both health seeking behaviours and home births were thought to contribute to infant mortality.

4.3.2 Infant and Neonatal Health Factors

This theme identified factors contributing to infant mortality that are related to the condition of babies such as the sub-themes of prematurity and low birth weight, birth asphyxia, hypothermia, infectious disease, and infant nutrition.

4.3.2.1 Prematurity and Low Birth Weight

Prematurity and low birth weight are important issues that were perceived by the health workers as contributing to infant death. Participants identified that due to women's heavy work burden and poor pregnancy condition, such as poor nutrition during pregnancy or malaria, many pregnant women birthed their babies before reaching the gestational period of nine months. They reported that often even mature babies were born with low birth weight, but most cases of prematurity were linked with low birth weight. For example, Ansay stated:

> *One thing that causes many infant deaths in Papua is the premature baby. The mother had malaria during pregnancy and with lack of nutrition they often deliver the baby before maturity. Sad to say, the family could not afford proper care for their premature baby and often times the baby ends with death.*

Five participants perceived that low birth weight was a factor that contributed to infant death. Participants stated this could be because of prematurity, but also because of poor maternal nutrition during pregnancy even when the baby is mature. As Yacoba pointed out: "*many infants die with low birth weight because the mother lacks nutrition*

during her pregnancy, lacks care and works hard to support family resources". Most participants identified that lack of appropriate care for a baby of low birth weight contributes to infant death. As Obed explained below:

> *Last year I found a new couple delivered their baby at home with low birth weight, and I told them to bring the baby to the community health centre to have neonatal care but they refused. I was so disappointed, and I felt like I really wanted to help them, but they rejected us. They said a baby under one month cannot go outside because it may harm the baby. Eventually, I heard the baby had died. I was so upset.*

It appears that the low status of women in Papuan society, with the concomitant heavy burdens of work and insufficient nutrition, affects their pregnancy health. Health workers report that these conditions result in premature and low birth weight babies.

4.3.2.2 Birth Asphyxia

Six participants said that based on their experience in their work place, birth asphyxia is one of the major causes of infant death in Papua. Reta said, "*The main factor of infant death in my work place is birth asphyxia along with the low birth weight"*. *Yacoba also pointed out, "The birthing process helped by family or unskilled birth attendant often was a long process that caused breathing difficulty for the baby or birth asphyxia".* Nanda also emphasised, *"prematurity with low birth weight which often occurs in Papua also often ends up with asphyxia that cause baby death".*

It appears evident that prematurity and low birth weight are the major factors contributing to birth asphyxia. The use of traditional birth attendants, such as family members or unskilled attendants, exacerbates these complications.

4.3.2.3 Hypothermia

Five participants perceived that hypothermia was a factor that contributes to infant death. Obed for example pointed out, "*Based on my experience in a village in a remote area, we often found the infant*

ended up dying due to hypothermia". Participants often found families had very limited material supplies to care for the baby and infants would often get hypothermic and sick. As expressed by Yacoba below:

> *"Beside the family not having clothes and blankets for the baby and mother, hypothermia also occurred because the family tends to bathe their babies immediately after birth so that they are clean from blood; this causes the baby to get hypothermic".*

Additional concerns raised by Yacoba and others include recognition that traditional beliefs about blood exposure in the house led to early bathing of the baby, which may result in hypothermia.

The poverty of the local people appears the major cause of hypothermia in babies. Their blood taboos also seem to contribute to this problem.

4.3.2.4 Diseases

Five participants perceived that infectious diseases such as malaria, bronchopneumonia, and tuberculosis are factors that contribute to infant death. Malaria was considered a major concern, as "*Often pregnant women have malaria, so their babies also get malaria from their mother*" (Markus). Participants identified that neonates are often born with malaria, contracted in utero from the mother. Participants also reported most pregnant women in remote areas do not receive any antenatal care or go to a health centre when they feel unwell. They therefore may not realize that they have been infected with malaria, which if left untreated, may impact their health during pregnancy, impact the development of the fetus, and the health of the baby. Markus pointed out, *"So there are some babies that are born already positive with malaria, and such a case is difficult to treat because the baby has been infected with malaria".*

Participants stated that the other main disease presenting in infants is bronchopneumonia, with smoke exposure perceived as the major contributing factor. Nanda said, *"we often found an infant died from bronchopneumonia especially in family with poor health sanitation where the infants are exposed to cigarette smoke".* Similarly, Markus said "*The family here, either men or women, smoke at home and of*

course the baby is exposed to the smoke; that's what I think contributes a lot to infant death with bronchopneumonia". Yacoba also pointed out that local people usually use a traditional wood stove in their house, *"so the family is just exposed to the smoke from the traditional stove including the infants. This circumstance, I guess, is one of the causes of bronchopneumonia in infant*s".

A further factor was the exposure to tuberculosis. Filipus, said for example:

> *Based on my experience, one thing that often causes infant death in my work place is bronchopneumonia. I think it's because of poor environment hygiene and the infant being exposed to people with tuberculosis.*

Another participant explained that when there is a family member with tuberculosis, the neonate is not separated from that person since there is only one house for the whole family.

Lack of knowledge about infectious diseases and contagion, and of the importance of seeking early health care for both mother and baby, are some of the factors leading to newborn and infants contracting malaria, and tuberculosis and bronchopneumonia. Traditional lifestyles, exacerbated by poverty, are also major causes for concern in this area.

4.3.2.5 Infant Nutrition

According to the participants' perceptions, poor infant nutrition, caused by the mother's inability to breastfeed and the introduction of other foods too early, is a factor that contributes to infant death. Participants explained that due to lack of knowledge and awareness of infant health, the family introduces solid food too early to the neonate, which often leads to sickness. As Tini stated below:

> *We as health workers always educate people to give proper food according to the age of baby. We tell the family not to give them adult food because it will cause harm to the baby, but they do not listen to us. And we often found cases of baby problems due to not eating properly.*

Participants identified that families who live in very isolated areas in the jungle, very far from the health centres and the city, rely entirely on the jungle to find their food, and severe cases of malnutrition in both mother and baby occur in such communities. Participants reported that most families in such circumstances are living below the poverty line and cannot afford healthy food for their family. For example, Markus explained:

> *This condition is also worsened by certain conditions that make breast-feeding not possible for the baby, such as when the mother suffers from malaria, or mother has to work hard the whole day every day in the field to support family needs.*

Filipus also said, *"As for cases of infant death, we often found babies died due to poor nutrition in my work area in Keerom".*

It is evident that poverty and lack of knowledge about infant health contribute to infant mortality. Traditional ideas also play a part in this problem.

4.3.3 Maternal Health Factors

Maternal factors became the third theme in this study, as evident from the participants' responses. Maternal factors are defined as a condition of the mother that contributes to neonatal mortality. Pre-existing and new illnesses and complications of pregnancy, which may lead to poor outcomes of the baby, are all considered as maternal factors. Lack of antenatal care was also perceived by the participants as a factor that may lead to a poor infant outcome, as the absence of antenatal care could increase the risk to the baby. However, most participants perceived that the two most significant maternal health factors were difficulties in pregnancy and birth including malaria, and maternal nutrition which became the two sub-themes.

4.3.3.1 Difficulties in Pregnancy and Birth Including Malaria

Most of the participants spoke about their experiences of working with pregnant women who had malaria and other pregnancy difficulties that

often led to infant death. Participants stated malaria and pregnancy difficulties such as high blood pressure, postpartum haemorrhage and obstruction during labour due to breech position, are factors that may contribute to infant death.

Participants mainly reported that Papua has a high incidence of malaria, and that many pregnant women had malaria but did not realise it because they do not usually seek antenatal care. Participants said they often found pregnant women present to the health centre only when they are very sick, which is already too late. "*This condition is one of the main causes an unhealthy baby"* (Ansay). Additionally, participants identified that many stillbirths happen due to malaria during pregnancy, as Filipus said, "*One of the main factors is malaria during pregnancy; we have often found stillbirth and sick infants because of malaria".*

A lack of compliance with medical treatment was another factor, as Reta pointed out:

> *It is so sad actually, but they are not disciplined to take their malaria medicine until the end of the dosage and often, after two days of taking their malaria treatment, once they feel a bit better, they just stop the medicine before it is all finished.*

Again, cultural beliefs and poor health literacy shape mothers' health behaviour. Delay or failure to seek health care and failure to adhere to treatment impairs the mothers' health to the point of endangering their babies' wellbeing and survival.

4.3.3.2 Maternal Nutrition

The participants perceived that the nutritional intake of the mother during her pregnancy affects the baby's health. For example, Yacoba pointed out:

> *Sad to say, I found many families had a meal only once a day. So how can we expect a healthy pregnancy with a healthy baby if they have only one meal a day? So, for many pregnant women with a lack of nutrition, the development of the baby is inevitably also worse. Those sorts of things are the factors.*

Because of poor nutrition many pregnant women have anaemia, which was indicated by the participants as a factor contributing to infant deaths. Nomensen said, "*Often because the family cannot afford good food for the pregnant women, the poor nutrition of the pregnant mother influences the quality of the fetus as well as after birthing the baby*".

Participants identified that poor nutrition during pregnancy results in infants having low birth weight, which increases the risk of death. Participants reported that local people usually have big families, and they share whatever food they have with all family members. Markus explains, "*Even though community health centres deliver supplementary and additional food for pregnant women, in fact the whole family eats the food that is supposed to be given to the pregnant women*".

Additionally, participants explained that pregnant women often miss out on supplements of iron tablets because community health centres only get limited stock from the health department pharmacy. Therefore, it is common for the community health centres in villages to run out of iron tablets that should be distributed to pregnant women.

The poor nutrition of pregnant women, arising primarily from the poverty of the family, contributes to infant morbidity and mortality. An additional problem is inadequacy of the health care provision in the form of medicines, particularly iron tablets for pregnant mothers.

4.3.4 Barriers to Seeking, Receiving and Providing Infant Health Care

Participants recognise that many barriers still impede both families in seeking care and health care workers in providing care. Geographic and financial barriers cause delay in seeking care, and healthcare provision barriers further aggravate the health conditions of mother and babies and contribute to infant mortality.

4.3.4.1 Geographic and Financial Barriers to Seeking Care

Participants explained that geographic and financial issues prevent families from having health care. The principal geographical factor that prohibits people from coming to the health clinic is remoteness. Filipus noted, *"Most local people prefer living in very isolated areas, where it is difficult for health workers to provide health care".* Reta said, "*Apart from the unavailability of transportation, geographical conditions in Papua with poor road conditions are also obstacles to seeking care for the people who live in isolated areas".* Participants stated infant deaths often happen because the families are late coming to the health clinic. Yacoba said:

> *Another big factor is the geographical condition in Papua, which is a big issue, as I found a village in Keerom, where people have to walk 8 to 9 hours to reach the health clinic. This is one of the reasons why people there do not come to the health clinic.*

Additionally, participants identified that financial issues cause delay in seeking care. Because women's work is the main family source of income, they have to continue to work hard even when they are pregnant. They cannot afford to stop work to check their pregnancy, as Yacoba indicated:

> *There is a common aspect of local people in my area or culturally, that women work harder than men. Women work as a source of income in the family, so even though they are pregnant, they still work on the farm, doing chores during their pregnancy and often they do not have time to check their pregnancy.*

Another financial problem raised by the participants is the cost of getting to the health care centre, even though health care is free. For example, Ansay stated, *"the cost of transport for a family, and the cost of food for the family are the main obstacles preventing the family from going to a health centre".* Nur also identified this problem:

> *I guess the cost comes from getting to and from the clinic. Not everyone has a motorbike and if they need to get to the clinic they either have to walk which can be very long way or they have to hire a motor bike or car; the communities near us don't have a way of subsidising that in the community.*

Participants identified that generally when it comes to childbirth or even to bringing a baby for immunization, people come in one big family group, so that the cost of transport and meals for the whole family often stops them from coming. Reta said:

> *I think one of the things that keeps families from coming to health services is because the habit here is when going to health services, the whole family comes along and they think about the cost of transport and the cost of eating for a large family which they could not afford.*

In summary, the family's poverty, the remoteness of their village, and the lack of and high cost of transport all function as barriers to their access to care.

4.3.4.2 Health Care Provision Barriers

Participants pointed out a number of barriers to the provision of health care, including the lack of health facilities, lack of equipment and medicines in health facilities, the shortage of health workers, poor health worker skills, inadequate and unsafe working conditions, and the nomadic population.

Participants identified that there are still villages that have no health centre at all so the people who live there need to go to a very distant health centre. As Insos pointed out:

> *In some remote areas there are still many villages that have no health centre and health workers are only in areas that are close to the city.*

One of the problems of establishing a health centre is the government's difficulty to get permission from the local people to build a new community health centre building. Another problem is the shortages of medicine and health equipment in some community health centre branches. *"Health centres in remote areas often run out of medicine that is very important to help pregnant women and babies"* (Reta). Nanda stated, "*In villages that have a health centre there is insufficient health equipment, no electricity and clean water to support health care services"*. Filipus added:

> *Although the government provided a small community health centre in each village, actually the place is not appropriate for living, as no electricity and clean water are provided in some villages and working and it's also worse for security reasons.*

Participants believed that insufficient health workers in certain community health centres may contribute to infant health and impact on infant mortality, as expressed by Yacoba:

> *In my work place and I know also in some villages in the hinterland, we are still having problems with the lack of health workers, particularly doctors and midwives.*

As Ricky explained, "*In my work place a midwife is available only during working hours from the village health care centre, so if a pregnant woman needs help at night it's difficult to find midwife help*".

Participants also reported that lack of skills of the health worker influences care. Markus pointed to the inexperience and lack of confidence of newly graduated health workers in village settings. He said, *"I have found when the new midwife is confronted with the case of the mother giving birth, they are confused and stuttered and the senior midwife did not assist them".* Two participants raised the same issue, as Reta explained:

> *This is what we need to pay attention to more because many of the new midwives that are placed in villages did not dare help her labour if the senior midwife is not present.*

Another factor that participants highlighted was the unsafe working environment. Participants identified that even though health care centres were provided in villages in remote areas, at times health workers refused to work there for security reasons. Most participants reported that the village midwives do not stay in remote health care centres because they often have problems from drunken men and sometimes face sexual harassment*. "No one can guarantee the security of the midwives to stay in the village where they work and therefore the village midwife does not live in the remote village where they should be staying"* (Reta). This was also pointed out by Filipus:

> *In my work area, I understand if the village midwife does not want stay in the health clinic provided in some remote areas because the place is not appropriate for living and not safe either.*

Finally, many participants perceived that the mobility of the population in Papua also caused difficulties providing health care to families and is one of the factors contributing to infant mortality. Ansay stated,

> *The population tends to move from one spot to another, so it is difficult for them to come to health services as well as for us as health workers to provide service for them.*

Nomensen added:

> *People here are highly mobile, so they do not stay in the same place even for several months, particularly those who live in villages close to the border of Papua New Guinea.*

And similarly, Markus said "*Indeed they are nomadic as you can find a group of people in a village but weeks later they are no longer there*".

Participants reported that this makes it difficult for health workers to have valid data of the local people to provide health services. Obed said, "*we do not have complete data record of the people in remote areas as they are never settle down at one place*". Ansay also remarked, "*We might find groups of families at one place but weeks later when we come there again we could not find them, they have moved*".

It appears that lack of health facilities, medicines and equipment and skilled health workers are the major barriers to providing health care for pregnant mothers and infants. The nomadic lifestyle of the population and unsafe working conditions as well as the unavailability of clean water and electricity aggravate the situation.

4.3.5 Enablers for Improving Infant Health

This section describes government initiatives and the strategies which participants indicated were already in place. Participants also made recommendations for further initiatives that they see as essential in the combat against the high infant mortality.

4.3.5.1 Government Initiatives

Government initiatives that participants mentioned as helpful were the *PISPK (Program Indonesia Sehat dengan Pendekatan Keluarga)* and the BOK (Bantuan Operasional Kesehatan). These two health programs are national government health programs implemented at the regional level. *PISPK* is a health program with a family approach. Participants explained that this program provides health care by involving family members in intensive family visits. The BOK, program is provided by the central government and involves financial health support allocated to community health centres. The centres use the BOK to provide health education programs, free treatment for families, and vitamins and food supplements for the families. Reta explained, *"One of the government programs was delivering free packages of baby mother clothes for the families that planned to deliver their baby assisted by a skilled birth attendant"*.

Participants reported that the provision of health education about birth and pregnancy, with the use of the pink books, enabled the growth and development of the babies to be observed. Participants also mentioned the provision of regular home visits, to give immunization and free health treatment. Yacoba said, *"It is good to ensure the ongoing financial support from government regarding family visit based family health programs"*.

Another government strategy to deal with the problem of health care provision is the recent effort to upgrade equipment in the health centres. As Markus said, *"The government health office has tried to upgrade health equipment in some community health centres, although they are still far from the standard requirement".*

4.3.5.2 Current Strategies

Some of the strategies that participants, as health care workers in the health care centres, undertake at present are about building networks within the community and involving all stakeholders in health literacy

and education about maternal and infant health care. Participants acknowledged that it is important to develop closer relationships with communities by doing family visits regularly to promote health education, but that more needs to be done.

Currently there are several things that participants believed have been done well in embracing community culture, such as holding regular meetings with the local leaders to involve stakeholders from health and education sectors. The importance of cross-sectoral work between various community members, women's organisations, and local leaders, was emphasized by participants. Participants stated that the whole community sector must contribute to approaching the family intensively, and cooperation needs to be intensified to improve maternal and infant health. For example, "We *approach the religious leader, tribe leaders and family leaders to try to open their mind about the importance of health care"* (Yacoba). And Tini said, *"The ongoing training of shamans and involving community sectors in health programs need to be continued".*

Strategies already implemented include the design of simple health education material about the importance of healthy living, the benefits of antenatal care and immunization, and the risk of not having antenatal care. Participants believed providing health education with a family approach will result in more families being open to the health care. As Nur stated:

> *With the health counselling, over time these harmful cultural practices have started to disappear in some parts of the community. Because health workers always monitor pregnant women and see them at home, more and more pregnant women deliver their baby without a shaman.*

Participants explained how health workers work with the health educators to make sure the messages in health promotions are consistent and regular, so the local people are not just told once but get constant reminders. Although health workers are often rejected by the

family when doing a home visit, "*we persistently approach the family for the next time"* (Reta).

Participants also felt that health workers need to be creative in providing health programs related to mother and baby that appeal to the family. Participants pointed out that ongoing health counselling and education related to pregnancy, birthing and postnatal care need to be carried out regularly. As Obed expressed:

> *It is important for us as health workers to build trust with the family, which is challenging; therefore, approaching the tribe leader and religious leader as a facilitator is the key point so that the family could listen to us.*

4.3.5.3 Further Recommendations

Participants also made further recommendations about enhancing infant health and reducing infant mortality. Participants recommended that the government should reorganise the health programs in remote areas to find best solutions to meet the lack of health workers and health facilities. For instance, they recommended improving health facilities, upgrading health equipment, and providing sufficient health workers in each health centre. They also recommended regular reviews of perinatal cases in each village to evaluate the factors leading to infant death, and facilitate a quick referral system for premature and low birth babies who need advanced hospital care. Yacoba said,

> *We expect the health department to undertake perinatal maternal review activities so that every midwife who works in the villages must review what happened in the midwifery and neonatal cases that occur in each community health centre, and these reviews must be adopted and presented at the community health centre meeting.*

Participants also explained the importance of the family-based approach to health education in the early detection of malaria and to have malaria cured completely. In line with this, participants recommended that programs, such as the sustainable distribution of medicine and supplementary food stock in each community health centre, needs to be continued with better planning to meet the needs of each community.

Participants also identified that involving health workers from community health centres in remote villages in the annual health program meeting of the health office is essential. They said that the health workers who work in remote villages know the reality in the village, and so they could contribute significantly to health planning and budgeting according to the community's primary needs in relation to mother and infant health, as explained by Reta:

> *The health officer at the provincial level should involve our representative to hear our voice concerning the facts in the villages, so that what has been planned from the centre meets our community need.*

Markus also pointed to the *"importance of knowledge transfer between health workers*". For example, the senior midwife needs to share her knowledge with the new village midwives, as they are fresh graduates without experience.

Regarding financial barriers, participants mentioned that free health care provided by the government is one of the efforts to help people access health care. Participants identified that while the community has access to free health care, many people still struggle financially for daily living. Participants recommended that these factors must be considered, such as continuing to approach families to educate them for making healthy life choices, as *"The Government also provides subsidies to support local people's lives but often the money is used for another priority such as alcohol and cigarettes".* (Nur) Additionally, involving the family in health and government programs such as training for good gardening were perceived by the participants as strategies to help overcome financial barriers.

Participants made several recommendations regarding geographical barriers. Participants mentioned that the local government have tried to build health care centres in each small village and build better road access in remote areas, but these projects have not yet been fully achieved. For example, they felt that the government needs to regulate for a health service in every village, so even small villages will have their

own health centre with an ambulance provided for quick referral in emergency cases. The participants spoke of a need to distribute sufficient health workers, nurses, midwives and doctors in every health centre in the villages and to build better infrastructure to open better access in remote areas. Participants also reported that approaching local leaders and tribe leaders regarding legalised land and a place for building a new health centre is paramount.

Participants stated that the government recently employed health worker staff as permanent workers, to encourage health workers to take more responsibility in helping the community and to encourage new health workers to come to Papua. Previously health workers were only casual workers.

Participants also identified strategies to deal with the issues of unsafe working environments. Participants identified that strengthening multisector cooperation is essential to building communication with the local people so that health workers working there are welcomed and safe. They identified that the governments need to provide appropriate places for the health workers to stay and to work, and ensure their security so that health workers, particularly the village midwives can work safely. As Reta said:

> *The Government needs to provide safe working places in remote areas by involving multi stakeholders such as the local leader, tribe leader, religious leader, and policeman.*

Participants raised the issue of the impact of the nomadic nature of the population on health care. As Markus said, *"To reduce the mobilisation of the population, the government should provide certainty for the place of residence for the local people so health workers can monitor the population health well".*

4.4 Summary

This chapter has presented the findings of this study. The participants of this study namely nurses, midwives and doctors shared their

perceptions about factors that contribute to infant mortality in Indonesia. It was evident that the participants all had similar perceptions regardless of their role or educational background. Five themes emerged from interviews and sub-themes were identified from each theme.

Many issues were identified by the participants as factors that contribute to infant death. Participants explained that they found it difficult to give care to families who still hold customs and tradition that impede health care provision regarding maternal and infant health. Participants perceived that beliefs and practices related to pregnancy and birth and infants contribute to infant death. For example, most participants mentioned that family assisted births or the absence of a skilled birth attendant during labour and birth was a significant factor in infant health. However, some participants stated that in some villages, birthing a baby without the presence of a skilled birth attendant is becoming less frequent.

This study also identified infant heath factors such as prematurity and low birth weight, birth asphyxia, hypothermia, infectious disease and infant nutrition as causing infant mortality. Another finding is that maternal health factors, such as difficulties in pregnancy and birth including malaria and maternal nutrition contribute to infant death. Participants perceived that stillbirth cases often occur when pregnant women suffer from malaria. Poor maternal nutrition and malaria during pregnancy are responsible for poor infant outcomes that may lead to infant death. The last factor that was perceived by participants as contributing to infant mortality was identified as barriers in seeking, receiving and providing care: family barriers to seeking care (financial and geographical factors), and health care provision barriers (such as lack of health workers and poor health worker skills, lack of health facilities, unsafe working environment, and a nomadic population). Based on participants' perceptions, both family barriers for seeking care and health care provision barriers were considered as serious factors contributing to infant death.

The last theme was about enablers for improving infant health that participants described. This theme was divided into three sub-themes: government initiatives, current strategies, and further recommendations. Current strategies included government programs which they hoped would be continued and further developed, and efforts by health workers to develop and maintain good communication with all stakeholders, including traditional village leaders and healers as well as focusing on family visits. Health literacy in relation to maternal and infant health was a priority for these health workers, and participants emphasised that educating families and the whole community about pregnancy and birth is essential in the fight against infant mortality. Participants also made recommendations regarding the geographic barriers to the provision of healthcare in Papua.

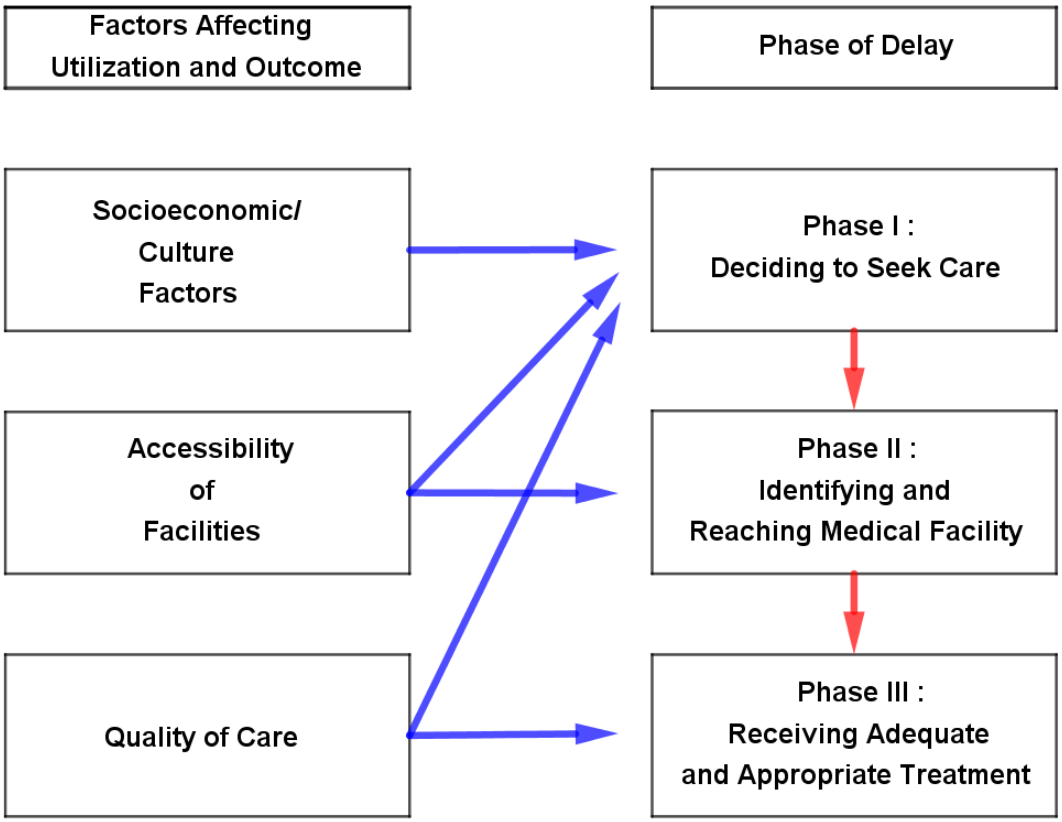
The following chapter provides an in-depth discussion of these factors in relation to existing literature, and will address the strengths and limitations of the study, and provide recommendations and the implications of the study.

CHAPTER 5: DISCUSSION AND CONCLUSIONS

5.1 Introduction

The previous chapter presented the study findings of health workers' perceptions about the factors that contribute to infant mortality. This chapter synthesises the study findings against existing literature and the global policy directives from the World Health Organisation. This discussion is structured using the "three delays model" (Thaddeus & Maine, 1994) (see Figure 5.1) and the principles of primary health care (McMurray & Clendon, 2014) (see Figure 5.2). The chapter ends with sections on the limitations of the study, recommendations, and final conclusions.

Figure 5.1: The Three Delays Model



Adopted from: Sereen Thaddeus and Deborah Maine (1994). Too far to walk: Maternal mortality in context. Soc.Sci.Med. Vol. 38. No. 8. pp. 1091-1110.

The “three delays model” was designed specifically for assessing factors that contribute to maternal mortality, focusing on the interval between onset of obstetric complications and the outcome (Thaddeus & Maine, 1994). While the model is relatively old (24 years), the contents hold relevance for extrapolating and interpreting the findings from this investigation. Application of the three delays model is particularly helpful across infant and maternal health to order the study findings into known categories as “delay” that contribute to infant mortality in Papua.

The primary health care principles explained by Murray and Clendon (2014 p. 11) are “a set of principles to guide health professionals in helping people create socially just, equitable conditions for good health”. These principles are used to guide the enablers to improve infant health and underpin the recommendations which the health workers proposed in this study.

Figure 5.2: The Primary Health Care Principles

Adopted from: McMurray, A., & Clemdon, J. (2014). Community health and wellness. Primary health care in practice (5 ed.). Australia: Elsevier.

5.2 Three Delays

In this study, the majority of the participants indicated that infant mortality and maternal wellbeing were negatively impacted predominantly by delays in receiving health care. Thaddeus and Maine (1994) identified three delays contributing to maternal mortality: the delay in the individual and/or family deciding to seek care, the delay in reaching an adequate health care facility, and the delay in receiving adequate care at the facility. This is a useful model because most of the study findings can be categorised under these delays. Additionally, the three delays model help to frame the findings in order to understand the many different factors, and how these factors together contribute to

infant mortality in Papua. Therefore, the findings will be examined using the three delays model to understand the issues around culture, decision making, and access, which then can be used to identify ways to improve timely access to health care services and develop appropriate and functional health services.

5.2.1 Phase I Delay: Delay in the Decision to Seek Care

Thaddeus and Maine (1994) defined phase one delay as delay in deciding to seek care by the individual or family. This delay could be due the status of the women in the family, financial barriers, perceived quality of care, or previous experience with the health care system. According to the WHO (2015a), health seeking remains one of the three delays in accessing care. The participants in this study perceived that the culture and beliefs of the family influenced their decision to seek care. For example, the participants explained that a practice passed down through the generations is that pregnant women give birth in a hut (*para para*) distant from the house helped by the family or the local shaman with no skilled birth attendant present. The health workers also reported that families tended to first seek traditional healers for health care and were required to gain their permission if they wanted to go to a community health centre for modern medical assistance. They stated that families have strong relationship with the traditional healers or shamans who are usually called jungle doctor. The participants explained that these cultural norms influenced the family decision to seek care and delayed their access to appropriate health care even when a health care facility is available in the area.

These findings are in line with the study conducted by Thorsen and Sundby (2012) who found that the use of traditional birth attendants or the cultural norm to give birth at home delays mothers in making the decision to go directly to a health facility. Similar issues have been reported by Salih and Eltyeb (2017) regarding factors contributing to infant mortality. They undertook a three delays audit in Sudan, and found that one of the influences for family seeking behaviours which

often led to a delay in seeking health care facilities was the family preference to use traditional healers (Salih & Eltyeb 2017). Cultural issues have been reported in previous studies of Ghana and the Aceh Province of Indonesia that found cultural practices and beliefs and relying on traditional healers impeded families in seeking care (Onta et al., 2014; Sutan & Berkat, 2014).

Participants also perceived that family beliefs, such as the taboo in taking a baby outside of the house prior to one moth of age also caused delay in seeking care. Participants reported that families did not bring their babies to health care facilities to receive postnatal care or immunizations as per the health services recommended schedule. The health worker had to visit the home to provide these services. Participants added that even when their babies were very ill families did not take their baby outside of the house if the babies were under one month old. The World Health Organisation recommends that all newborn infants should receive basic immunizations such as hepatitis B and oral polio vaccine after birth and the BCG vaccine where there is high risk of exposure to tuberculosis (WHO, 2017b). Community health workers should provide home visits in the first week after birth for postnatal care for the mother and newborn, and to counsel families on recognition of danger signs in infants and promote appropriate care seeking (WHO, 2017b). The action plan to end preventable deaths in newborns stated that ineffective traditional practices and the reluctance to seek help also lead to higher risks for infant death (WHO, 2014).

Participants also explained that women were prevented from seeking care for both themselves and their baby when they are sick because of the requirement to gain their husband's permission. Women often waited for their husband to return at the end of his working day to ask for permission, a delay that may result in a preventable death. This description by participants is reflective of a patriarchal social structure, which, as Mattebo, Lindkvist, Pedersen, Sayami, and Erlandsson (2016) explained, creates and maintains male domination over women. This

social structure was also found by participants to influence the way mothers make decisions to seek care.

Participants identified that financial constraints were also part of the family considerations that often delayed their decision to seek care. According to participants, even though health care is free, families could not afford the transport to reach care. They said that families usually come in a large group with all the members for the birth of a child or for health treatment. The family's consideration of the cost of transport and food for the whole family delays their decision to seek care. These findings are consistent with previous studies that found that the low socio-economic condition of families is one of the determinant factors of neonatal mortality (Abdullah et al., 2017; Ezeh, Agho, Dibley, Hall, & Page, 2015; Lamichhane, Zhao, Paudel, & Adewuyi, 2017). The average monthly income in Papua is below the poverty line at Rp.440.021 ($41.91)/family (Statistics Indonesia, 2017). Findings of this study highlighted that poverty is a major obstacle for Papuan communities, resulting in delays in seeking and accessing care.

Participants perceived that another delaying factor was lack of health literacy. Health literacy is defined as "the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health" (Talbot & Verrinder, 2018, p. 304). The WHO (2016c, p. 13) defines health literacy as, "much more than simply having the basic educational skills for applying language, literacy and numeracy skills to process information on health issues. It is also about having knowledge, confidence and skills to seek out and interpret information". The findings of this study showed that one of the main reasons people did not seek care was the failure to recognise danger signs in pregnancy, labour, birth, and in the newborn. Participants noted that women did not recognise danger signs or the need for health care for conditions such as malaria, complications during pregnancy and birth, or for their ill

baby. These findings replicate those from a study that used the three delays model to understand why newborns die in eastern Uganda. It found that mothers may not be able to recognise serious illness in their neonates resulting in a delay to seek care (Waiswa, Kallander, Peterson, Tomson, & Pariyo, 2010).

Participants identified that the family's lack of knowledge of danger signs of and in caring for premature or low birth weight babies with hypothermia often led to severely ill babies that ended in death, as they keep their small babies at home with limited care. Participants spoke about the economic barriers resulting in families being unable to afford to buy baby clothes and blankets to keep infants warm. However, none of the participants spoke about the Kangaroo model of care to prevent hypothermia, which is cost effective and proven to reduce infant mortality, as recommended by the WHO (WHO, 2017b). "Kangaroo mother care is the care of preterm infants carried skin-to-skin with the mother" (WHO, 2003, p. 2).

Participants stressed that families failed to access care because they considered pregnancy as a "normal" thing and it was therefore not necessary to access health care. In this situation health care is perceived as acute care for sickness and does not incorporate concepts of health promotion and prevention of illness. Participants pointed out that families lacked the knowledge and understanding of the importance of pregnancy check-ups, giving birth in a health centre and post-partum care, which delayed their decision to seek care. Participants reported that most mothers in remote areas do not finish elementary school. These findings support the findings of Berkman, Sheridan, Donahue, Halpern, and Crotty (2011) that people with low levels of health literacy have lower rates of health service use, and worse health outcomes, compared to people with higher health literacy, as those who with low level of health literacy are less able to identify their health needs and their health risks.

Participants also claimed that a mother's lack of understanding about malaria in pregnancy as well as pregnancy complexities delay her in making decisions to seek care. They also identified the mother's and family's inability to recognise the dangers of poor maternal nutrition, which can result in complications for both mother and infant. International standards for maternal and neonatal care (WHO, 2007a) recommended a minimum of four antenatal visits for pregnant women. The standards also recommended that in malaria prone areas, all pregnant women should sleep under an insecticide treated bed net (ITN) and be given intermittent preventive treatment (IPT) (WHO, 2007a). However, the participants reported that none of these standards were being met for women who were cared for by participants in this study.

Participants reported that infant death could be related to infant malnutrition. They stated that the failure of families to understand the danger signs of malnourished babies delayed their decision to seek care. They identified that families did not recognise weight loss in the baby, and did not know how to best care or provide nourishment for a premature or low birth baby. Participants also identified that some of the causes of infant malnutrition were barriers to breastfeeding such as maternal illness or the mothers needing to work on the farm without access to their babies. Another feature of infant nutrition, which contributes to infant death, as reported by the participants, was the introduction of solid food too early. This finding supports the study by Premji, Khowaja, Meherali, and Forgeron (2014) who identified that replacing breast milk at an inappropriate age placed newborn babies at higher risks of infections and diarrhoea. The World Health Organisation recommends exclusive breastfeeding for the first 6 months of life and additional foods only be given for medical reasons (WHO, 2017a).

5.2.2 Phase II Delay: Delay in Reaching Care

Phase II delay is defined as the delay in identifying and reaching a medical facility due to physical accessibility such as poor roads, travel time to health facility, and cost of transportation (Thaddeus & Maine,

1994). The WHO (2015a) has also identified that reaching a health care centre can be a significant problem and can delay access to care. Participants stated that the second delay contributing to neonatal mortality related to problems of logistically reaching care, such as challenging geographical conditions, poor access by road and unavailability of transport. Participants reported that as many villages did not have community health centres, they needed to travel to centres which are mainly provided close to the city. Participants pointed out that to reach the community health centre, people needed to walk through hilly areas with poor road conditions for about eight hours or hire motorcycles which are very expensive and unaffordable. Participants stated that pregnant women often gave birth at home without a skilled birth attendant because they could not access the health facilities. These findings are consistent with the previous studies conducted by Ezeh et al. (2015) and Martinez et al. (2012), who identified that geographical conditions in remote areas, poor roads and long distance were barriers to accessing care, which increased the risks of infant mortality in Nigeria and South East Asian countries.

5.2.3 Phase III Delay: Delay in Receiving Care

The phase three delay is explained as the delay in receiving appropriate and adequate care at health facilities, which involves the availability of skilled health workers and health equipment and medicine and the referral system (Thaddeus & Maine, 1994). Participants highlighted that the lack of health facilities, insufficient health workers with appropriate skills, and lack of health equipment and medicines contributed to delays in receiving care. Participants also stated that even when a health centre is available, the health equipment might be lacking, such as the emergency equipment for infants. They also said that in some areas there was no electricity and clean water, so it is difficult for health workers to sterilise the health equipment. They said that, in fact, some health centres may not be adequately staffed, or at times, not staffed at all, due to unsafe working environments or lack of clean water and electricity.

Participants reported that even when health workers are available, they might not have the skills and knowledge to provide appropriate care in the management of maternal and neonatal complexities. For example, participants explained that a junior, inexperienced midwife might not be able to recognise dangers signs and complications of the mother and infant to make an appropriate referral. Participants added that many of the new village midwives who were placed in rural villages did not dare to assist women giving birth without the presence of a senior midwife. This causes a delay in families receiving care, as the new midwives had to wait for the senior midwife to accompany them in assisting birth. A further problem was that the senior midwife may only be available during the day while only the junior midwife is available at night. This finding is consistent with the literature reviewed in Chapter 2, which identified that lack of health facilities and poor skilled birth attendants negatively impacted neonatal outcomes (Abdullah et al., 2016; Eriksson et al., 2011; Gallagher et al., 2017; Lamichhane et al., 2017; Onta et al., 2014; Titaley et al., 2010a).

Birth Preparedness and Complication Readiness interventions are recommended by the WHO (2015b) as essential to reducing delays in receiving care in emergency cases. The WHO (2016b) recommends the upgrading the skills of health workers/skilled birth attendants in order to improve maternal and newborn health services. Participants also highlighted the need to upgrade health workers skills including the village midwives' skills to ensure that even in remote areas mothers have access to appropriate and adequate care at childbirth with skilled birth attendants.

Having explored the three delays – seeking, reaching, and receiving care – there may be other factors that may contribute to infant mortality. The next section examines the findings considering the principles of primary health care.

5.3 Primary Health Care Principles

Primary health care principles "guide health professionals in helping people create socially just, equitable conditions for good health" (McMurray & Clendon, 2014, p. 11). In this section, the findings are discussed under the principles of primary health care, which advocate accessible health care, appropriate technology, health promotion, cultural sensitivity, inter sectoral collaboration and community participation (McMurray & Clendon, 2014) and provide a framework for discussing the strategies already employed and the recommendations from the participants.

5.3.1 Accessible Health Care: Equity and Social Justice

The first primary health care principle is the provision of accessible and equitable health care. Equity and social justice in accessible health care means "fairness and equality in accessing health for all people regardless of their background and social status" (McMurray & Clendon, 2014). The major objective of providing equity of access is to eliminate disadvantage, whether it is related to social, economic or environmental factors (McMurray & Clendon, 2014, p. 13).

The WHO pointed out that there is a widening gap in access to health services between people living in urban and rural areas (WHO, 2008). The WHO Every Newborn Action Plan states that community health workers as well as other community agents could play a pivotal role in bridging the gap between health services and families in accessing skilled care, particularly in rural areas, (WHO, 2014). The WHO also stresses that, to protect mothers and neonates from emergencies that might arise, all pregnant mothers should be assessed by skilled carers so that they are well prepared for the birthing process and ready for arising complications (WHO, 2007a).

Barriers that participants identified in meeting the primary health care principle of accessible health care included family poor health literacy, cultural norms, geographical factors and poverty, as described in the

previous section. However, participants explained that some strategies have already been implemented to address the issues described above. For example, the government provides free health care and financial support for families for their health. Additionally, the government's *Program Indonesia Sehat dengan Pendekatan Keluarga* (PISPK) is a health program with a family approach that involves intensive family visits and family members' participation in health programs. Further features of the PISPK are building networks within the community and involving stakeholders in health literacy and education programs about maternal and infant health care.

5.3.2 Appropriate Technology

The second primary health care principle is access to appropriate technology, which refers to "efficiency and effectiveness; that is, the right care provided to the right people by the right provider, in the right setting and using the most suitable and cost-effective technology" (Besner 2004, p. 352, cited in McMurray & Clendon, 2014, p. 14). Participants explained that the absence of electricity makes it difficult for health workers and is also an obstacle to building more community health centres. As mentioned in the earlier section, lack of appropriate equipment and medicines was another significant problem.

Another issue that participants identified was the preference/trust of local people for traditional methods and natural remedies over the modern methods, medicines and health equipment. All of these factors hindered families from accessing the right care by the right provider in the right setting with suitable technology.

5.3.3 Health Promotion

The third primary health care principle is the provision of health promotion. "Health promotion is essentially a political, ecological and capacity-building process, aimed at arranging the social and structural determinants of health in a way that facilitates health" (McMurray & Clendon, 2014, p. 14). For example, the WHO highlighted that parents

should be provided with antenatal breastfeeding education that is tailored to their families' and individual needs and sensitively considers their sociocultural context (WHO, 2017a).

The problem identified by participants in meeting this primary health care principal was the lack of success of health education for families. Participants reported that even though health education was provided regularly in health promotions and home visits, it was still difficult to raise family awareness about using health services for maternal and infant health. It seems that perhaps they were not "tailoring" their care to the families' and individual cultural needs specific to their sociocultural and economic circumstances. Interviews of community members, especially the mothers, would be necessary to ascertain this phenomenon.

Participants pointed to some strategies that had been implemented to improve health promotion, such as persevering with health education in both health centres and with a family-centred approach. Participants reported that they had designed simple health education materials to inform and to educate families regarding a healthy lifestyle, maternal and infant health.

Participants recommended working together with the health educator sector to make sure the health promotion messages are consistently and regularly produced and disseminated. They emphasized that health workers need to become closer to the religious and tribal leaders as the way to gaining families' trust in health workers. The researcher wondered whether perhaps they are so focussed on giving information, that they are not spending time listening to participant needs, to enable them to tailor services. It may be that the health workers are not sufficiently aware about local culture sensitivities when approaching families. Health workers might be providing the same health messages in the same way all the time and might not be targeting the specific needs of the family appropriately as a result. Lack of cultural sensitivity and empathy by health workers might stop families going to health centres, as the families might not trust them.

5.3.4 Cultural Sensitivity, Cultural Safety

The fourth primary health care principle is for care to be culturally sensitive and safe. Cultural sensitivity means, "being responsive to the way an individual or group's cultural mores and lifestyle habits shape health and health behaviours" (McMurray & Clendon, 2014, p. 15). Cultural safety refers to "exploring, reflecting on, and understanding one's own culture and how it relates to other cultures" (McMurray & Clendon, 2014, p. 15). The WHO strongly recommends that health care services be culturally appropriate for maternal and neonatal care (WHO, 2015b).

In this study, participants identified that family culture and norms impeded their seeking care and using the health facilities that were provided in health centres. Participants pointed to a strategy that they had implemented, which involved approaching tribal and local leaders as well as the traditional healers and shamans about the provision of health care for mothers and infants. However, they reported that no matter how much health education is provided, it does not make any difference. Participant's recommendations regarding community participation encompassed training for shaman and traditional healers and continued involvement of community sectors in health programs. This is supported by a study conducted by Orya et al. (2017) who claimed that with appropriate training and support, the traditional birth attendants could become partners with health workers and have stronger links with health systems and health facilities.

Health workers' judgment of the local families might be problematic. For example, participants perceived that even when they have given health information, the people do not change their behaviour. There may be many other aspects that the health workers are not considering, such as the powerful hold on the local people of their traditional social, economic and cultural values and beliefs and the strength of the patriarchal hierarchy. For example, women are not necessarily able to make decisions themselves because their beliefs about pregnancy are

influenced by their culture and family tradition. Health workers' perceptions could also be a factor because their own values, beliefs and expectations can influence their consideration of the cultural norms, values and beliefs of their patients and families. The WHO recommends that health interventions provided to maternal and newborn health should be implemented in a respectful way that facilitates women's choices and their autonomy in decision-making and supports mothers in taking care of their newborns (WHO, 2015b).

Keleher and MacDougall (2016) outlined the multiple factors that shape people's behaviour in seeking care, namely socio-economic and political, governance, cultural and values, education, psychosocial, gender issues and health care system. Health workers need to consider these multiple factors in their approach to providing health care to the Papuan communities, given the strength of the indigenous cultural beliefs and traditions. It is important that these cultural beliefs and traditions need to be thoroughly understood so that health programs can be designed in a way that local people are more likely to accept. Health research focusing on these traditional beliefs is necessary to obtain meaningful insight into the reasons for the poor health status of the indigenous Papuans in order to create health services that best meet their needs. Hence, a reorientation of the health services and the creation of supportive communities are necessary to change family health behaviours for better health outcomes (McMurray & Clendon, 2014).

5.3.5 Inter Sectoral Collaboration

The fifth primary health care principle is inter-sectoral collaboration in the provision of care. Inter-sectoral collaboration refers to "cooperation between different community sectors, including those managing health, education, social services, housing, transportation, environmental planning and local government" (McMurray & Clendon, 2014, p. 15). The WHO states that an action plan to end preventable deaths of every newborn requires initiatives and collaboration among stakeholders such

as governments, civil society, professional associations, academic research institutions, the business community and families (WHO, 2014).

Participants pointed to the problem of gaining the permission from local people for land to build more health centres, as land ownership is a complex issue in Papua. Appropriate accommodation and safe workplaces are also important issues for health care workers in rural Papua. Another problem is the mobility of the population, which requires governmental regulation to provide certainty of land tenure so that health care workers can deliver and keep accurate records of health care.

Recommendations mentioned by the participants related to inter sectoral collaboration, mainly about improving infrastructure such as roads and transportation. Participants explained that there is a need for quick referral from remote areas by providing ambulance and cars, which needs the regulation from the local government. Participants also pointed out that the Government regulation is needed for the legalisation of land for health centres.

Participants identified that strengthening multisector cooperation is essential to build communication with the local people so that health workers working there are welcomed and safe. They identified that the governments need to provide appropriate and safe places for the health worker to live and to work so that particularly the village midwives, who are often alone in the centre or visit homes alone, can work safely.

In relation to reducing the mobility of the population, participants recommended that the government should provide certainty for the place of residence for the local people so health workers can monitor the population health well.

5.3.6 Community Participation

The final principle is for community participation in the provision of healthcare. Community participation refers to "partnership between health professionals and members of the community and having equal status in control and reciprocal responsibility for health" (Aston et al., 2009, cited in McMurray & Clendon, 2014, p. 15). The WHO defined community participation as "members of a community getting involved in planning, designing, implementing and monitoring strategies and interventions" (WHO, 2015b, p. 5). The WHO Commission on Social Determinants of Health stated that one of the effective ways to address social determinants of health is the integration and strong community involvement in designing and implementing health care (WHO, 2007b). The WHO further recommended community participation in program planning, implementation and monitoring to improve the use of skilled care during pregnancy, birth and postnatal to improve maternal and neonatal health (WHO, 2015b).

Participants pointed out that the community members sometimes work together with the health workers in providing care for the community but this could still be improved. Further solutions and recommendations that participants proposed were holding regular meetings that involve stakeholders and the tribe and religious leaders to find the best way to approach the family in relation to use of and access to health care. Participants also emphasized the importance of involving health workers from remote areas in the annual health program meeting so they can contribute significantly to health planning and budgeting.

In relation to traditional healers, shamans and traditional birth attendants, participants said that there is a need to approach these traditional community members so that they could work together with them to provide health services for the local people and gain their trust. The WHO recommends partnership with traditional birth attendants to support maternal and neonatal health particularly in settings such as in

remote areas where traditional birth attendants are considered necessary (WHO, 2015b).

The concept of primary health care principles with its focus on equity, justice, cultural sensitivity, appropriate technology and community and inter-sectoral collaboration has proved an appropriate model for understanding the data collected from the interviews with the health workers in Keerom. The researcher has found that each of the principles have significant applications in the Papuan case of health care provision to the indigenous population, enabling useful conclusions to be drawn.

5.4 Limitations

This study has several limitations. Participants in this study are health workers who work in Papua, so the information about factors contributing to infant deaths is from health service providers only. The researcher did not seek data from health service users, such as families and communities, which would provide a different perspective and potentially rich information. Further, because the research setting of Papua Province has unique political, geographical and social characteristics, which are different from other parts of Indonesia, the results may not be generalisable. As a small qualitative study the results of this study are not intended to be applicable to other parts of Indonesia.

Another limitation of this study is the process of conducting phone interviews. The researcher was unable to travel to Papua to conduct face-to-face interviews in person and unfortunately, the telephone interviews were beleaguered by poor connections and poor voice quality. To avoid misinterpretation of the participants' responses during the conversation, the researcher had to repeat the answers to confirm and clarify the participants' answers.

Another limitation identified is the potential for misinterpretation and misunderstanding of the interview data, as they were gathered in

Bahasa but translated and written in English. The researcher translated some of the transcribed interviews from Bahasa Indonesian to English as well as the analysis of the results. During the process of translation, the researchers faced some challenges, as many Indonesian words did not have English words that expressed exactly the same meaning. To minimise misinterpretation, the researcher carefully selected vocabulary in writing the results of the analysis and the report of the study. The researcher consistently sought feedback and discussed these issues in great detail with the supervisors.

5.5 Recommendations of the Research

This study has numerous implications for health care providers, researchers, community stakeholders and policy makers. The following recommendations, based on the primary health care principles, arise from the study.

Recommendation 1. To improve cultural sensitivity and cultural safety of service.

- Pre-service and in-service education of health workers should include information about local cultures and beliefs (anthropological studies);
- Promotion of health worker cultural sensitivity and respect and partnership with local people, shamans and tribal leaders to achieve health service objectives;
- Incorporation of indigenous people in future research and service development.

Such efforts may improve people's willingness to access care and receive care.

Recommendation 2: To implement low technology health care and community health promotion to enhance maternal and infant health.

- Promotion of strategies such as the kangaroo model of care to address hypothermia;

- Providing health promotion to families and communities relating to breastfeeding and other infant care practices;
- Working together with families to make timely decisions to seek care.

Such efforts would empower families to improve infant outcomes from preventable conditions such as bronchopneumonia.

Recommendation 3: To improve community participation in health care planning and delivery.

- Health service management working together with community members such as local tribal leaders, shamans and families in health planning, to create accessible and appropriate health care to meet community needs;
- Health promotion to all community members including shamans and traditional healers.

Such collaboration may improve shared understanding and reduce delay in seeking care.

Recommendation 4. To improve collaboration between national, provincial, regency and local governments

- Improvement of infrastructure of roads and transport; provision of electricity and clean water, and construction of community health centres in every village;
- Ensuring health workers are trained in the provision of maternal and infant care in low technology contexts;
- Upgrading of status and salary of health workers to improve attraction and retention of health workers;
- Ensuring adequate material resources for safe and effective care;
- Ensuring safety of health workers within the communities in which they work;
- Considering referral services to tertiary hospitals;
- Working with communities to provide community funds for referrals.

Implementation of these recommendations would address all three delays: seeking, reaching and receiving care.

5.6 Conclusion

This is the first qualitative study in Indonesia particularly in Papua Province that explores health workers' perception (nurses, midwives and doctors) about factors that contribute to infant mortality. This study found various challenges of, and potential solutions to reduce, infant mortality. Based on the participants' perceptions, it can be concluded that most of the factors that contribute to infant death are generally related to delays in deciding to seek care. However, there were also factors that contributed to a delay in reaching care and delay in receiving care.

The local people's cultural beliefs about pregnancy, birth, and infant and maternal health were reported by the participants as major factors that contribute to infant mortality. Other barriers were geographical factors, such as isolated areas, and poor road access. Poverty and the nomadic nature of the local population also contributed to the delays in seeking and reaching health care by mothers and newborns. Furthermore, the lack of skilled health workers, lack of health facilities and health equipment/ medicines, and the unsafe working environment exacerbated the problems. Some solutions have been implemented, and participants made recommendations for future actions discussed under the primary health care principles.

The main outcome achieved in this study is the contribution to existing knowledge in terms of the examination of a unique community regarding health care to find the obstacles to the reduction of infant mortality in Indonesia. This study has added to existing knowledge by examining the wide-ranging factors that contribute to infant mortality, including, in addition to infant health factors, maternal factors, health provision factors and cultural factors. This study recommends health care

providers to approach and embrace community and stakeholders and work together using more creative culturally respectful approaches.

Understanding the health workers' judgment of the local families and their culture is essential, as their judgement influences the policies and practices of health care in these remote areas and affects the local people's uptake and acceptance of this health care. This study has uniquely focussed on understanding the participant health workers' perceptions, and found that, in addition to government funding of health centres, cultural knowledge and sensitivity are central to the provision and acceptance of health care by local families, particularly for maternal and infant health.

Appendix 1. Evaluation of Qualitative Studies Using JBI Critical Appraisal 2017

Review criteria	Study number							
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**
1. Is there congruity between the stated philosophical perspective and the research methodology	Y	Y	Y	Y	Y	Y	Y	Y
2. Is there congruity between the research methodology and the research question or objectives?	Y	Y	Y	Y	Y	Y	Y	Y
3. Is there congruity between the research methodology and the methods used to collect data?	Y	Y	Y	Y	Y	Y	Y	Y
4. Is there congruity between the research methodology and the representation and analysis of data?	Y	Y	Y	Y	Y	Y	Y	Y
5. Is there congruity between the research methodology and the interpretation of results?	Y	Y	Y	Y	Y	Y	Y	Y
6. Is there a statement locating the researcher culturally or theoretically?	N	N	N	Y	U	N	NA	U
7. Is the influence of the researcher on the research, and vice-versa, addressed?	N	N	U	NA	NA	NA	U	U
8. Are participants, and their voices, adequately represented?	Y	Y	U	Y	Y	Y	Y	Y
9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?	N	N	Y	Y	Y	Y	Y	Y

10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?	Y	Y	Y	U	Y	U	Y	Y

Evaluation of Quantitative Studies Using JBI Critical Appraisal 2017

Review criteria	**Study number**					
Case control studies	**9**	**10**	**11**	**12**	**13**	**14**
1. Were the groups comparable other than the presence of disease in cases or the absence of disease in controls?	Y	Y				
2. Were cases and controls matched appropriately?	NA	Y				
3. Were the same criteria used for identification of cases and controls?	Y	Y				
4. Was exposure measured in a standard, valid and reliable way?	U	Y				
5. Was exposure measured in the same way for cases and controls?	Y	Y				
6. Were confounding factors identified?	Y	U				
7. Were strategies to deal with confounding factors stated?	U	Y				

8. Were outcomes assessed in a standard, valid and reliable way for cases and controls?	Y	Y				
9. Was the exposure period of interest long enough to be meaningful?	Y	Y				
10. Was appropriate statistical analysis used?	Y	Y				

Cross sectional studies						
1. Were the criteria for inclusion in the sample clearly defined?			Y	Y	Y	Y
2. Were the study subjects and the setting described in detail?			Y	Y	Y	Y
3. Was the exposure measured in a valid and reliable way?			Y	Y	Y	Y
4. Were objective, standard criteria used for measurement of the condition?			Y	Y	Y	Y
5. Were confounding factors identified?			U	U	Y	Y
6. Were strategies to deal with confounding factors stated?			U	U	U	Y
7. Were the outcomes measured in a valid and reliable way?			Y	Y	Y	Y
8. Was appropriate statistical analysis used?			Y	Y	Y	Y

Appendix 2. Summary Table of Articles on the Health Worker Perceptions about factors that Contribute to Infant Mortality

No	Author, Date and Title of article	Aim/Objective	Sample and Setting	Methods and Methodology	Major Findings	Limitations and Rigour/Validity
1	Onta, S., Choulagai, B., Shrestha, B., Subedi, N., Bhandari, G. P., & Krettek, A. (2014) Perceptions of users and providers on barriers to utilizing skilled birth care in mid-and far-western Nepal	To examine the perceptions and experiences of service users and providers regarding barriers to skilled birth care, and to explore possible solutions to overcoming such barriers in mid- and far-western Nepal.	24 FGD included health workers, facility managers, groups of mothers and local leaders. Each FGD contained 7 to 12 participants from some districts that have lower utilization of skill birth attendance services in Nepal.	Qualitative with focus group discussion.	Pregnant women tend to visit health facility only when they encounter problem because they lack autonomy in their family and do not understand the importance of care in every birth. Both health providers and services users perceived lack of availability and accessibility of skilled birth in remote area.	This study provided an equal exploration of the perceptions of both service providers and users, as the data presented the participants' perceptions of the potential barriers to using skilled birth care comprehensively. FGD might pose issues of confidentiality and anonymity

2	Pomevor, K. E., & Adomah-Afari, A. (2016). Health providers' perception of quality of care for neonates in health facilities in a municipality in Southern Ghana.	To assess available human resources for neonatal care and their skills, in order to explore health providers' perceptions of quality of neonatal care in health facilities in Ghana.	12 midwives, 2 trained nurses and 1 medical officer of maternity and paediatric wards at the regional and municipal hospital in Ghana.	Qualitative semi-structured interview	Health providers were aware that the number of health worker, their skill of neonatal caring and the availability of appropriate equipment are essential in order to work more efficiently. Poor and inadequate health care equipment worsens their quality care.	The finding might suffer bias as the participants were interviewed on the premises of the health facilities, where they provide services. Good sample size for qualitative studies. Conducted in developing country.
3	Eriksson, L., Nga, N. T., Hoa, D. P., Persson, L. A., Ewald, U., & Wallin, L. (2011) Newborn care and knowledge translation - perceptions among primary healthcare staff in northern Vietnam.	To explore aspects of knowledge translation at the primary healthcare level in a northern	6 FGD including assistant doctors, medical doctors, midwives and nurses. Each FGD contained 7 to 8 participants from three districts that represented the types of geographical areas	Qualitative with focus group discussion	Health care staff perceived that knowledge translation is vital regarding the improvement of neonatal care. Lack of resources and low paid health workers seemed to be the barriers	Clearly explained method and methodology. Sample participants represented from all the disciplines. Potential limitation might be the moderator of discussion had superior rank in the health system to focus group participants as he is a physician.

		province in Vietnam.	(mountains, rural and urban) in the province of Vietnam.		in keeping knowledge and skills of health worker.	Lost in translation (from Vietnamese to English)
4	Titaley, C. R., Hunter, C. L., Dibley, M. J., & Heywood, P. (2010a). Why do some women still prefer traditional birth attendants and home delivery?: A qualitative study on delivery care services in West Java Province, Indonesia	To explore the perspectives of community members and health workers about the use of delivery care services in six villages of West Java Province.	A total of 295 participants Consisting of 119 mothers of children aged more than 40 days to four months, 40 fathers, 26 health professionals including 20 health centre staff (doctors, nurses and health centre midwives) and six village midwives, 20 village cadres (local community health workers), 37 traditional birth attendants or paraji (in Sundanese	Qualitative with 20 FGDs and 165 in-depth interviews.	Costs or economic reasons are the major factors of using traditional birth attendants and home delivery. There was lack of health providers in remote areas. Physical distance was one of the barriers that prevented community members from accessing and using skilled attendants and health care services delivery.	Using qualitative method in this study enabled researcher to explore and understand the perspectives of community members on delivery care services. In-depth interview along with FGD with the multiple interviewers and different categories of participants increases the validity of the result. This study did not mention the difference between traditional birth attendants who had not been trained and those who had received biomedical training. The issues of the language might influence the interaction process during data collection as all of the research assistants speak Sundanese as interpreter.

			language), 42 community and religious leaders, and 11 health office staff.			
5	Titaley, C. R., Hunter, C. L., Heywood, P., & Dibley, M. J. (2010b). Why don't some women attend antenatal and postnatal care services?: A qualitative study of community members' perspectives in Garut, Sukabumi and Ciamis districts of West Java Province, Indonesia	To explore community members' perspectives on antenatal and postnatal care services, including reasons for using or not using these services, the services received during antenatal and postnatal care, and cultural practices during	20 FGDs and 165 in-depth interviews were carried out involving a total of 295 respondents.	Qualitative with 20 FGDs and 165 in-depth interviews	The main reason women attend antenatal and postnatal care services is to be sure safe mother and baby health. Financial difficulties arise as a major problem among women, so they do not meet the minimum requirements of the four antenatal care services or the first two care services months after delivery. In remote areas, limited availability of health services is also a problem. Village distance from health facilities, and poor	It provides data about stakeholders' perspectives of antenatal and postnatal care services at the community level which might inform policy makers to develop strategies to increase community awareness in utilizing antenatal and post-natal care services. Does not explore the quality of antenatal and postnatal care services sent to community, such as type of Information and health education provided to women.

		antenatal and postnatal periods in Garut, Sukabumi and Ciamis districts of West Java province.			road conditions are a major concern, in particular for those living in remote areas. Lack of public awareness about the importance of this service was also found, as some members of society consider health care only necessary if complications occurred.	
6	Rosales, A., Sulistyo, S., Miko, O., Hairani, L. K., Ilyana, M., Thomas, J., . . . Pabate, K. (2017) Recognition of and care-seeking for maternal and newborn complications in	To identify, analyse, and describe illness recognition and care-seeking patterns related to maternal and newborn complications among Dani people residing in Jayawijaya	For maternal cases: 4 PPH survival women, 6 husbands, 4 close relatives and one health worker. For newborn cases: 10 mothers, 6 fathers, 4 close relatives and I health worker.	Qualitative with semi-structured interviews.	All newborn deaths associated with delays in seeking care due to lack of ability of health worker in danger sign identification. All mothers' deaths were related to a delay in receiving appropriate care at the facility level.	The method and methodology of this study were not clearly explained. Good sample size for qualitative study. Conducted in one of remote areas in Papua.

	Jayawijayam district, Papua province, Indonesia: A qualitative study.	district, Papua province, Indonesia.				
7	Martinez, A. M., Khu, D. T. K., Boo, N. Y., Neou, L., Saysanasongkham, B., & Partridge, J. C. (2012). Barriers to neonatal care in developing countries: Parents' and providers' percept Ions.	To identify parents' and providers' perceptions about barriers to neonatal care in developing countries.	198 parents and 212 newborn care providers (doctors, midwives, nurses, paediatric and nursing trainees)	Qualitative study using face-to-face survey questionnaire.	Both parents and health providers identified similar barriers such as economic reasons, distance to health services, lack of transportation and loss of work. Low parental education and, relying on traditional healer were also found as barriers for family.	Unclear method and methodology.

8	Gallagher, K., Partridge, C., Tran, H. T., Lubran, S., & Macrae, D. (2017). Nursing & parental perceptions of neonatal care in Central Vietnam	To explore changes in the perceptions and attitudes of nurses and parents towards their experiences in the neonatal unit following a neonatal nursing education intervention in a single neonatal unit in central Vietnam.	16 nurses and 67 parents participated over 18 months	A longitudinal qualitative study. Semi-structured qualitative interviews were conducted every 6 months over an 18-month period.	Transfer of knowledge and changes in the resulting practice can be very important factors in reducing infant mortality. Implementing educational interventions can build staff confidence, leading to an increase in professionalism. More positive parental experiences can lead parents to be more willing to access neonatal care for their next baby, potentially helping to improve baby outcomes in developing countries.	As this is a longitudinal study of 18 months, there is the possibility of losing some participants. Conducted in developing country similar to Indonesia.

9	Sutan, R., & Berkat, S. (2014). Does cultural practice affect neonatal survival: A case control study among low birth weight babies in Aceh Province, Indonesia?	To predict the neonatal mortality among low birth weight babies in Aceh Province Indonesia by focusing on its cultural practices and other factors such as maternal, neonatal, healthcare services and homecare practice.	A total of 500 samples. 250 of the samples died in neonatal period (case group) and 250 who were alive (control group). Data was analysed using bivariate logistic regression and multivariate logistic regression.	Quantitative case control study was conducted using data from year 2010 to 2012 in 8 selected districts of Aceh Province Indonesia.	Cultural practices are strongly seen to affect the care of the infant in Aceh province. Inappropriate antenatal care, inappropriate neonatal visits, not practicing kangaroo mother care, late initiation of breast feeding, discarding colostrum, not practicing exclusive breast feeding, presence of maternal illness, and low birth weight are seem to be the determinant factors of neonatal mortality.	Quantitative study in Indonesia setting. The result could not be generalised. Because confounding variables, the result might be subjected to recall bias.
10	Abdullah, A., Hort, K., Butu, Y., & Simpson, L. (2016)	To identify risk factors associated with neonatal deaths of low and	Cases defined as neonatal deaths reported to health services during the period between 1	Qualitative. Matched case control study of neonatal deaths	The study identifies a number of factors that can lead to acceptance of health care interventions associated with neonatal	Large sample size and representative enable detection of risk factors of infant death.

	Risk factors associated with neonatal deaths: A matched case–control study in Indonesia.	normal birth weight infants that were amenable to health service intervention at a community level in a relatively poor province of Indonesia.	January to 30 October 2013 that were singletons and non-caesarean-section delivery. Cases were selected from the list of neonatal deaths reported as part of the neonatal audit, from the 80 Community health service across the 14 districts.	reported from selected community health centres (was conducted over 10 months in 2013.	mortality in both normal and low birth weight infants. These factors include mother's knowledge of danger signs, responses to health problems noted by parents in the first month, early breastfeeding initiation, and home delivery. Addressing these factors can reduce neonatal mortality in low resource	This study focuses on specific population of newborns whose death reported to the health services. The data relied on patient's report, which may subject to recall bias and inaccuracy.
11	Titaley, C. R., Dibley, M. J., Agho, K., Roberts, C. L., & Hall, J. (2008). Determinants of neonatal mortality in Indonesia.	To identify the determinants of neonatal mortality in Indonesia, for a nationally representative.	The data was taken from the 2002–2003 Indonesia Demographic and Health Survey: survival information of 15,952 singleton live-born infants born between 1997 and 2002.	Quantitative survey analysis. Multilevel logistic regression using a hierarchical approach was performed to	Public health interventions aimed at reducing neonatal mortality should address community-level factors, households and individuals that significantly affect neonatal mortality in Indonesia. Low birth weight and premature as	The use of multilevel modelling of random effects that takes into account the hierarchical structure of data as well as variability in communities, households and individual levels to better estimate the association rate of study factors with outcomes. It does not represent Indonesia as a whole as some parts of Indonesia were not included for security reasons. In this study only surviving women were interviewed, which may have led to an underestimation of neonatal mortality rates, due to the association

				analyse the factors associated with neonatal deaths, using community, socio-economic status and proximate determinants.	well as perinatal healthcare factors, such as the availability of trained deliveries and the utilization of postnatal care should be taken into account when planning interventions to reduce infant death in Indonesia.	of neonatal mortality with maternal mortality. Old data from Indonesia but still relevant to the current situations in some parts of Indonesia. There are other possible determinants of neonatal mortality that are not available in the dataset, such as genetic and environmental factors.

12	Ezeh, O. K., Agho, K. E., Dibley, M. J., Hall, J. J., & Page, A. N. (2015). Risk factors for post neonatal, infant, child and under-5 mortality in Nigeria.	To identify common factors associated with post-neonatal, infant, child and under-5 mortality in Nigeria.	63,484 live single-born babies from a mother's newest birth within a period of 5 years before each survey was examined using a cox regression model. A multistage, stratified, cluster random sampling method was utilised to gather information.	Quantitative Cross-sectional data of three Nigeria Demographic and Health Surveys (NDHS) for the years 2003, 2008 and 2013.	The study found that no formal education, poor households and living in rural areas increases the risk of postnatal, infant, child and under-5 mortality among Nigerian children. Community-based interventions to reduce deaths below 5 years are required and should target children born to mothers with low socioeconomic status.	The study is based on a household survey that represents each region of Nigeria. Data were collected together to create a large sample size of deaths reported within the 5 years prior to the survey. The analysis was restricted to birth within 5 years of each survey to reduce recall bias by the interviewee and to minimize possible bias from changes in household characteristics. Birth dates and newborn infant deaths given by mothers may be misreported - especially those occurring several months or years prior to the survey. Causes of death and medical conditions of children were not known at the time of the survey.
13	Anggondowati, T., El-Mohandes, A. A., Qomariyah, S. N., Kiely, M., Ryon, J. J., Gipson, R. F., Wright, L. L. (2017). Maternal characteristics and obstetrical	To investigate the influence of maternal characteristics and diagnoses, as well as access to hospital care, on birth outcomes among singleton	1240 obstetrics and 910 neonatal admissions to 2 hospitals.	Quantitative Hospital-based prospective studies	Maternal characteristics and pregnancy complications had strong impact on neonatal outcomes. Adequate antenatal care and post-natal care significantly reduced perinatal deaths.	The limitation of this research is that the reliance on quality of hospital records, was partially reduced by reinforcing data through various sources. Data for socio-economic variables and access to care were obtained from patient interviews, which may be subject to recall bias. Interviewing patients and families during hospitalization is a challenge in obtaining accurate information. The strength of the study included that abstracts of data and interviewers trained doctors locally recruited.

	complications impact neonatal outcomes in Indonesia.	infants born in two district hospitals in East Java.			Improved health service management may significantly reduce perinatal morbidity and mortality.	There is consistent crosschecking between registers, medical records and patient interviews to ensure data quality.
14	Lamichhane, R., Zhao, Y., Paudel, S., & Adewuyi, E. O. (2017). Factors associated with infant mortality in Nepal.	To explore the significant factors associated with infant mortality in 2006 and in 2011 in Nepal separately and then to fill the gaps by comparing the key factors associated with the slow reduction in infant mortality between 2006 and 2011 using	In 2011 12,674 eligible women (15–49 years) and 4323 eligible men (15–49 years) and in 2006 10,793 and 4397 eligible women and men of 15–49 years.	Quantitative Surveys Interviews with multistage stratified cluster sampling techniques.	For NDHS 2006, babies born in hilly areas; born with birth interval ≥ 24 months; assisted by professional health care; and who are being breastfed, have a lower chance of death. For NDHS 2011, infants born with previous birth interval or > 24 months later; and who are born with a size larger or larger than the average have a lower chance of death. The infant death rate is still very high in Nepal in two national representative survey data, NDHS 2006 and NDHS 2011.	The questionnaire is validated internationally and uses standard data collection methods with larger sample sizes. This study used a complex sample analysis, which contributed the sampling weight due to multistage stratified sampling used in both surveys, to obtain accurate estimates for standard error and confidence intervals. Because DHS comes from a cross-sectional survey, the data may be subject to recall bias. The association of infant mortality with factors derived from statistical analysis may not have a temporary relationship due to the nature of the study design.

		two corresponding NDHS data.				

Appendix 3. Final Approval Notice

FINAL APPROVAL NOTICE

Project No.:	**7897**
Project Title:	A qualitative descriptive study of health worker perceptions about factors that contribute to infant mortality in Keerom Regency Papua Province, Indonesia
Principal Researcher:	Mrs Hotnida Erlin Situmorang
Email:	situ0006@flinders.edu.au
Approval Date:	21 March 2018
Ethics Approval Expiry Date:	**30 June 2020**

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided.

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. Participant Documentation

Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:

☐ all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above mentioned errors.

- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.

☐ the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by the Flinders University Social and Behavioral Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research (March 2007)* an annual progress report must be submitted each year on the **21 March** (approval anniversary date) for the duration of the ethics approval using the report template available from the Managing Your Ethics Approval SBREC web page. *Please retain this notice for reference when completing annual progress or final reports.*

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Student Projects

The SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, reviewed and approved. This is to protect the student in the event that reviewers recommend some changes that may include the collection of additional participant data.

Your first report is due on **21 March 2019** or on completion of the project, whichever is the earliest.

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- ☐ change of project title;
- ☐ change to research team (e.g., additions, removals, principal researcher or supervisor change);
- ☐ changes to research objectives;
- ☐ changes to research protocol;
- ☐ changes to participant recruitment methods;
- ☐ changes / additions to source(s) of participants;
- ☐ changes of procedures used to seek informed consent;
- ☐ changes to reimbursements provided to participants;
- ☐ changes / additions to information and/or documentation to be provided to potential participants;
- ☐ changes to research tools (e.g., questionnaire, interview questions, focus group questions);
- ☐ extensions of time.

To notify the Committee of any proposed modifications to the project please complete and submit the *Modification Request Form* which is available from the Managing Your Ethics Approval SBREC web page. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Committee if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

4. Adverse Events and/or Complaints

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or human.researchethics@flinders.edu.au immediately if:

- ☐ any complaints regarding the research are received;
- ☐ a serious or unexpected adverse event occurs that effects participants;
- ☐ an unforeseen event occurs that may affect the ethical acceptability of the project.

Kind regards
Rae

Ms Andrea Mather (formerly Fiegert) **and Ms Rae Tyler**
Ethics Officers and Executive Officers, Social and Behavioural Research Ethics Committee

Ms Andrea Mather | Monday - Friday	T: +61 8201-3116 | E: human.researchethics@flinders.edu.au
Ms Rae Tyler | Monday, Wednesday and Friday mornings	T: +61 8201-7938 | E: human.researchethics@flinders.edu.au
A/Prof David Hunter | SBREC Chairperson	T: +61 7221-8477 | E: david.hunter@flinders.edu.au
Dr Deb Agnew | SBREC Deputy Chairperson	T: +61 8201-3456 E: deb.agnew@flinders.edu.au
SBREC Website	Social and Behavioural Research Ethics Committee (SBREC)

Research Development and Support |Union Building Basement
Flinders University
Sturt Road, Bedford Park | South Australia | 5042
GPO Box 2100 | Adelaide SA 5001

Appendix 4. Letter of Introduction

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Flinders UNIVERSITY

LETTER OF INTRODUCTION

Dear Sir/Madam

This letter is to introduce Mrs. Hotnida Erlin Situmorang who is currently a Master of Nursing student at the College of Nursing and Health Science at Flinders University, Adelaide, South Australia. She has attached a copy of her student card, which carries a photograph, as proof of identity. Erlin is undertaking research leading to the production of a thesis and other publication on the subject of *" Papua health workers perceptions about factors that contribute to infant mortality in Papua".*

Erlin would be most grateful if you would volunteer your time to assist in this project by granting an interview, which explores certain aspects of this topic. The interview will take approximately 45 minutes. You can request to stop the interview at any time if you wish. One of the major outcomes of this study is that Erlin hopes to contribute better nursing clinical practice in the management of birth and neonatal health in Papua, Indonesia.

Please be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting theses, report or other publications. You are free to discontinue your participation in this study at any time without any penalties. Since Erlin intends to record the interview, she will seek your agreement by signing the consent form attached, to use the recording and transcription in preparing the thesis, report or publications, on condition that your identity will not revealed and recording will not be made available to any other person except to the researcher and the supervisors.

Any inquiries you may have concerning this project should be directed to me at the address given above or by phone on 82012126 or email: julian.grant@flinders.edu.au

Thank you for your kind attention and assistance.

Yours sincerely

[redacted]

Associate Professor Julian Grant

*This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number **7897**). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au*

Appendix 5. Letter of Introduction (Indonesian Version)

Associate Professor Julian Grant
Child and family Health Nursing
Coordinator (Postgraduate Nursing Programs) College of Nursing and Health Sciences
GPO Box 2100
Adelaide SA 5001
Telephone +61882012126
Facsimile +61882761602
Julian.grant@flinders.edu.au

Flinders UNIVERSITY

SURAT PERKENALAN

Kepada YTH: Bapak/Ibu

Maksud dari surat ini adalah untuk memperkenalkan saudari Hotnida Erlin Situmorang yang saat ini sedang pendidikan Master keperawatan di College of Nursing and Health Science di Flinders University, Adelaide, South Australia. Bersama ini dilampirkan juga kartu identitas lengkap dengan foto sebagai mahasiswa di Flinders University.

Erlin sedang melakukan proses penelitiannya yang nantinya untuk membuat tesis dan publikasi lainnya dengan judul "Persepsi petugas kesehatan tentang faktor-faktor yang berkontribusi terhadap kematian bayi di Papua"
Erlin akan sangat berterimakasih jika anda secara sukarela meluangkan waktu untuk mendukung penelitian ini dengan bersedia di wawancara yang akan mengeksplorasi aspek aspek dari topik di maksud dalam penelitian. Wawancara akan berlangsung sekitar 45 menit. Anda dapat meminta untuk menghentikan wawancara kapan pun anda inginkan. Salah satu output terbesar dari pembelajaran ini adalah melalui penelitian ini diharapkan ibu Erlin akan dapat memberikan dampak yang label baik bagi keperawatan klinik dalam penanganan kelahiran bayi baru lahir dan kesehatan bayi di Papua Indonesia.

Yakinlah bahwa setiap informasi yang diberikan akan diperlakukan dengan sangat ketat dan tidak ada satupun peserta yang dapat diidentifikasi secara individu dalam tesis, laporan atau publikasi lainnya yang dihasilkan. Anda bebas untuk menghentikan partisipasi Anda dalam studi ini kapan saja tanpa penalti. Karena Erlin bermaksud untuk merekam wawancara tersebut, dia akan meminta persetujuan Anda dengan menandatangani formulir persetujuan yang telah dikirim, untuk menggunakan rekaman dan transkripsi dalam mempersiapkan tesis, laporan atau publikasi, dengan syarat identitas Anda tidak akan diungkapkan dan rekaman tidak akan tersedia, kepada orang lain kecuali kepada peneliti dan pembimbing.

Setiap pertanyaan yang mungkin Anda miliki mengenai proyek ini harus ditujukan kepada saya di alamat yang diberikan di atas atau melalui telepon di 82012126 atau email: julian.grant@flinders.edu.au

Terima kasih atas perhatian dan bantuannya.

Hormat saya,

[redacted]

Associate Professor Julian Grant

Penelitian ini telah disetujui oleh etik Flinders University Social and Behavioural Research Ethics Committee (Dengan Nomor 7897). Untuk informasi lebih lanjut tentang persetujuan etik dari penelitian ini dapat menhubungi kantor komite etik di no telepon +61 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

Appendix 6. Information Sheet

Hotnida Erlin Situmorang
College of Nursing and Health Sciences
GPO Box 2100
Adelaide SA 5001
Email: situ0006@flinders.edu.au

INFORMATION SHEET

Research Project Title: A qualitative descriptive study of health worker perceptions about factors that contribute to Infant Mortality in Keerom Regency Papua Province, Indonesia.

Researcher: Hotnida Erlin Situmorang

College of Nursing and Health Sciences

GPO Box 2100

Adelaide SA 5001

Email: situ0006@flinders.edu.au

Supervisor(s): Associate Professor Julian Grant

Associate Professor Linda Sweet

Ms Kristen Graham

Description of the study:

This study is a qualitative descriptive study of health worker perceptions about factors that contribute to Infant Mortality in Keerom Regency Papua Province, Indonesia. It is being conducted by Hotnida Erlin Situmorang as her Master thesis at The College of Nursing and Health Sciences at Flinders University, South Australia, Australia.

Purpose of the study:
This project aims to:

1. explore health worker perceptions about factors that contribute to infant mortality in Papua Province.

2. identify factors that shape of infant mortality in Papua Province.

The intended outcome of this study is to use findings to improve infant health in Papua.

What will I be asked to do?

You are invited to attend a one-on-one telephone interview with a researcher (Hotnida Erlin Situmorang) who will ask you a few questions regarding your perceptions about factors that contribute to infant mortality in Papua. The interview will take about 45-60 minutes. The interview will be audio recorded using a digital voice recorder to help with reviewing the results. Once recorded, the interview will be transcribed (typed-up) by the researcher and stored as a computer file, and will be destroyed once the results have been finalised. Participation is entirely voluntary and you will be free to change your mind about participating at any time.

What benefit will I gain from being involved in this study?

You may not benefit in this project. However, the aim of this study is that exploring your perceptions about factors that contribute to infant mortality will be useful to improve infant health in Papua.

Will I be identifiable by being involved in this study?

We do not need your name and you will be anonymous. Any identifying information will be removed, and your comments will not be linked directly to you. All information and results obtained in this study will be stored in a secure way, with access restricted to relevant researchers.

Are there any risks or discomforts if I am involved?

Apart from the time taken for the interview, there are no anticipated burdens or risks to the participants in this study as it aims to explore health workers perceptions about factors that contribute to infant mortality in Papua. However, if you become upset or distressed during the interviews, the researcher will stop the interviews and will not continue the interview unless you agrees. If needed, you can contact a counsellor at Cenderawasih University which is

located in Jalan Raya Sentani Abepura, Papua, Indonesia (Ph+6281344085019).

How do I agree to participate?

Participation is voluntary. You may answer 'no comment' or refuse to answer any questions, and you are free to withdraw from the interview at any time without effect or consequences. A consent form accompanies this information sheet. If you agree to participate please read and sign the form and send it back to me by email.

Recognition of contribution / time / travel costs

In this study, there is no contribution to the participants as this study will be conducted by phone interview.

How will I receive feedback?

The participants will not receive direct due to the logistics of access. They will however be able to access the final thesis or publications arising from the research.

Thank you for taking the time to read this information sheet, and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number: 7897).

For more information regarding ethical approval of the project only, the Executive Officer of the Committee can be contacted by telephone on (08) 8201 3116, by fax on (08) 8201 2035, or by email to human.researchethics@flinders.edu.au

Appendix 7. Information Sheet (Indonesian Version)

Hotnida Erlin Situmorang
College of Nursing and Health Sciences
GPO Box 2100
Adelaide SA 5001
Email: situ0006@flinders.edu.au

LEMBAR INFORMASI

Judul Proyek Penelitian:
Studi kualitatif deskriptif tentang persepsi petugas kesehatan mengenai faktor-faktor yang berkontribusi terhadap Angka Kematian Bayi di Kabupaten Keerom Provinsi Papua, Indonesia.

Researcher: Hotnida Erlin Situmorang

College of Nursing and Health Sciences

GPO Box 2100

Adelaide SA 5001

Email: situ0006@flinders.edu.au

Pembimbing: Associate Professor Julian Grant

Associate Professor Linda Sweet

Ms Kristen Graham

Deskripsi dari penelitian ini:

Penelitian ini merupakan penelitian kualitatif deskriptif tentang persepsi petugas kesehatan mengenai faktor-faktor yang berkontribusi terhadap Angka Kematian Bayi di Kabupaten Keerom Provinsi Papua, Indonesia. Hal ini dilakukan oleh Hotnida Erlin Situmorang sebagai tesis untuk Master di The College of Nursing and Health Sciences di Flinders University, Australia Selatan, Australia.

Tujuan Penelitian:

Proyek penelitian ini bertujuan untuk:

1. mengeksplor persepsi pekerja kesehatan tentang faktor-faktor yang berkontribusi terhadap kematian bayi di Provinsi Papua.
2. mengidentifikasi faktor-faktor yang membentuk angka kematian bayi di Provinsi Papua.

Hasil yang diharapkan dari penelitian ini adalah dengan menggunakan temuan untuk memperbaiki kesehatan infant di Papua.

Apa yang diminta untuk saya lakukan?

Anda diundang untuk wawancara telepon satu per satu dengan seorang peneliti (Hotnida Erlin Situmorang) yang akan mengajukan beberapa pertanyaan mengenai persepsi Anda tentang faktor-faktor yang berkontribusi terhadap kematian bayi di Papua. Wawancara akan berlangsung sekitar 45-60 menit. Wawancara akan direkam dengan audio
menggunakan perekam suara digital untuk membantu meninjau hasilnya. Setelah direkam, wawancara akan ditranskripsi (diketik) oleh peneliti dan disimpan sebagai file komputer, dan akan di musnahkan begitu hasilnya telah selesai. Partisipasi sepenuhnya bersifat sukarela dan Anda bebas mengubah pikiran Anda untuk berpartisipasi setiap saat.

Manfaat apa yang akan saya dapatkan dari keterlibatan dalam penelitian ini?

Anda mungkin tidak mendapatkan keuntungan dalam proyek ini. Namun, tujuan dari penelitian ini adalah bahwa mengeksplorasi persepsi Anda tentang faktor-faktor yang berkontribusi terhadap kematian bayi akan berguna untuk memperbaiki kesehatan infant di Papua.

Apakah saya dapat diidentifikasi dengan terlibat dalam penelitian ini?

Kami tidak akan memakai nama peserta penelitian yang sebenarnya tetapi kami menggunakan nama lain atau inisial. Setiap informasi identitas akan dihapus, dan komentar anda tidak akan dihubungkan langsung dengan nama anda. Semua informasi dan hasil yang diperoleh dalam penelitian ini akan disimpan secara aman, dengan akses terbatas pada peneliti yang relevan.

Apakah ada risiko atau ketidaknyamanan jika saya terlibat?

Terlepas dari waktu yang dibutuhkan untuk wawancara, tidak ada beban atau risiko yang diantisipasi bagi peserta dalam penelitian ini karena tujuan penelitian ini hanya untuk mengeksplorasi persepsi petugas kesehatan mengenai faktor-faktor yang berkontribusi terhadap kematian bayi di Papua. Namun, jika Anda menjadi tertekan saat wawancara, peneliti akan menghentikan wawancara dan tidak akan melanjutkan wawancara kecuali jika Anda setuju. Jika diperlukan, Anda bisa menghubungi seorang konselor di Universitas Cenderawasih yang berlokasi di Jalan Raya Sentani Abepura, Papua, Indonesia (Ph + 6281344085019).

Bagaimana saya untuk setuju berpartisipasi?
Partisipasi bersifat sukarela. Anda bisa menjawab 'no comment' atau menolak menjawab pertanyaan apapun, dan Anda bebas untuk menarik diri dari wawancara kapan saja tanpa ada konsekuensi apa pun. Formulir persetujuan ada bersama lembar informasi ini. Jika Anda setuju untuk berpartisipasi silahkan membaca dan menandatangani formulir inform consent dan mengirimkannya kembali kepada saya melalui email.

Kontribusi waktu/biaya perjalanan

Dalam penelitian ini, tidak ada kontribusi terhadap peserta karena penelitian ini akan dilakukan melalui wawancara telepon.

Bagaimana saya akan menerima feed back?
Peserta tidak akan menerima feedback secara langsung karena pertimbangan logistik yang sulit dari Australia ke Papua tetapi peserta nantinya dapat mengakses tesis akhir atau publikasi dari penelitian ini.

Terima kasih telah meluangkan waktu untuk membaca lembar informasi ini, dan kami berharap Anda akan menerima undangan untuk terlibat.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number: 7897)

For more information regarding ethical approval of the project only, the Executive Officer of the Committee can be contacted by telephone on (08) 8201 3116, by fax on (08) 8201 2035, or by email to human.researchethics@flinders.edu.au

Appendix 8. Consent Form

Flinders
UNIVERSITY

CONSENT FORM FOR PARTICIPATION IN RESEARCH
(By interview)

Health Worker Perceptions about Factors that Contribute to Infant Mortality in Keerom Regency Papua Province, Indonesia.

I.....

being over the age of 18 years hereby consent to participate as requested in the semi-structured interview for the research project entitled***: Health Worker Perceptions about Factors that Contribute to Infant Mortality in Keerom Regency Papua Province, Indonesia.***

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I agree to audio/video recording of my information and participation.
4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
5. I understand that:
   - ☐ I may not directly benefit from taking part in this research.
   - ☐ I am free to withdraw from the project at any time and am free to decline to answer particular questions.
   - ☐ While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
   - ☐ Whether I participate or not, or withdraw after participating, will have no effect on any treatment or service that is being provided to me.
   - ☐ Whether I participate or not, or withdraw after participating, will have no effect on my progress in my course of study, or results gained.
   - ☐ I may ask that the recording/observation be stopped at any time, and that I may withdraw at any time from the session or the research without disadvantage.

Participant's signature……**Date**……...

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

Researcher's name: Hotnida Erlin Situmorang

Researcher's signature……..**Date**…….

Appendix 9. Consent Form (Indonesian Version)

Flinders
UNIVERSITY

LEMBAR PERSETUJUAN PENELITIAN

Persepsi Petugas Kesehatan Mengenai Faktor-Faktor yang Berkontribusi Terhadap Angka Kematian Bayi di Kabupaten Keerom Provinsi Papua, Indonesia

Saya ..... berusia

lebih dari 18 tahun dengan ini bersedia untuk terlibat dalam penelitian seperti yang tercantum di surat keterangan yang berjudul*:"* ***Persepsi Petugas Kesehatan Mengenai Faktor-Faktor yang Berkontribusi Terhadap Angka Kematian Bayi di Kabupaten Keerom Provinsi Papua, Indonesia".***

1. Saya telah membaca informasi yang disediakan.
2. Detil tentang prosedur dan resiko telah dijelaskan kepada saya secara jelas.
3. Saya bersedia untuk direkam selama wawancara.
4. Saya sadar bahwa Salinan dari lembar informasi dan lembar persetujuan yang diberikan kepada saya harus disimpan untuk referensi dimasa yang akan datang.
5. Saya mengerti bahwa:
   - ☐ Saya mungkin tidak secara langsung mendapatkan keuntungan dari mengambil bagian dalam penelitian ini.
   - ☐ Saya bebas untuk menarik diri dari proyek ini kapan saja dan saya bebas untuk menolak menjawab pertanyaan tertentu.
   - ☐ Sementara informasi yang diperoleh dalam penelitian ini akan dipublikasikan seperti yang dijelaskan, saya tidak akan diidentifikasi, dan informasi individual akan tetap dirahasiakan.
   - ☐ Apakah saya berpartisipasi atau tidak, atau menarik diri setelah berpartisipasi, tidak akan berpengaruh pada perlakuan atau layanan apa pun yang diberikan kepada saya.
   - ☐ Apakah saya berpartisipasi atau tidak, atau menarik diri setelah berpartisipasi, tidak akan berpengaruh pada kemajuan saya dalam proses studi saya, atau hasil yang diperoleh.

☐ Saya dapat meminta agar rekaman / pengamatan dihentikan kapan saja, dan bahwa saya dapat menarik diri setiap saat dari sesi atau penelitian tanpa kerugian.

Tanda tangan partisipan……**Tanggal**……...

Dengan ini saya menyatakan bahwa saya telah menjelaskan tentang penelitian ini kepada partisipan dan mempertimbangkan bahwa telah mengerti tentang keterlibatannya dalam penelitian ini serta kebebasan untuk terlibat berpartisipasi.

Nama Peneliti: Hotnida Erlin Situmorang

Tanda tangan peneliti……..**Tanggal**…….

Appendix 10. Letter to Head of Health Office of Keerom Regency

Flinders UNIVERSITY
College of Nursing & Health Sciences

INSPIRING ACHIEVEMENT

Dear Head of health office Keerom regency Papua Province, Indonesia

My name is Hotnida Erlin Situmorang and I am currently in the process of undertaking a research project as part of my Master of Nursing with the College of Nursing and Health Sciences Flinders University Adelaide, South Australia.

I am writing to seek permission with regards to conducting research within public health services in Papua, Indonesia. My research is seeking to explore perceptions of health workers on the factors that contribute to neonatal mortality in Papua Indonesia.

My research supervisors have advised me it is paramount I seek permission from relevant gate keepers. This is common practice within Australia especially when research is conducted in the student's home country. The Flinders ethics committee needs approval in writing from Indonesia in order for me to conduct the proposed research study. Interviews are kept strictly confidential and pseudonyms will be used to conceal the identity of participants.

I would appreciate if you could consider my request sensitively and provide the necessary ethics approval that will aid with my research undertakings. I anticipate to hear from you soon. Also for your perusal, I have attached my research proposal outline the rationale of the research and the intended outcome of this project.

Thank you very much for your consideration.

Kind Regards [redacted]

Hotnida Erlin Situmorang.

Supervisor:

Associate Professor Julian Grant
Child and family Health Nursing
Coordinator (Postgraduate Nursing Programs
College of Nursing and Health Sciences)
GPO Box 2100
Adelaide SA 5001
Telephone +61882012126
Facsimile +61882761602

Appendix 11. Letter of Permission from Health Office of Keerom Regency

PEMERINTAH KABUPATEN KEEROM

DINAS KESEHATAN

JLN.TRANS IRIAN – ARSO KODE POS.99368

Dear Associate Professor Julian Grant

Child and family Health Nursing
GPO Box 2100
Adelaide SA 5001
Telephone +61882012126

I am writing this letter in response to Hotnida Erlin Situmorang's email dated 19 January 2018 pertaining to ethics approval for proposed research topic.

I have reviewed the research proposal and hereby confirm this research will be of great value to public health services within Papua Indonesia. As a result, I grant full permission for the research titled "Health worker perceptions about factors that contributed to neonatal mortality in Papua" in public centres of Keerom regency Papua Province, Indonesia".

I would like to acknowledge ethics is not needed given the nature of the research which has been deemed as non-injurious or detrimental to the participants. Therefore, ethics approval from Flinders University is sufficient.

Kind regards,

[redacted]

dr.Rhony J.A. Situmorang

Head of Health Office Keerom Regency Papua, Indonesia.

Appendix 12. Flyer

Flinders UNIVERSITY
College of Nursing & Health Sciences

INSPIRING ACHIEVEMENT

INVITATION TO PARTICIPATE IN A RESEARCH PROJECT

If you are a health worker (a nurse, midwife or doctor) and have at least three years clinical experience in neonatal care in Papua and are willing to undergo a phone interview we invite you to participate in a research study :

Health worker perceptions about factors that contribute to infant mortality in Keerom Regency, Papua Province, Indonesia

This project is being conducted by Hotnida Erlin Situmorang as her Master thesis at The College of Nursing and Health Sciences at Flinders University, South Australia

This project aims to explore health worker perceptions about factors that contribute to infant mortality in Papua Province.

The intended outcome of this study is to use the findings to improve neonatal health in Papua. Participation in this study will require approximately 45 minutes by telephone interview

E-mail for more information!

Hotnida Erlin Situmorang: situ0006@flinders.edu.au

flinders.edu.au

Appendix 13. Flyer (Indonesian Version)

Flinders UNIVERSITY
College of Nursing & Health Sciences

INSPIRING ACHIEVEMENT

UNDANGAN UNTUK BERPARTISIPASI DALAM PENELITIAN

Jika anda seorang pekerja kesehatan(dokter, bidan atau perawat) dan memiliki setidaknya 3 tahun pengalaman klinis dalam perawatan neonatal di Papua dan bersedia menjalani wawancara telepon, kami mengundang anda untuk berpartisipasi dalam sebuah studi penelitian dengan judul:

"Persepsi pekerja kesehatan tentang faktor-faktor yang berkontribusi kepada kematian bayi di kabupaten Keerom Papua Indonesia"

Penelitian ini sedang di lakukan oleh Hotnida Erlin Situmorang untuk mengerjakan thesis nya dalam pendidikan Master di The College of Nursing and Health Sciences at Flinders University, South Australia

Penelitian ini bertujuan untuk mengeksplor persepsi pekerja kesehatan tentang faktor-faktor yang berkontribusi terhadap kematian bayi di Papua Indonesia.

Hasil yang diharapkan dari penelitian ini adalah dengan menggunakan hasil penelitian ini dapat memperbaiki kesehatan neonatal di Papua. Partisipasi dalam penelitian ini akan membutuhkan sekitar 45 menit melalui wawancara telepon.

E-mail untuk informasi lebih lanjut:

Hotnida Erlin Situmorang (situ0006@flinders.edu.au)

CRICOS No. 00114A

flinders.edu.au

Appendix 14. Interview Guide

INTERVIEW GUIDE

Project title:
A qualitative descriptive study of health worker perceptions about factors that contribute to Infant Mortality in Keerom Regency Papua Province, Indonesia.
Introductory statements

Check participant has read information sheet.

Consent check

Check for and answer additional questions.

Part 1: Demographic data:

1. Educational background:
2. Length of time working in infant clinical practice in Papua:
3. Age:
4. Gender:
5. Current role/work environment:

Part 2: Health worker thoughts about?

1. The factors that lead to infant death in Papua (prompt: medical causes, social, environment and cultural).
2. The health services provided for antenatal, birthing and post-natal care in Papua (prompt: the availability of health facilities, health workers, and the distance of public health centre to residence)?
3. Local cultural, belief practices surround birth in Papua.
4. Any thoughts around cost and affordability of health services regarding infant health in Papua.

5. The barriers preventing pregnant women from coming to public health centres for antenatal, birthing and post-natal care (prompt: income, social, culture, customs, beliefs and religion)?
6. Any thoughts about what is currently being done well or what needs to be done to reduce infant mortality.

Appendix 15. Interview Guide (Indonesian Version)

PANDUAN WAWANCARA

Judul Penelitian:
Studi deskriptif kualitatif tentang persepsi petugas kesehatan tentang faktor-faktor yang berkontribusi terhadap Angka Kematian Bayi di Kabupaten Keerom Provinsi Papua, Indonesia.

Pernyataan pengantar
Cek peserta telah membaca lembar informasi.
Cek persetujuan
Periksa dan jawab pertanyaan tambahan.

Bagian 1: Data demografis:

1. Latar belakang pendidikan:
2. Lama bekerja dalam praktik klinis infant di Papua:
3. Umur:
4. Jenis Kelamin:
5. Peran saat ini / lingkungan kerja:

Bagian 2: Pikiran pekerja kesehatan?

1. Faktor-faktor yang menyebabkan kematian bayi di Papua (prompt: penyebab medis, sosial, lingkungan dan budaya).
2. Pelayanan kesehatan yang diberikan untuk layanan antenatal, persalinan dan pasca melahirkan di Papua (mohon: tersedianya fasilitas kesehatan, petugas kesehatan, dan jarak pusat kesehatan masyarakat untuk tinggal)?
3. Budaya lokal, praktik kepercayaan seputar kelahiran di Papua.
4. Setiap pemikiran seputar biaya dan keterjangkauan layanan kesehatan mengenai kesehatan infant di Papua.

5. Hambatan mencegah wanita hamil datang ke puskesmas untuk perawatan antenatal, persalinan dan pasca melahirkan (prompt: pendapatan, sosial, budaya, kebiasaan, kepercayaan dan agama)?
6. Setiap pemikiran tentang apa yang saat ini sedang dan telah dilakukan dengan baik untuk mengurangi angka kematian bayi di Papua atau apa yang perlu dilakukan untuk mengurangi angka kematian infant.

Appendix 16. Research Summary (Indonesian Version)

RINGKASAN PENELITIAN

Penelitian ini merupakan penelitian kualitatif pertama di Provinsi Papua yang mengungkap persepsi tenaga kesehatan (perawat, bidan dan dokter) tentang faktor-faktor yang berkontribusi terhadap kematian bayi. Penelitian ini dilatarbelakangi oleh masalah tingginya angka kematian bayi di Indonesia, terutama di daerah tertinggal seperti Provinsi Papua.

Penelitian ini dilakukan menggunakan metode kualitatif deskriptif, yaitu melakukan wawancara dengan pertanyaan semi struktural melalui telepon. Partisipan yang diwawancara sebanyak 12 orang tenaga kesehatan yang bekerja di Kabupaten Keerom. Pertisipan tersebut terdiri dari 5 orang perawat, 4 orang bidan dan 3 orang dokter. Kriteria partisipan penelitian adalah tenaga kesehatan (perawat, bidan dan dokter); mempunyai pengetahuan tentang kematian bayi di daerah tempat kerja (Papua); memiliki pengalaman kerja minimal 3 tahun pada bidang kesehatan yang berhubungan dengan kelahiran dan perawatan kesehatan bayi/infant (0-1 tahun) di Kabupaten Keerom Provinsi Papua; memiliki kemampuan untuk memberikan informasi mengenai persepsi mereka tentang kelahiran bayi, perawatan bayi dan kematian bayi; dan bersedia secara sukarela sebagai partisipan penelitian.

Data penelitian dianalisis secara manual dan dibantu dengan perangkat lunak NVivo 12 untuk mengorganisasikan data tersebut. Kemudian data hasil penelitian dibahas menggunakan dua kerangka kerja, yaitu tiga model penundaan (*three delays model*) dan prinsip-prinsip perawatan kesehatan utama (*primary health care principles*).

Berdasarkan persepsi tenaga kesehatan (perawat, bidan dan dokter) dapat disimpulkan bahwa sebagian besar faktor yang berkontribusi terhadap kematian bayi terkait dengan keterlambatan dalam

memutuskan untuk mencari perawatan. Namun, ada juga faktor lain seperti keterlambatan mencapai tempat pelayanan kesehatan dan keterlambatan menerima pelayanan kesehatan yang optimal.

Kepercayaan dan budaya masyarakat setempat tentang kehamilan, kelahiran bayi dan kesehatan ibu dilaporkan oleh para partisipan sebagai faktor utama yang berkontribusi terhadap kematian bayi. Hambatan lain adalah faktor geografis, seperti daerah terpencil, akses jalan yang buruk dan tidak tersedianya transportasi umum dan mobil ambulance di puskesmas-puskesmas. Kemiskinan dan sifat nomaden penduduk lokal juga berkontribusi pada keterlambatan dalam mencari dan menjangkau tempat perawatan kesehatan ibu dan bayi baru lahir. Selain itu, kurangnya tenaga kesehatan terampil, kurangnya fasilitas kesehatan dan peralatan/obat kesehatan dan lingkungan kerja yang tidak aman ikut memperburuk situasi dan berkontribusi kepada masalah kematian bayi. Beberapa solusi untuk menurunkan angka kematian bayi dan meningkatkan pelayanan kesehatan ibu dan bayi telah dilakukan oleh pemerintah setempat, seperti implementasi Bantuan Operasional Kesehatan (BOK) dan Program Indonesia Sehat dan Pendekatan Keluarga (PSIPK). Para partisipan juga mengajukan rekomendasi untuk layanan kesehatan di masa depan dan dibahas dalam kerangka prinsip-prinsip perawatan kesehatan utama (primary health care principles).

Hasil penelitian ini memberikan kontribusi pengetahuan dalam hal memberikan pelayanan kesehatan kepada masyarakat yang khusus (masyarakat asli Papua) untuk mengetahui masalah-masalah yang berkaitan dengan kematian bayi. Penelitian juga menambah informasi tentang berbagai faktor yang berkontribusi terhadap kematian bayi, termasuk faktor kesehatan bayi, faktor ibu, faktor penyediaan kesehatan dan faktor budaya. Studi ini merekomendasikan pemerintah melalui dinas kesehatan untuk mendekati dan merangkul masyarakat dan pemangku kepentingan agar bekerja sama menggunakan pendekatan yang lebih kreatif melalui pendekatan budaya untuk menyukseskan pelayanan kesehatan ibu dan anak bayi baru lahir.

Pemahaman tenaga kesehatan (perawat, bidan dan dokter) tentang keluarga dan budaya lokal adalah sangat penting. Pengetahuan tersebut akan mempengaruhi sikap, penilaian dan penerimaan penduduk setempat terhadap program pelayanan kesehatan yang diberikan oleh para tenaga kesehatan. Oleh karena itu, kemampuan memberikan layanan kesehatan dengan pendekatan budaya untuk kepentingan pasien sesuai dengan kebutuhan dan kondisi mereka sangat perlu dimiliki tenaga kesehatan.

Penelitian ini juga mengungkapkan bahwa selain bantuan pemerintah, pengetahuan dan kepekaan terhadap budaya lokal merupakan kunci keberhasilan pelayanan kesehatan, khususnya pelayanan kesehatan ibu dan bayi.

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