Factors influencing children’s engagement in rabies post-exposure prophylaxis: a qualitative study among children and parents in Bajawa, East Nusa Tenggara

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Table of Contents

Acknowledgement ........................................................................................................................................... 1
Key abbreviations and definitions .................................................................................................................. 2
Abstract ......................................................................................................................................................... 3
1. Introduction ................................................................................................................................................ 4
   1.1. Rabies worldwide and in Indonesia ........................................................................................................ 4
   1.2. The burden of rabies among children in Flores, Indonesia ...................................................................... 4
   1.3. The need for an effective post-exposure prophylaxis programme in Flores ...................................... 5
   1.4. Problem statement ................................................................................................................................... 7
2. Theoretical Framework ................................................................................................................................. 8
   2.1. Human rabies control measures in Indonesia ........................................................................................ 8
   2.2. Factors associated with post-exposure prophylaxis (PEP) uptake ......................................................... 10
   2.3. COM-B Model (Capability, Opportunity, Motivation) .......................................................................... 14
   2.4. Mapping factors related to rabies post-exposure treatment uptake to the model .............................. 16
   2.5. Conceptual Framework ......................................................................................................................... 17
   2.6. Research sub questions ......................................................................................................................... 18
3. Methodology ............................................................................................................................................... 19
   3.1. Research design ..................................................................................................................................... 19
   3.2. Research location .................................................................................................................................... 19
   3.3. Sampling ................................................................................................................................................ 20
   3.4. Data collection ....................................................................................................................................... 20
   3.4.1. Storytelling interview with children ................................................................................................. 21
   3.4.2. In-depth semi-structured interviews ................................................................................................. 22
   3.4.3. Data collection activities .................................................................................................................... 22
   3.5. Data analysis ......................................................................................................................................... 22
   3.6. Ethical consideration .............................................................................................................................. 23
   3.6.1. Children rights to participate ............................................................................................................. 23
   3.6.2. Ethical conduct ................................................................................................................................... 24
   3.6.3. Ethical clearance ................................................................................................................................. 25
4. Results I: Factors influencing children’s engagement in rabies PEP ....................................................... 26
   4.1. Children’s capabilities to engage in rabies PEP .................................................................................... 27
   4.2. Children’s motivations to engage in post dog-exposure treatment .................................................... 29
   4.3. Opportunities according to children. ....................................................................................................... 34
   4.4. Conclusion ............................................................................................................................................. 37
5. Result II: Factors influencing involvement in rabies PEP according to parents ................................... 38
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1. Parent’s capabilities to engage in rabies post-exposure prophylaxis</td>
<td>39</td>
</tr>
<tr>
<td>5.2. Parents’ motivations to engage in post-exposures treatment</td>
<td>42</td>
</tr>
<tr>
<td>5.3. Opportunities according to parents</td>
<td>50</td>
</tr>
<tr>
<td>5.4. Conclusion</td>
<td>55</td>
</tr>
<tr>
<td>6. Result III: Possible mechanism to reach immediate, appropriate, and complete rabies post-exposure treatment</td>
<td>57</td>
</tr>
<tr>
<td>6.1. Children’s engagement in rabies post-exposure treatment in Bajawa</td>
<td>57</td>
</tr>
<tr>
<td>6.2. Immediate and appropriate wound treatment</td>
<td>57</td>
</tr>
<tr>
<td>6.3. Immediate and complete series of vaccination</td>
<td>62</td>
</tr>
<tr>
<td>7. Discussion</td>
<td>66</td>
</tr>
<tr>
<td>7.1. Children’s engagement in post dog-exposure prophylaxis in Bajawa</td>
<td>66</td>
</tr>
<tr>
<td>7.2. Influence of capabilities to engage in necessary PEP treatment</td>
<td>66</td>
</tr>
<tr>
<td>7.3. Influence of reflective motivations to engage in necessary PEP treatment</td>
<td>69</td>
</tr>
<tr>
<td>7.4. Influence of automatic motivations to engage in necessary PEP treatment</td>
<td>71</td>
</tr>
<tr>
<td>7.5. Influence of opportunities for children’s engagement to necessary PEP treatment</td>
<td>73</td>
</tr>
<tr>
<td>7.6. Implication of the research to the COM-B model</td>
<td>76</td>
</tr>
<tr>
<td>8. Conclusions</td>
<td>77</td>
</tr>
<tr>
<td>9. Relevance of this research to the knowledge gaps</td>
<td>78</td>
</tr>
<tr>
<td>10. Research strengths and limitations</td>
<td>79</td>
</tr>
<tr>
<td>11. Recommendations</td>
<td>80</td>
</tr>
<tr>
<td>12. References</td>
<td>83</td>
</tr>
<tr>
<td>Appendices</td>
<td>89</td>
</tr>
<tr>
<td>Appendix 1. Overall review of findings</td>
<td>89</td>
</tr>
<tr>
<td>Appendix 2. Informed consent parents</td>
<td>95</td>
</tr>
<tr>
<td>Appendix 3. Informed assent children</td>
<td>101</td>
</tr>
<tr>
<td>Appendix 4. Guide for story telling interview</td>
<td>105</td>
</tr>
<tr>
<td>Appendix 5. Interview guide for parents or guardian</td>
<td>108</td>
</tr>
<tr>
<td>Appendix 6. Ethical clearance</td>
<td>112</td>
</tr>
<tr>
<td>Appendix 7. Several pictures from the field</td>
<td>113</td>
</tr>
</tbody>
</table>
Tables
Table 1. Rabies PEP categories of exposure and related treatments (WHO, 2013) ................... 9
Table 2. Factors that may involve in the rabies PEP uptake in general population .......... 16
Table 3. An overview of factors influencing children’s engagement in the rabies PEP resulting from storytelling interviews. ................................................................. 26
Table 4. An overview of factors influencing children’s engagement in rabies post-exposure prophylaxis according to parents. ................................................................. 38

Figures
Figure 1. Flow diagram dog bite management (MoH Republic of Indonesia, 2011) ........... 10
Figure 2. COM-B model (Michie, van Stralen, and West, 2011) .................................. 14
Figure 3. Conceptual framework .................................................................................. 17
Figure 4. Location of Bajawa (Google Map, 2015) ....................................................... 19
Figure 5. Possible mechanism that explains the immediacy of wound cleaning .......... 59
Figure 6. Possible mechanism that explains the appropriateness of wound treatment .... 61
Figure 7. Possible mechanism that explains the immediacy to seek vaccination .......... 63
Figure 8. Possible mechanism that explains the completeness of vaccination ............ 65
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Key abbreviations and definitions

COM-B: Capability, Opportunity, Motivation, and Behaviour

COM-B is a model that is introduced by a UK psychologist named Susan Michie in 2011. The purpose of COM-B is to understand human behaviour and capture a range of mechanism that may involve in a behaviour (Michie, van Stralen, and West, 2011).

PEP: Post-exposure prophylaxis/treatment

PEP consists of three important components to be taken after an exposure to suspected rabid animal. It includes, (1) proper local treatment of the wound, (2) a series of anti-rabies vaccination, and (3) if necessary, infiltration of wound using immunoglobulin (WHO SEARO, 2013)

PrEP: Pre-exposure prophylaxis/treatment

PrEP consists of anti-rabies vaccination series before exposure to animal bites. PrEP is recommended to be given to those who are at high risk to contact with rabies viruses (WHO, 2013).

RIG: Rabies immunoglobulin

Rabies immunoglobulin is one component in PEP treatment that needs to be infiltrated to the wound if the condition of animal bite wound is found severe.
Abstract

Children (0-15 years) are known to be the most vulnerable group in the world population for rabies disease, however, little is known about their involvement in the post-exposure treatment. This study aims to explore this gap, by providing knowledge about factors and possible mechanisms that can explain children’s engagement in rabies post-exposure treatment. This study was conducted in Bajawa district at East Nusa Tenggara province, Indonesia. Both children and parents were involved in this study. By the time this study was conducted, this area was still endemic for rabies disease. Story telling interviews with 23 children dog bite victims (7-15 years) and in-depth interviews with 20 victim’s parents have been conducted. Interviews with local health workers and document analysis were also done to give supporting information in this study. Interviews were coded in Atlas ti.7 with the use of categories from the COM-B model. The findings suggest that not only parents but also children can influence the behaviour of seeking post-exposure treatment. Mainly, parents direct the behaviour and children influence in the level of willingness. Some important factors which can hinder the necessary engagement to rabies PEP are the perception of parents and children that scratches from dogs are not a risk, the insecurity among children to report dog bites to their parents, low knowledge and capability on wound cleaning, lack of opening-hours of the treatment facility, and the low vaccine availability. This study shows that public health practitioners in Ngada may need to involve both children and parents in the control measure program, educate them to increase their knowledge and capacity about proper treatment, and enlarge their opportunities to meet the treatment.

*Key words: rabies, children, post-exposure prophylaxis, behaviour, qualitative, Flores Indonesia*
1. Introduction

1.1. Rabies worldwide and in Indonesia

Rabies is a neglected tropical disease with 100% fatality (Mackey et al., 2012; FAO, 2013; WHO SEARO, 2015; Knobel et al., 2005). Rabies is fatal because death cannot be avoided after the clinical symptoms occur (FAO, 2013). Due to premature mortality rates owing to the illness, the health burden of rabies is higher than most of the neglected tropical diseases (WHO, 2013). Globally, the death rate owing to this fatal zoonotic disease is estimated at around 26,400-61,000 people annually (WHO, 2012). Around 84% of rabies deaths occurred in rural areas and approximately 40% among these victims globally are children (FAO, 2013). Even though the risk is high, there has been for many years and still is a lack of commitment and motivation from policymakers in many affected countries to combat rabies (WHO, 2013; WHO SEARO, 2012; Wilde et al., 2005).

Recently, rabies has been labelled a re-emerging disease as some countries have reported an increasing incidence of it mainly in Asia (Mackey et al., 2012; OIE, 2015). In WHO’s Southeast Asia region, eight out of eleven countries have been categorised as being endemic. These countries are Bangladesh, India, Myanmar, Bhutan, Nepal, Sri Lanka, Thailand, and Indonesia (Gongal and Wright, 2011; Wilde et al., 2005). Around 45% of rabies deaths worldwide are estimated to occur in this region alone, mainly in children (Gongal and Wright, 2011). Most of the deaths are caused by contact with dogs (Gongal and Wright, 2011; WHO, 2015).

The endemic status in Indonesia, is reported to have moved from low to medium in 2011 (Gongal and Wright, 2011). Rabies has been emerging in this country for over 10 years as more islands become infected caused by dog movements (WHO, 2012). 24 out of 34 provinces in Indonesia have been classified as rabies infected/endemic (Sopi and Mau, 2015). Human rabies cases in Indonesia are estimated to reach 150-300 annually with an incidence rate of 0.045/100,000 population (WHO, 2012). Following these facts, with a population of over 250 million, rabies can be classified as a serious public health threat in Indonesia.

1.2. The burden of rabies among children in Flores, Indonesia

Around 30% to 50% of rabies deaths are known to arise in children 5-15 years old (WHO, 2007; Jain and Jain, 2013; Matthias et al., 2015; Wilde et al., 2005; Lunney et al., 2012). The most vulnerable are children who live in rural areas of endemic countries. Around 84% of rabies death occur in rural areas whereas children represent around 40% of the people who were exposed to dog bites in such areas (WHO, 2015).
Flores is one of the three largest islands located in East Nusa Tenggara province in Eastern Indonesia. Flores has 6 administrative districts: Sikka, East Flores, Ende, Ngada, Manggarai, and Lembata. Most of Flores is rural and endemic to rabies (Widyaningsih et al., 2004). Since dog rabies occurred in 1997 and the first human rabies case in 1998, more than 200 have been recorded in Flores (Widyaningsih et al., 2004). The Ngada regency, part of Flores where this study has conducted, is constantly suffering from reports on rabies cases in humans, mainly in children (Modesta, personal communication, 2015). The first human case of rabies reported in February 2000, was followed by a severe outbreak which reached 22.5 per 100,000 people that same year. In 2012, 16 human rabies cases were reported in Ngada (Wera, 2015). The actual figure is expected to be higher since many cases were neither reported nor recognised (WHO 2012; WHO SEARO, 2015).

The majority of rabies deaths are caused by exposure to dogs (WHO, 2015). In Flores dogs are part of community life (Hutabarat et al., 2003). Hutabarat et al (2003) reported that dogs in Flores have a mutual relationship with everyone ranging from farmers, villagers, and townsfolk. They are kept by many people to guard the house, go into fields, to be consumed, or just for their presence (Hutabarat et al., 2003). With such close relationships, it is not surprising that children are vulnerable to a dog’s exposure in this area.

Children are also very vulnerable to rabies for other various reasons. Initially because of their behaviour towards dogs. Studies revealed that children who get bitten by dogs are rarely unable to recognise abnormal dog behaviour nor do they know how to avoid being attacked (Dodet, 2009; Khazaei et al, 2014; Jain and Jain, 2013; WHO, 2007). Children’s vulnerability to rabies is also high because they like to play with dogs and their parents rarely pay attention to them (compared to infants) (WHO, 2007). In addition, exposure to dog bites among children generally occur in the upper extremity of their body such as face, neck, and head, escalating the chance to develop rabies quicker (WHO, 2007; Sriaaroon et al., 2006; Hossain et al., 2012).

1.3. The need for an effective post-exposure prophylaxis programme in Flores

Various strategies to eliminate rabies from the island of Flores have been adopted by local governments since 2000 (Wera, 2013). Several programmes such as culling roaming dogs, free mass dog vaccination, and post-exposure prophylaxis (PEP) to the victims have been implemented (Wera, 2013). However these control measures are slow in successfully eliminating rabies from the island (Wera, 2013). Among these control measures, mass dog vaccination is considered to be the most cost effective strategy (Gongal and Wright, 2011; Sriaaroon et al., 2006). However, the uptake of dog vaccination is still low in Flores, even though it is free of charge (Wera, 2013). Lessons
from India, Pakistan, and China revealed that the implementation of mass dog vaccination in rural areas encountered many challenges that limited its use as an effective control measure (Davlin and Vonville, 2012; Song et al., 2009). Therefore, attention to the uptake of PEP in dog bite management is still a priority.

Post-exposure prophylaxis (PEP) is a preventive measure taken after a person has been bitten by a suspected rabid animal. PEP has three important components: (1) local treatment of the wound as soon as possible by washing and rinsing it for 10-15 minutes, (2) administering anti-rabies vaccines from three to five times visit after exposure depending on the vaccination schedule followed by public health officials in the infected country, (3) infiltration of wound using immunoglobulin (RIG), if necessary (WHO SEARO, 2013).

Following proper post-exposure treatment after exposure to dogs is essential in combatting rabies. WHO declares that rabies PEP is an emergency and must not be delayed or deferred (WHO, 2013). Successful experiences in Sri Lanka and Thailand in controlling rabies have shown that effective post-exposure treatment is crucial (Gongal and Wright, 2011). Its effectiveness is influenced by the speedier responses of animal bite victims to the treatment (Gongal and Wright, 2011). The victims have to follow appropriate post-exposure treatment procedures to prevent them getting rabies (WHO SEARO, 2015; Mathias et al., 2015). However, several challenges pertaining to the proper provisions of post-exposure treatment may not be practically easy.

Despite the availability of vaccines, issues on low PEP uptake are still evident in the affected areas (Joseph et al., 2013; Jain and Jain, 2013; Khazaei et al., 2014; Dodet et al., 2008; Dodet, 2009, Hosain et al., 2012). Individual, social and environmental factors such as knowledge, trust, affordability and accessibility have been noted to impede the effectiveness of PEP in several studies (Joseph et al., 2013; Jain and Jain, 2013; Khazaei et al., 2014; Dodet et al., 2008; Dodet, 2009, Hosain et al., 2012). Furthermore, as the vast majority of dog bites in children were not reported, there might be other reasons pertaining to low PEP uptake which have not been documented yet, leading to more unnecessary deaths in children (WHO, 2012; Hossain et al., 2012).
1.4. Problem statement

As previously explained, rabies deaths mainly occur among children in endemic countries (WHO, 2012). Indonesia as one of the endemic countries, is also obliged to introduce effective rabies post-exposure prophylaxis measures to overcome the occurrence of rabies and reduce the number of child victims. World Health Organisation has declared that rabies PEP is essential (WHO, 2013). Immediacy, appropriateness, and complete provision to PEP after dog exposure is crucial (Gongal and Wright, 2011; WHO SEARO, 2015; Mathias et al., 2015).

Given that rabies PEP is highly important, however, limited information is available on how the Flores community responds to PEP in the literature. Most rabies related-studies in Flores which are available concern dog ecology, the financial cost of rabies control measures, and the distribution of rabies (Hutabarat et al., 2003; Wera et al., 2013; Mau and Desato, 2012; Wera, 2001; Mading and Mau, 2014; Sopi and Mau, 2015; Windiyaningish, 2004). The focus of these studies often excluded children in the process. In literature, findings on dog bite management or uptake to PEP are mainly derived from adults such as dog owners or parents (Wera 2013, Khazaei et al, 2014; Jain and Jain, 2013).

This study aims to fill these knowledge gaps. The main research question for this study is “What are factors and mechanism influencing children’s engagement in the rabies post-exposure prophylaxis in Bajawa, East Nusa Tenggara?” Factors influencing children’s involvement in rabies PEP is the focus of this research. To explore this, children themselves have been involved in the process along with parents (or household guardians). Possible mechanisms highlighting the ‘emergency’ essence of rabies PEP among children (immediacy, appropriateness, and completion) are explored as well.

In the context of Flores, this study is intended to provide information about the children engagement to rabies PEP, to inform policymakers or another related practitioners to improve the rabies programme that is oriented to the children. Moreover, for scientific purpose, it is intended to endorse more rabies research that may focus on children.
2. Theoretical Framework
2.1. Human rabies control measures in Indonesia

Rabies is a disease caused by a virus from the genus Lyssavirus and the family Rhabdoviridae (WHO, 2015). Even though most cases of human rabies are transmitted by dogs the disease can also be caused by other animals such as bats, cats, and monkeys (WHO, 2013; Sriaroon et al., 2006). The virus is transmitted to humans through bites or scratches as well as the saliva of infected animals. The incubation period of the virus is approximately 1-3 months, but can also vary from less than one week to more than a year (WHO SEARO, 2013). A variety of clinical symptoms may occur by human post-exposure. Two types of rabies clinical symptoms are furious and paralytic. The most common form is furious (WHO SEARO, 2013). Typical symptoms for furious are hydrophobia, aerophobia, photophobia, agitation, hyper-salivation and finally death because of cardiorespiratory arrest (WHO, 2015). With paralytics, muscles will slowly become paralyzed, leading to comma and finally death (WHO, 2015). Paralytic symptoms are usually longer than furious type (WHO, 2015). Therefore, symptoms of paralytic rabies are quite often misdiagnosed by health workers contributing to under-reporting of rabies cases (WHO, 2015).

In humans, rabies can be prevented through pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP). PrEP includes vaccination before exposure to animal bites. In Indonesia, as in other countries, PrEP is recommended for those at a high risk of coming into contact with rabies viruses as a result of occupations such as veterinarians or public servants who work in the rabies control programme, travellers, or residents (WHO, 2013). Recently, children living in rabies-endemic areas were also recommended to have PrEP by WHO (WHO, 2013). In South East Asia, the Philippines conducted a PrEP pilot project for children (5-15 years) in 2006. Even though the Philippines managed a successful coverage of 80% in the eight schools involved in the project, PrEP could not be continued because of too little vaccine (Dodet, 2010; Dodet, 2009). To my knowledge, a PrEP programme has never been conducted with Indonesian children. In 2008, Asian Rabies Expert Bureau (AREB) suggested that WHO place PrEP vaccination as part of a paediatric vaccination schedule where rabies is endemic (Dodet, 2009).

Post-exposure prophylaxis (PEP) is taken after a person has been bitten by a suspected rabid animal. As previously mentioned, there are three important components of PEP: (1) local treatment of the wound as soon as possible by washing and rinsing for 10-15 minutes (2) administering anti-rabies vaccines (3) if necessary, infiltration of wound using immunoglobulin (RIG) (WHO SEARO, 2013).

Dealing with dog bite wounds should be done as soon as possible and in accordance with procedures issued by WHO (WHO SEARO, 2013). PEP has been shown to
dramatically decrease one’s risk of contracting rabies (Hampson et al., 2008). Postponing the PEP can increase a person’s risk of dying from rabies, especially victims with injuries in high-risk locations such as head, neck, and hands (WHO, 2010).

The decision to administer vaccines or not depends on the severity of exposure. The severity of exposure is divided into three categories (table 1).

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<tr>
<th>Wound category</th>
<th>Explanation</th>
<th>Treatment</th>
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<tr>
<td>Category I</td>
<td>Touching or feeding of animals, licks on intact skin, contact of intact skin with secretions or excretions of a rabid animal or human</td>
<td>No exposure therefore no prophylaxis if history reliable</td>
</tr>
<tr>
<td>Category II</td>
<td>Minor scratches or abrasions without bleeding and/or nibbling of uncovered skin</td>
<td>Proper local treatment, use vaccine alone</td>
</tr>
<tr>
<td>Category III</td>
<td>Single or multiple transdermal bites or scratches licks on broken skin, contamination of mucous membrane with saliva (i.e. licks) and suspect contacts with bats</td>
<td>Proper local treatment, use vaccine plus immunoglobulin</td>
</tr>
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In Indonesia, following WHO recommendation, vaccines and immunoglobulin are used for wounds in categories II and III. Category II is for low exposure and category III for high exposure (figure 1). Indonesia uses the Zagreb schedule for standard vaccinations (Tanzil, 2014). It consists of four injections during three visits, on days 0, 7 and 21 (Tanzil, 2014). Hossain et al. (2012) demonstrated that Zagreb is suitable for rural conditions (Hossain et al., 2012). Vaccinations can be simplified if a victim previously had PrEP. For someone who had pre-exposure vaccination, two vaccinations on days 0 and 3 are sufficient and RIG regimen is unnecessary (Dodet, 2009).

In Indonesia, rabies vaccination is still using intramuscular (IM) administration, which is more expensive than the latest recommended intradermal (ID) administration (Ministry of Health Republic of Indonesia, 2000; WHO, 2010; Hampson, Cleaveland and Briggs, 2011). WHO has recommended the ID method in developing countries because it costs less and its efficacy is similar to the IM (WHO, 2010; Hampson, Cleaveland and Briggs, 2011). The vaccine used in Indonesia is type of tissue culture rabies vaccine which has been proven to be safe by WHO (Ministry of Health Republic of Indonesia, 2000).
Figure 1 depicts the procedure of how animal bites should be treated by health workers. It is clear from this figure, that PEP provision is a lengthy process that needs close cooperation between the Department of Animal Husbandry and the Department of Health in Indonesia.

2.2. Factors associated with post-exposure prophylaxis (PEP) uptake

2.2.1. Gender and age

Animal bite cases generally occurred in males rather than females (Khazaei et al., 2014; Hossain et al., 2012; Matibag et al., 2008; Ichhpujani et al., 2008; Fang et al., 2010). From literature, it is unclear why males are more vulnerable than females to animal bites. The difference in behaviour of males and females towards dogs can be the reason behind this (Matthias et al., 2015). Khazaei et al. (2004) observed that males are more likely to go for clinical treatment after being bitten than females are. Increasing age also a factor causing delays in PEP involvement Joseph et al (2013).
2.2.2. Knowledge/Awareness

Knowledge is very important in influencing PEP treatment. In Tanzania, insufficient knowledge about the danger of rabies and the necessity for prompt post-exposure prophylaxis were found to be the main reasons for rabies deaths (Hampson et al., 2008).

Little knowledge and awareness about post-exposure treatment, severity of wounds, and consequences of rabies are still evident in some rural areas in India, Indonesia, Bangladesh, and some countries in Africa (Jain & Jain 2013; Joseph et al., 2013; Dodet, 2009; Hossain et al., 2012; Lunney et al., 2012; Hampson et al., 2008; Wera et al., 2015). Even though the awareness of rabies is important children are nevertheless the most vulnerable group. Research by Dodet et al (2008) in eight Asian countries (Bangladesh, China, India, Indonesia, Pakistan, the Phillipines, Sri Lanka, and Thailand) revealed that only approximately 15% of animal bite victims who reported to the health care facilities had learned about rabies at school.

A low level of knowledge or awareness is also depicted by inappropriate dog bite management in some studies. This includes applying chili paste or consulting a local healer for dog bite wounds (Jain and Jain, 2013; Dodet et al., 2008; Hossain et al., 2012; Matibag et al., 2008). Other findings also revealed that people went to the health facilities without cleaning the wound with soap and water (Dodet et al., 2008; Hossain et al., 2012).

Besides knowledge about rabies in human, knowledge related to the responsible animal is also important. Knowing that the dog is rabid or not can also affect PEP treatment. In Tanzania, unawareness that the animal was rabid was one of reasons why some respondents did not follow necessary PEP (Hampson et al., 2008). Low awareness among health care workers and victims also influenced PEP uptake. Dodet (2009) described that some dog bite victims in Africa were not treated because health workers had no information about the necessity to use rabies immunoglobulin for PEP or considered that the cost of treatment was too high.

2.2.3. Accessibility to health centres

Distance to health centres can be barrier to PEP treatment. In a small district in Iran, a study found that above 50% of animal bite victims lived more than 30 kilometres from the Rabies Treatment Centre, almost 73% of whom did not receive PEP in a timely manner (Khazaie et al., 2014). Furthermore in India, initiation of PEP and delays of up to 48 hours had been significantly influenced by distance from the health care facilities (Joseph et al., 2013). Transportation issues and related costs are also associated with PEP uptake. Absence of local transportation and insufficient
finance to visit a health care centre can be barriers for someone needing appropriate treatment (Joseph et al., 2013).

2.2.4. Availability of vaccines and RIG
Vaccines and RIG are considered to be the most prominent parts for PEP (Fang et al., 2010). Therefore they have to be available to enable the continuity of PEP treatment to prevent more rabies deaths. A study involving some Asian countries including Indonesia, revealed that only half of the victims who reported category III exposure (from July 2007-January 2008) to the rabies prevention centre, had received RIG (Dodet et al., 2008).

In addition, vaccine availability can also influence decision-making in PEP treatment. Research in Bangladesh, Tanzania, and China revealed that vaccine availability was the main reason why hundreds of people did not follow the PEP procedure (Tenzin et al., 2012; Matibag et al., 2008; Fang et al., 2010).

2.2.5. Affordability
Anti-rabies vaccine and RIG are two important components of PEP. However, costly vaccines and RIG can be barriers for animal bite victims in poor economic conditions. Inability to afford treatment for animal bite wounds has been a reason why people choose to not complete or adhere to the PEP schedule in Tanzania (Hampson et al., 2008). In the San Sheng area of China, a study found that the majority of people who could afford the treatment came from high-income groups even though the majority of victims in this area were from low-income groups (Fang et al., 2010). Another study conducted by Hossain et al. (2012) and Hampson et al. (2008) revealed that people in low socio-economic groups tended to lengthen the delays for PEP deliveries.

In Flores, human vaccine is already provided free-of-charge by the Public Health department. Nevertheless, other costs such as first-aid (water, soap or other antiseptics), transportation for visits, and loss of daily wages can also affect individuals (Wera et al., 2013). For the Public Health department in Flores, this means that adequate budgeting is necessary. Providing a dose of vaccine costs the government around 250.000 rupiah (27.64US$) and 1.550.000 rupiah (171.37 US$) per dose of immunoglobulin (Wera et al., 2013). As the PEP procedure involves a series of health centre visits, the Public Health department has to budget adequately to avoid a shortage of vaccine. Wera et al. (2013) argued that this expense could greatly burden the government. Information about the availability of vaccine and RIG in health centres around Flores at this high price is lacking.
2.2.6. **Dog ownership**

Some people who have been bitten by domestic dogs take longer to register for PEP (Khazaei et al., 2014; Sriaroon et al., 2006). Some studies reported that animal bite cases in hospitals mainly involved unfamiliar or stray dogs rather than domestic ones (Joseph et al., 2013). Another study in south-central Bhutan revealed that dog ownership influenced the health-seeking behaviour of animal bite victims. Victims who were injured by their own dog were less likely to report their injuries to the hospital than those who were wounded by stray dogs (Tenzin et al., 2012).

2.2.7. **Perception on injury status**

In some studies, victims respond quicker to PEP when they are exposed to deep wounds (Khazaei et al., 2014). If wounds look small or superficial some victims can choose to cancel the PEP treatment (Hampson et al., 2008). It is likely that children with minor injuries do not inform their parents (Khazaei et al, 2014; Matthias et al., 2015; Joseph et al., 2013).

2.2.8. **Other individual factors**

Below are other individual factors related to involvement in rabies post-exposure treatment found in limited literature:

- **Work-related factors**: in rural areas where poor people frequently live, a person can be very dependent on their daily work for a living. A study by Joseph et al (2013) found that people earning a daily wage responded slower to PEP involvement.

- **Unavailability of accompaniment**: accompaniment is an influencing factor for someone going to a health centre after being bitten by animal (Joseph et al., 2013).

- **Trusting vaccine results**: a study in rural Bangladesh revealed that distrust of the results of vaccines can influence a person not to administer PEP (Hossain et al., 2012).

- **Presence of children**: a study in a sub-district of Gelephu in Bhutan showed that subjects who have children at home were more likely to go for health treatment after being injured (Tenzin et al., 2012).

2.2.9. **Factors associated with health care**

- **Days when health centres are closed**: a study in rural India found that initiation towards PEP is hindered when clinics are closed on holidays or Sundays (Joseph et al., 2013).

- **Referral to multiple clinics**: difficulties in the health care system can influence someone’s decision to take PEP timely. Referral to multiple clinics before going to the government health care centre for vaccination, for example, has affected initiation or decisions to engage in PEP (Joseph et al., 2013).
- **Inappropriate advice**: A study by Matibag et al. (2008) in Sri Lanka revealed that some medical staff did not advise animal bite victims to register for PEP. Medical staff were only given tetanus to treat bites (Matibag et al., 2008).

### 2.3. COM-B Model (Capability, Opportunity, Motivation)

To be able to investigate and capture factors involve in the rabies PEP uptake, the COM-B model is used in this study. COM-B model was introduced by a UK psychologist, Susan Michie in 2011. COM-B is part of the new taxonomy of behavioural change techniques namely Behaviour Change Wheel. The purpose of COM-B is to understand human behaviour and capture a range of mechanisms that may involve in a behaviour (Michie, van Stralen, and West, 2011). There are three important components in this model: Capability, Opportunity and Motivation. COM-B model postulates that for any behaviour to occur a person must have the psychological and physical capability to perform it; the physical and social opportunity to engage in it, and must be motivated to do so at the relevant moment compared with some other behaviour (Rubinstein et al., 2015).

![Figure 2. COM-B model (Michie, van Stralen, and West, 2011)](image)

Capability is defined as “the individual’s Psychological and Physical capacity to engage in the activity concerned” (Michie, van Stralen, and West, 2011, p.4). Capability has two main concepts which are psychological capability and physical capability. Psychological capability means “capacity to engage in necessary thought processes” whereas physical capability is defined as “capacity to engage in necessary physical processes” (Michie, van Stralen, and West, 2011, p.4). Some examples of psychological capability are knowledge about disease or memory function and for physical capability they are stamina and skill (Michie, van Stralen, and West, 2011).

Opportunity is “all the factors that lie outside the individual that make the behaviour possible or prompt it” (Michie, van Stralen, and West, 2011, p.4). Opportunity also
consists of two variables, physical opportunity defined as support provided by the environment, for example, time, resources, and access (Michie, van Stralen, and West, 2011) and social opportunity which is “cultural milieu that dictates the way that we think about things” (Michie, van Stralen, and West, 2011, p.4) for example, cultural norms, religious belief, and stigma (Jackson et al., 2014).

The last is motivation. It is defined as “all brain processes that energise and direct behaviour” (Michie, van Stralen, and West, 2011, p.4). It consists of Reflective and Automatic concepts. Reflective-driven is self-conscious intentions involving evaluations and plans regarding a certain behaviour, for example, perception of illness, beliefs about treatment, outcome expectancies, or self-efficacy (Michie, van Stralen, and West, 2011; Jackson et al., 2014). Automatic-driven involves “emotions and impulse arising from associative learning and/or innate dispositions” (Michie, van Stralen, and West, 2011, p.4), for example, cues for action or stimuli, mood (Jackson et al., 2014).
2.4. Mapping factors related to rabies post-exposure treatment uptake to the model

Factors found in the literature study are mapped to each component of the COM-B model. It was done by matching each factor based on COM-B theoretical domains framework by Cane et al. (2012). The interactive mechanism between each component could not be defined, because the information is inadequate. Almost all factors below were found in quantitative studies conducted in rural areas in developing countries such as India, Indonesia, Pakistan, Bangladesh, Nepal, Tanzania, Sri Lanka, Thailand, and Vietnam. Studies were involved animal bite victims in general population, regardless of their age.

Table 2. Factors that may involve in the rabies PEP uptake in general population

<table>
<thead>
<tr>
<th>Capability</th>
<th>Motivation</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;The individual’s psychological and physical capacity to engage in the activity concerned&quot;</td>
<td>“All brain processes that energize and direct behaviour”</td>
<td>“All the factors that lie outside the individual that make the behaviour possible or prompt it”</td>
</tr>
<tr>
<td>Psychological: capacity to engage in necessary thought processes</td>
<td>Reflective: evaluations and plans</td>
<td>Physical: physical opportunity provided by the environment</td>
</tr>
<tr>
<td>Knowledge or awareness about rabid animal, rabies, and post-exposure treatment:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>o Rabid animal</td>
<td>o Perception about type of dogs who caused injury</td>
<td>o Cost (money to buy vaccine and/or RIG)</td>
</tr>
<tr>
<td>o Severity and classification of wound</td>
<td>o Perception on the severity of injury and fatality of rabies</td>
<td>Factors related to health centers:</td>
</tr>
<tr>
<td>o Proper local treatment of wound</td>
<td>o Perception about the ‘costs’: risk of death, loss of daily income</td>
<td>o Opening-hours</td>
</tr>
<tr>
<td>o Human rabies</td>
<td>o Beliefs about the vaccine result</td>
<td>o Referral system</td>
</tr>
<tr>
<td>o Importance of immediate administration of vaccine and RIG</td>
<td></td>
<td>o Affordability of treatment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Accessibility of health centers (cost, distance, available local mode transportation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Availability of vaccines and RIG</td>
</tr>
<tr>
<td>Physical: capacity to engage in necessary physical processes</td>
<td>Automatic: emotions and impulses arising from associative learning and/or innate dispositions</td>
<td>Social: cultural milieu that dictates the way we think about things</td>
</tr>
<tr>
<td>N/A</td>
<td>o Presence of children</td>
<td>o Availability of accompaniment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Information from health workers</td>
</tr>
</tbody>
</table>

All definitions in italic are taken from Michie, van Stralen, and West, 2011
2.5. Conceptual Framework

Moving on from the assumptions already made and considering the fact that there is hardly any information on factors associated with rabies PEP uptake in Flores, this study attempts to (1) describe the internal and external factors which possibly influence engagement in the necessary PEP, (2) provide a possible mechanism which can explain the dynamics of behaviour when someone is involved in the rabies PEP regimen.

![Figure 3. Conceptual framework](image-url)
2.6. Research sub questions

The main research question in this study is “What are factors and mechanism influencing children’s engagement in the rabies post-exposure prophylaxis in Bajawa, East Nusa Tenggara?”

The objective of this research is to identify factors and possible mechanism associated with children’s engagement in the necessary rabies post-exposure prophylaxis. Engagement in the necessary rabies post-exposure contains three concepts: immediate, appropriate, and complete treatment. Therefore the desired behaviour will be explained as (1) Immediate and appropriate local wound treatment and (2) Immediate and complete vaccination and/or RIG regimen. The appropriateness of vaccination injection will not be sought in this study since it closely linked to the competence of health worker. In this study, the focus is given to children and parents’ of the victim.

Sub-research questions in response to the above research question are as follows:
1. How do children and parents react to the dog bite exposure (on children)?
2. What are the main psychological and physical capabilities of children and parents, to engage in the necessary rabies post-exposure prophylaxis?
3. What are the motives of parents to involve their child (ren) in the necessary post-exposure prophylaxis?
4. What are the social and physical opportunities, according to parents, that drive or impede children’s engagement in the necessary rabies post-exposure prophylaxis?

The objectives of these sub questions are:
1. To understand health-care seeking behaviour after children have been exposed to dog bites.
2. To identify children and parents individual capacities to engage in the necessary rabies post-exposure treatment.
3. To explore what drives parents to (not) take their children for the necessary post-exposure treatment.
4. To identify social and physical environment influences that drive or impede children’s engagement in the necessary rabies post-exposure treatment.
3. Methodology

3.1. Research design

This study is a phenomenological study. A phenomenological study is “a descriptive, in-depth, and interpretative case study of personal experience of a phenomenon” (Nelson and Quintana, 2005).

Five sub-questions were formulated to contribute to answer the main research question (see sub-chapter 2.6). In order to answer these sub-questions, storytelling interviews and in-depth semi-structured interviews have been conducted. Several groups were involved in this study, including children, parents, and health workers. Interviews with these three groups have been held, but priority was given to the information derived from children and parents. Data from health workers was used only to provide the background information.

In children, the storytelling interview has been selected as a method to collect data from children. Melton et al. (2014) categorised this method as a child-friendly one, as it allows children to express their self without large pressure. In parents, the in-depth interview method were employed. The use of in-depth interviews allows to access rich information related to both the ideas and experiences of the parents. Interviews with health workers were also conducted, in order to provide background information and a broader picture of rabies PEP engagement. In addition, support from documentation was also used in this study to provide a background about rabies cases in the research location.

3.2. Research location

The research was conducted in the Bajawa district at Ngada regency, East Nusa Tenggara. The interviews with children and parents were conducted at their house or at the vaccination centre. Interviews with health workers were conducted at the local health department.

![Figure 4. Location of Bajawa (Google Map, 2015)](image)
3.3. **Sampling**

In order to recruit the study sample for all the interviews, non-probability sampling in the form of purposive sampling has been employed. The inclusion criteria for this study are:

- Age range of target group (children) between 7-15 years. Actually, the most high-risk group for rabies is known to be between 5-15 years old (Joseph et al., 2013, WHO SEARO 2015; Hampson et al., 2008). However, the age range of this study’s target group has been slightly modified in accordance with suggestions from the local health department, and on the researcher’s subjective judgment on the ability of local children to write.
- All of the children should have experience with dog bite in the past.
- One parent or one adult in the household whose children had dog bite experience and who also involved to take care of the child’s treatment.

The record on animal bite cases from the public health department was the starting point for the sampling process. The sampling was assisted by the local husbandry department and the public health department. Three staff members from both departments accompanied the researcher to search for animal bite victims in the field. The researcher also searched for the participants in the field by asking door to door. The sampling process stopped following the researcher’s subjective judgment that theoretical saturation had been reached. In total, the study participants are 43 people, of whom 23 dog bite victims in the age range 7-15 years, and 20 parents or guardians of the victims.

Verbal consent was requested to all the participants before data collection began. Before consent was obtained, parents and children were given the chance to ask questions about the research study and the process. All the participants were willing to participate. There were no adverse reactions or disagreements towards how this research was conducted. In addition, up until now no participants dropped out of the study. All verbal consents have been recorded and saved in the data storage made by the researcher. There are some children whose parents (who were involved in taking care of the previous dog bite injury) could not be reached. In that case, permission was given by the guardians in the house.

3.4. **Data collection**

The first week upon arrival in the field has been used to get close with the community and the area. During her first week in Bajawa, the researcher also visited the head of the public safety and politics department, the husbandry department, and the public health department, in order to introduce herself and to ask for permission to conduct the research. Although the researcher is Indonesian, due to a different ethnic
background, some local practices, ways of living, and even language needed to be learnt before conducting the research. To gain familiarity with the aforementioned practices, conversations about the local culture with officials and local people were built. In addition, the researcher also visited several local celebrations conducted by local people. These has helped the research to build better conversation and bonding in the interview process. For example, the researcher could follow the local tone and used some local words when interviewing respondents, and became familiar with the manner of visiting or being a guest in the local houses.

3.4.1. Storytelling interview with children

Story telling is considered as a child-friendly technique and a democratic way of data collection in children (Davis, 2007). The advantage of this technique is that it provides a democratic environment for children during the research process in a way that it will decrease power inequality between children and the researcher, parents or other adults (Davis, 2007). In this way, children have more time to express themselves, and interviewer’s role is more limited to active listening.

For dog bite victims (children), storytelling interviews were conducted. In the storytelling interview, a child tells a story to the interviewer, and then is asked questions. During the storytelling interviews, the researcher gave the time for the children to develop their own story while writing. The topic was: “A child who gets bitten by a dog”. All the children wrote their story about their dog bite experience. There was no limitation to the length of the story, and to the time to write the story. Every child was given the opportunity to write on their own and at the place where they felt comfortable. Subsequently after they finished their story, the children were given time to share their story with the interviewer. Positive comments were always given to the work as to increase the bond between the interviewer and the children. A brief interview for the children to search the details about their experience and explore their knowledge and perceptions was also done, with the time ranging from 10-25 minutes per child. The handwriting story was used to develop the questions. Therefore, not all children were asked the same questions. Some interview topics that are missed in the story were asked using a short interview guide (see appendix 4) which had been prepared before. Whenever the interviewer asked a question or probed in the interview, it was done through direct open-ended questions, since children often provide an accurate information when it derives from this technique (Docherty and Sandelowski, 1999).

During the data collection process with children, the researcher tried to to interview them without their parent’s or guardian’s presence. However, this could not be fulfilled with all participants. There were several children who were interviewed in private with their parent’s permission, however there were also some that have been interviewed
while their parents stayed near them. Children who were interviewed in private seemed to be more calm and confident to express and answer the questions.

In addition, the interview’s instruction stated that children could answer ‘don’t know’ and ‘silence’, and this helped some children who were shy to express themselves.

3.4.2. In-depth semi-structured interviews
In-depth semi-structured interviews have been conducted with the dog bite victim’s parents or guardians. The average time to finish the interview was 30-45 minutes. The researcher used an interview guide (see appendix 5), active listening skills, and probing techniques during interaction with the participants. Before starting the interview, the researcher was trying to have a short conversation first to build a good atmosphere with the parents or guardians. The staff from the Husbandry and Public Health Department at Ngada regency helped the researcher as well to create a comfortable atmosphere before the interview began, by also explaining several local accents to the interviewer.

3.4.3. Data collection activities
The interview schedule followed the participant’s preferences. Parents and children were asked about their availability beforehand. Some interviews with children and parents were preferred to be done in the vaccination centre itself, and other interviews were held in participant’s house. All interviews have been recorded with an audio recorder after permission was given. Note taking was not done in both interviews with parents and children. The reason to not take notes in front of the parents was to avoid creating a distance between parents and interviewer during the interview, and to keep the atmosphere close and alive. With children, notes were not taken in order to avoid or decrease the “researcher-look” as well as increase comfortability. After each interview was done, the researcher wrote a summary about the general topics and interesting statements derived from the interviews. Researcher continually conducted evaluation towards how the interview has been conducted along the interview process, in order to improve the effectiveness of the following interviews.

3.5. Data analysis
All recorded interviews have been transcribed verbatim using Microsoft Word. The transcription process involved the researcher herself and two fresh-graduate Bachelor’s students from the Public Health major at the University of Indonesia. The transcription have been checked again by the researcher to make sure there were no missing or misspelled words. Transcripts were not translated to English, due to time restrictions. Content analysis was carried out in order to extract the data to several themes. Coding process involved Atlas.ti 7. Relevant words or phrases associated with pre-defined concepts related to the research questions were coded. Next, the codes were grouped to several categorisations relevant to phenomena around research sub-
questions. Theoretical Domain Framework for COM-B model from Cane et al. (2012) was used to group related concepts. Thematic categories were double checked again with the codes, in order to see if links had been made. Opinions from the participants have been summarised. Major and contrasting opinions were delineated and illustrated with some quotations from the transcriptions. The quotation that are used in this report are a translated version from the original Bahasa Indonesia to English.

3.6. Ethical consideration

In this sub-chapter, the ethical issues concerning the involvement of children in this study will be addressed. The reason why children are important to be involved in the research and the ethical guidance in conducting this study will be described. On the final section, the ethical clearance of this study will be briefly explained.

3.6.1. Children rights to participate

Children are often excluded from participation in research because of several reasons, including the issues concerning immaturity of their language skills, memory, and social skills, inconsistency in answers influencing validity and reliability, and ethical concerns such as confidentiality, or vulnerability (Gill et al., 2008; Docherty and Sandelowski, 1999; Powell and Smith, 2009). Information regarding children’s perspective is often derived from the children’s parents, who are considered to have more knowledge and to be more mature; yet, proxy information from parents was proven to be inadequate to draw children’s personal perspective (Gill et al., 2008).

Rationales have been made for the involvement of children in research. Melton (2014) described three different justifications about the importance of involving children in a study that will impact their lives: (1) normative-legislative means justification arises from children’s rights (2) theoretical aspects enhanced the need for a subjective point of view, and (3) practical-methodological issues suggests that children know the best about their life. Furthermore, the United Nations, in the Convention on the Rights of the Child (CRC) in 1989, stated that all children have the right to participate in decision-making processes regarding their life. For “right to participate” is then meant that children have to be viewed as a social actor, not as passive or vulnerable, as they need to be agreed upon, consulted and take role in everything that affects their life, including research (Powell and Smith, 2009).

Even though children have the rights to participate in research, they also have to be protected during and after the study. This means that no exploitation, manipulation, or distressing inquiries should be made in their participation, and that the findings should ethically affect them in a positive way (Morrow, 2012).
3.6.2. Ethical conduct
In this study, the following ethical conducts have guided the research process. In the description, attention to children will be given.

o Do no harm
The principle of do no harm has guided this research during the research plan and while conducting the research. Respondents including children and parents were not involved in any situation in which they could have been harmed. Especially in children, issues about post-traumatic stress after dog bite had been taken into account, as some children may feel trauma, and pour in distressing or excessive emotional feelings when they are telling about the past accident (Schmitt, 2011). Therefore, before the research began, a detailed description about the purpose of this research and about what would be asked during the research were mentioned to both parents and children.

o Privacy, anonymity and confidentiality
In the data collection phase, the researcher has tried to separate children and parent’s interviews with the permission of the parents or the guardians. Furthermore, the complete transcription and audio files of all recorded interviews will not be revealed to the other parties outside the researcher, her supervisor, and related participants. Before the interview began, the researcher asked the interviewee for permission to use some quotations in the research report, and for the possibility of publication. The participants’ identity will not be revealed without their permission. All data will be put in the Health and Society (HSO) data storage at Wageningen University, and will only be accessed with permission from the researcher and her supervisor.

o Informed consent
Individuals participating in this study, especially children, could choose whether or not to participate. The researcher kept in mind that there might be power issues in the relationship of children and parents. Therefore, before deciding, both children and parents were informed as much as possible about the nature of the study. Verbal informed consent has been sought first from parents and afterwards from the children. The verbal consent was also developed based on some considerations regarding the technique used for data collection among children (i.e. the storytelling interview). According to Davis, children need to be informed of (Davis, 2007): The purpose of the research; that they can choose either to tell their experience specifically or not; that their responses will be treated in confidence; and that they can quit the interview whenever they want.

o Rapport
The researcher tried to provide a trustworthy environment where both children and parents could feel comfortable. In particular, the children were interviewed in a place
which was accepted by their gatekeeper (in this case their parents or guardians). The researcher tried to treat children and parents with respect, according to local culture and practices.

3.6.3. Ethical clearance
In this study, ethical approval from Wageningen University’s Social Sciences Ethical Committee (SEC) has been sought due to the involvement of children. The ethical clearance was obtained on 27 October 2015 (see appendix 6).
4. Results I: Factors influencing children’s engagement in rabies PEP

Factors influencing children’s engagement in rabies PEP based on storytelling interviews will be elaborated upon in this chapter. First of all, children’s psychological and physical capabilities to engage in rabies PEP will be outlined, followed by concepts relating to children’s reflective and automatic motivations to rabies PEP. The final part of this chapter focuses on the physical and social aspects which result from interviews with children. It is important to note that the term ‘parents’ also refers to ‘parents’ or child’s guardian’. Before continuing, table 3 below gives a brief overview of this chapter.

Table 3. An overview of factors influencing children’s engagement in the rabies PEP resulting from storytelling interviews.

<table>
<thead>
<tr>
<th>Capability</th>
<th>Motivation</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological</td>
<td>Reflective</td>
<td>Physical</td>
</tr>
<tr>
<td>• Being aware of rabid dog characteristics (+)</td>
<td>• Realise that exposure to dogs can result in negative consequences (+)</td>
<td>• Incidents happen outside working-hours (-)</td>
</tr>
<tr>
<td>• Having a knowledge of human rabies symptoms (+)</td>
<td>• Perceive rabies risk in unknown dogs (+)</td>
<td>• Availability of private vaccine provider (+)</td>
</tr>
<tr>
<td>• Knowing that human rabies comes from exposure to dogs (+)</td>
<td>• Perceive rabies risk in all types of wounds (+)</td>
<td></td>
</tr>
<tr>
<td>• Having a knowledge of rabies post-exposure treatment (+)</td>
<td>• Perceive no rabies risk in superficial wounds (-)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Realise that cleaning wounds and vaccinations are beneficial in avoiding rabies and can heal wounds (+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Perceive that parents and doctors can ensure treatment (+)</td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>Automatic</td>
<td>Social</td>
</tr>
<tr>
<td>• Having wound cleaning skills and practice (+,-)</td>
<td>• fear and trauma resulting from the dog bite injury (+)</td>
<td>• Negative comments from peers about the treatment (-)</td>
</tr>
<tr>
<td></td>
<td>• Physical pain resulting from the dog bite injury (+)</td>
<td>• Explanations by peers about consequences to dog exposure (+)</td>
</tr>
<tr>
<td></td>
<td>• Fear of punishment by parents (+,-)</td>
<td>• Having support from family members (+)</td>
</tr>
<tr>
<td></td>
<td>• Having negative experience following injections in the past (-)</td>
<td>• Financial and moral support from the dog owners (+)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Having support from neighbours who can report and clean the wound (+)</td>
</tr>
</tbody>
</table>

+ : promote children’s involvement in the necessary rabies post-exposure treatment
- : hinder children’s involvement in the necessary rabies post-exposure treatment
4.1. **Children’s capabilities to engage in rabies PEP**

4.1.1. **Knowledge of rabies in dogs**

Children described rabid dogs as ones having a strange physical appearance, behaving abnormally, and not yet having been vaccinated. The majority described a rabid dog by its strange physical appearance. They often referred to its sharp teeth and tail tucked between its legs.

“They have very, very sharp teeth and they look horrible!” – C8

For some children, a rabid dog is also known to have a cocked tail and ear, a big body, and tendency to overly produce saliva. Others described a rabid dog based on its abnormal behaviour. Very often children mentioned that rabies would cause the infected dogs to disturb humans, chasing or biting them for no reason. One child also pointed out that sensitive behaviour among pregnant dogs also relates to rabies. Two children added that rabies in dogs occurs because they were not vaccinated. Eight children were unable to give their opinion about rabid dog.

4.1.2. **Knowledge about rabies in human**

Although most children were quite confident to respond to the questions about rabid dogs, the majority were unable to describe symptoms relating to human rabies. Only six out of twenty three children explained the features of rabies in humans. Nevertheless, most of them agreed that rabies is caused by exposure to dogs and is dangerous for humans. According to children the most recurrent feature of human rabies was that the infected human could mimic a dog’s behaviour. This can be the fear of lights, the urge to scratch others, and to howl like a dog.

“I: What is rabies [in humans]?
C: Rabies means being afraid of light, wanting to howl, and scratching people.” – C1

4.1.3. **Knowledge about rabies post-exposure treatment**

The majority of children who participated in this study outlined some knowledge relating to post treatment to dog-exposure, including the wound cleaning procedure, vaccination, and the order of the treatment.

For the wound cleaning procedure, almost all of the children said that a dog bite wound has to be washed with soap and rinsed with water after the incident. None of participants mentioned traditional remedies such as first aid treatment after dog bites, although some of them used traditional remedies. Children also mentioned the wound cleaning methods. Around five children explained that the wound needed to be
brushed or rubbed. Others mentioned that the wound had to be rinsed or wiped with cloth.

“I: If you are bitten by dog, do you know how to wash the wound? C: Take this, soap and rub it here [in the wound].” –C9

Only one child mentioned the exact amount of time which is around 10-15 minutes. Other children gave a ‘sign’ to finish the cleaning, when the wound was bleeding less and/or the wounded skin had been removed.

Besides cleaning the wound, vaccination was mentioned by the majority of children as a part of post-exposure treatment. Almost all of the children were familiar with the term ‘vaccine’ and mentioned the importance to have vaccine for dog bite injuries. A few children paraphrased the word ‘vaccination’ with ‘injection’.

Finally, a few children also described the order of the post-exposure treatment. Four children explained that the wound cleaning procedure should be performed just after the injury, followed by a vaccination, as the second component of treatment.

4.1.4. Children’s skills to do the wound cleaning

The majority of children assessed themselves as capable of performing cleaning wounds caused by dog bites. However, they also drawn some limitations. One child said that she could only perform the wound cleaning procedure satisfactorily if the wound was small. Other children felt anxious about following the correct procedure when cleaning the wound. Lastly, two children were worried about the results of their wound cleaning.

“I can [clean the wound by myself], but it might not be clean enough [...] and would still hurt. If mother washes it, it will be cleaner.” –C2

In the behaviour described, several children were able to conduct the wound cleaning procedure themselves although they felt anxious about it as the appropriateness of the procedure was questionable for them. Only one child seemed confident about cleaning the wound alone. He mentioned he had learned it from his mother after being bitten for the first time. Thereafter, whenever he got injured again, he always cleaned the wound himself.
4.2. Children’s motivations to engage in post dog-exposure treatment

4.2.1. Beliefs about consequences of dog exposures

Children in this study believed that dog exposures could have negative consequences for humans including disease and death. Almost all children mentioned that exposure to dogs would lead to rabies. For children rabies is a serious disease. Most of them expressed the need to treat the wound to avoid negative consequences. Three children said that someone who contracts rabies will have a hard time surviving in the long run. Six children expressed its seriousness by explaining that rabies could make someone mimic a dog’s behaviour, for example by scratching and biting another person.

“I: What would happen if someone gets rabies? What will rabies be like in humans?
C: The human will appear to be similar to a dog. –C21

Furthermore, I will describe below how children perceive the consequences of dog bites based on the status of a dog and the type of wound.

Beliefs about consequences of dog exposures: Risk perception related to dog status

Almost all children perceived that both free-roaming and domestic dogs have the possibility to transmit rabies to humans, even though two children thought that free-roaming dogs would be a bigger threat than domestic dogs. The reasons are the uncertainty whether the dogs are rabid and the fact that they have no owner.

“I: If you are bitten by dog in the street and you do not know the owner. What will you do first?
C: Fear. Fear that the dog may be more rabid.
I: How would you think like that?
C: Yes, because for example we are bitten, then the owner does not come for [handling] the dog.” –C15

Many children mentioned that when free-roaming dogs bite, this can cause human rabies and death. The importance of exposure to these dogs reflects their need for immediate treatment. For domestic dogs, it is likely that the ownership status influenced how children perceived the consequences of their bites. Most of the children were bitten by domestic dogs who did not belong to them. It is possible that if children are unfamiliar with dogs, they then regard the injuries as unsafe or risky. This assumption was also confirmed by one child who suggested that dogs in the street with which he was not familiar, are more vulnerable to rabies compared to his own dog he knows well.
Beliefs about consequences of dog exposures: Risk perception to the type of wounds

Children’s perception about scratch, small, and large type of dog bite wound influence the urgency for them to seek rabies post-exposure treatment.

Ten children in this study perceived dog scratches to be an important wound. The majority believed that dog scratches are a risk for rabies. Almost all of them considered that a vaccination is needed in such cases. Four children added that they would report scratch wounds to their parents. On the other hand, some did not think that dog scratches were very important. Four children said that a dog scratch did not need to be reported or even treated in a health facility. Three of them believed that a dog scratch could easily be healed at home. Even if it is bleeding, it can be cleaned by using alcohol only. Indifference to the scratch also endorses the perception that this type of wound will not worsen or swell.

“I: What will you do if you are scratched by dog?
C: Use only a drop of medicine.
I: Will you report it or go for an injection?
C: No. It is just small. Just small.” -C7

The majority perceived a small wound to be risky when there is skin lesion or bleeding. Children believed that small wounds could cause rabies disease and the victims would need to be vaccinated. Four children considered that a small wound should be reported to parents. One child added that a small wound needs to be treated because it can worsen and become swollen.

“I: What if the wound is small? Only one spot. What would you do?
C: Well, it needs to be treated. Because I am afraid the wound will get infected and become larger.” -C15

All of the children considered large wounds to be important. They also thought that large dog bite wounds should be reported to the health authority and be vaccinated in order to avoid the risk of rabies.

Manifestation of wound (worsening or swollen) seemed to be an important sign for children to determine if the wound is dangerous or not. In the described experience, one girl refused to be taken to the health authority until she thought about the possibility of rabies because her wound had become larger and swollen. The injuries that could worsen became the point of transition for her reaction.
“C: No. [...] the wound is swollen. The skin is not swelling any more, but is continually shrinking on the inside.
I: What do you think at that moment?
C: I am afraid the poison, could be rabies.”-C15

4.2.2. Beliefs about benefits of treatment for dog bites
Beliefs about benefits of treatment are likely to influence children’s willingness to follow or continue the treatment, which is more obvious with vaccinations. The reason influencing children to have vaccination treatment is linked to their faith that the vaccination can protect them from rabies. Children mentioned that vaccinations can prevent rabies, kill the rabies virus, or heal their bodies from rabies. A few children also added that the vaccination heals the wound.

“I: If you are asked to have two or three injections, will you?
C: Yes, I will.
I: Why?
C: So I will not get rabies again.” –C6

Children also believed that vaccine should be injected immediately. Their persistent motivation for immediate vaccination is to limit the chance of rabies spreading around the body. Children perceived that immediate vaccination could save them from death.

In regard to the wound cleaning procedure, four children believed that it is important to do this after the dog bite injury occurs. Only one child was able to give the reason which is lowering the chance of rabies infection.

“I: Why did you wash it?
C: Washing it is first aid treatment. So it won’t be contagious anymore.” –C23

4.2.3. Beliefs about capabilities of people undertaking the treatment
There are two groups where children put their confidence to undertake the treatment. They are their parents (or guardians), as well as the health workers.

Parents are mentioned by the majority of children as individuals whom they will ask for help or assistance after encountering a dog bite. Seven out of the twelve children I asked mentioned that they would go to their mother after being bitten. Two children
said they would inform their father. The last two children decided to look for their grandmother, probably because neither of them lived with their parents. There are several reasons why children choose to inform their parents. One of which is emotional, and will be discussed in a later chapter. Other reasons resulting from the interview are the prevention of rabies and access to vaccinations.

As the individuals whom the child seeks after getting injured, it can be assumed that parents are important social actors from a child’s point of view to prevent them from suffering the negative consequences of dog bites. As previously mentioned, there are some children who believed to be able to perform the wound cleaning alone. However, in the real experience, the majority of children still rely more on parents to assist in this first aid treatment.

“And then I felt very hurt. I ran to my house and when I arrived, my mother then treated my feet with detergent. Mother also asked me to sleep”-STC16

For first aid treatment, children preferred having their mother clean the wound for certain reasons. Two children said their mother was capable of reassuring them that the wound was clean. Other children perceived their mother as competent to clean. In the described behaviour, mother was the person mainly involved in the treatment. Not only in cleaning the wound, but also to find the child and take it for vaccination.

“When I arrived home, I informed my parents immediately and they panicked. They then went in search of vaccine straight away and found some at [the free anti-rabies vaccination centre] where we got two amounts. Three days later, my mother and I went again to the [free anti-rabies vaccination centre] for treatment after which we returned home.” –STC1

Besides parents, health workers are also considered as having an important role by children. When children were asked what they would do after being bitten by a dog, most of them mentioned seeking a doctor or finding help in a health centre.

4.2.4. Anxiety to dog bite injuries

According to the described experience, most of the children who participated in this study mentioned the effects of severe pain following the attack. The emotion recorded most in the interviews following incidents to dog-exposure is the feeling of panic which children described as crying and running away.
"It was one time when I got bitten by a dog tied in one place. The feeling was so painful. The feeling was so tense. I am afraid of rabid dogs." - STC7

When children were asked again about what would happen in the future if they were attacked by a dog, most of the time they gave the same negative responses such as shock, fear, or crying.

Negative effects following dog exposure has influenced the urgency for them to engage in the treatment. Six children in their actual story mentioned that their reaction after panicking was to run and inform their parents immediately.

“When I went to the toilet, I did not see a dog beside me. Suddenly he jumped and bit me under my left eye. When it began bleeding, I felt so much pain that I ran my home fast to treat my wound.” – STC5

4.2.5. Punishment by parents

According to the interviews, engaging in treatment after a dog bite is also affected by the way children felt towards their parents. Four children said that they would not report bite incidents to their parents for fear of being punished. Another child, however, said just the opposite, that he would inform his parents after being bitten even though he was afraid of punishment. From the interviews with children, punishment by parents could be either verbal or physical. One child said that he would be beaten if he informed his parents.

“I: Did you ever think of reporting it to your parents?
C: No.
I: Why?
C: I was afraid. Afraid of being beaten.” – C13

4.2.6. Past experience to injections

Most of the children who participated in this study had negative feelings about a syringe. Some of them expressed their fear of having an injection prior to the treatment whereas others became afraid after having vaccination treatment. Fear of syringes can influence a child’s willingness to engage in the post dog-exposure treatment and affect the urgency for them to have treatment. One girl in the story mentioned explicitly that she struggled to with vaccination when she looked at the syringe. Another girl also explained that she refused to have vaccination treatment for some days because she was afraid of the injection.
“After being bitten, [the dog owner] said to me, because when I had just been bitten I did not want to go for an injection. So the dog owner said to me, if the wound worsens, you will need to go for an injection, in order to be healed quickly.” –C15

The experience children have on their first visit to a vaccination clinic can also affect their willingness to continue the treatment. Four children who were interviewed described such a negative experience (i.e. feeling pain or afraid) to an injection on their first visit diminished their willingness to continue the vaccination schedule.

“I: So this was the second time you were injected. How was it to be injected again?
C: It felt okay because after my first injection, I was afraid but the feeling was not so painful. The second injection was fine.” –C15

In line with this, five other children also described such a positive experience (i.e. feeling ‘okay’ or alright) with the vaccination caused them not to be afraid of facing or continuing with the treatment.

4.3. Opportunities according to children.
4.3.1. Health facilities: opening times and availability of private providers.
From the interviews with children, opening times at the free vaccination clinic can be a reason to postpone the treatment. Three children perceived that the vaccination could be postponed if the incident occurred outside the vaccination clinic’s opening times.

“I: After being bitten, can we go to the health facility tomorrow or the day after?
C: From what I am aware of, it can postponed until tomorrow. But I don’t know about the day after tomorrow.
I: So, can it be postponed?
C: The day I got bitten by a dog the health facility was already closed.” –C2

In the described behaviour, seven of the children postponed being vaccinated until the following day or two days later. The reason being was because they were injured (or found to be injured) in the afternoon or evening when the health facility was closed. Some children explained that they went to their private vaccine provider for treatment. Even though no motives have been recorded by children as to why their parents chose
the private service, this has, in fact, increased the opportunity for children to have access to prompt treatment after being bitten by a dog.

4.3.2. Peer influence and support

According to the interview, peers can influence perception and also the source of support for the children. One child mentioned in the interview that her peers influenced how she perceived the consequences of rabies which affected her decision to go for vaccination treatment. Peers can also trigger fear towards treatment, as one child described her fear of facing the first vaccination because her peer had spread a ‘horror’ story about syringes.

“I: How do you feel in the vaccination room?
C: I am afraid. I cried. Because [my friend] deceived me [saying that the syringe has a long needle]” –C2

In the experience described, the peer can also be a supporter who triggers the urgency of a child to engage in treatment after dog exposure, especially when the incident happens outside the home, school or a place where children play together. Three children admitted that their peers had helped them to find support by informing adults about their condition.

“When I entered the classroom a dog was there and it jumped and bit my left hand. Then my friends took me directly to Derugawe Elementary School.” –STC9

4.3.3. Support from family members

Family can be said to be the children’s most important supporter to encourage them to engage in post dog-exposure treatment as they are in charge of the children as well. According to the interview, a family supports children in many ways. Very often the decision to follow the treatment process was made by an adult member in the family as well. When children are asked to whom they turn for help, the family is mentioned repeatedly. In the experience described, a mother is the most likely source of help for children. Other than that fathers, aunts, uncles and grandmothers were also family members who also assisted the children to engage in treatment.

Access to help is also influenced by the social setting in which children live. Some children live together or live close to their extended family. Three children had to access treatment because their grandmother either lived in the same house or nearby. Two other children also mentioned that they had access to help because their aunts lived nearby.
“It was, Wednesday, 25 March 2015. I was going to buy something. Not long after, a dog came and bit me. Then my grandma came out and said “[children’s name], what happened?” Then I answered, “A dog bit me!” Then my grandma got some Nona Mas oil and rubbed it on my feet and I went inside the house. Then, my sister called my mother said “Mum, come home Nita has been bitten by a dog.” Then my mother came immediately and we went to [the vaccination centre].” -STC12

4.3.4. Social support from neighbours
A neighbour can provide urgent support for engagement in the treatment process by informing the family about the child’s condition and becoming involved in it. Moreover, neighbor can help the children to seek the treatment. Two children mentioned that neighbours found them when they were injured and helped them to undergo first aid treatment by accompanying them to the vaccination service.

“My aunt rubbed coffee powder on my dog bite wound so it would stop bleeding. Shortly after, the bleeding stopped. But the wound still felt painful. My body felt so weak in this condition. My neighbour who is a midwife accompanied me to [the vaccination centre] to be vaccinated.” -STC22

4.3.5. Social responsibility of dog owners
Involvement of dog owner is also one opportunity that has made the treatment possible. In the described experience, the dog owner was responsible for paying all the costs spent on treatment including vaccination and transportation costs. Other support given by them was moral support. Out of all children who were interviewed, one had wound cleaning and vaccination treatment arranged entirely by the owner of responsible dog. The dog owner paid for the treatment including vaccination and transportation costs and also provided moral support. The dog owner persuaded the child to have the treatment, checked the situation constantly, accompanying her to the vaccination centre until she had the necessary injections.

“The feeling was so painful and the bleeding would not stop. At that time, the dog owner asked her neighbour to wash this wound. The day after, my foot was still swollen, I did not go to church. That evening I still felt the pain and the size of the injury was bigger. I felt feverish as well. The following day, Monday, I still went to school. At break time, the dog owner picked me up to go for vaccine. [...] The day after, [the dog owner] picked me up and took me to [a private vaccination service] to be vaccinated. From that moment, I started to feel better.” –C15
4.4. Conclusion

Below, a brief conclusion is made to represent the important findings from this chapter.

Capabilities
Sharp teeth and tucked tail were the most repeated features of rabid dog. Many of them knew that dogs can transmit human rabies. However, only few children could explain the symptoms of rabies in human. For treating the wound, children described vaccination and wound cleaning as the proper treatment. None of the children mentioned herbs or other traditional treatment as proper treatment for dog bite. For the correct method in wound cleaning, brushing, rubbing, or wiping were described by children. Furthermore, children also mentioned several ‘signs’ such as until the ‘white meat’ appears to stop the wound cleaning, The majority of children described themselves as capable to do the wound cleaning method, however, practically they felt hindered by some limitations as they compared themselves to their mothers.

Motivations
Children believed that dog exposures will lead them to negative consequences such as an abnormal behaviour like mimicking the dogs, rabies, and death. Children tend to perceive these risks in unfamiliar dogs and in small or large wound that causes skin lesions or bleeding. Scratch wound is important for some children but neglected by other children. Besides, children also perceived rabies risk in inflamed wound. To avoid the negative consequences, children chose wound cleaning and vaccination. Vaccination was repeated more often than wound cleaning. Children believed that vaccination have benefits for their wound and health. Besides considering the effect of dog exposure and benefits of rabies, children also energised by emotions, experiences, and punishment. Panic and trauma to dogs and the physical pain after attack made children informed their condition faster. Children were also likely to join or continue the vaccination when they felt positive experience toward injections. Lastly, possibility of punishment from parents has facilitated but also could hinder child’s willingness to report the wound.

Opportunities
There were not many opportunities occurred from children. However, children did mention the effect of limited opening-hours of health facilities to the delayed treatment. The presence of private vaccine provider has also enlarged the opportunity of children to obtain the treatment.
5. Result II: Factors influencing involvement in rabies PEP according to parents

In this chapter, a description of the factors which may drive or hinder parents to engage their children in rabies post-exposure prophylaxis treatment will be elaborated. Firstly, parent’s capabilities to engage in rabies PEP will be elaborated. Following this, the motivations that triggers the behaviour of parents to follow the rabies PEP will be described. Finally physical and social opportunities occur in parent’s in-depth interview will be addressed. It is important to note that in the body of the paragraph, the term ‘parents’ refers to ‘parents or a child’s guardian.” Before going on, table 4 below will provide a brief overview of this chapter.

Table 4. An overview of factors influencing children’s engagement in rabies post-exposure prophylaxis according to parents.

<table>
<thead>
<tr>
<th>Capability</th>
<th>Motivation</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychological</td>
<td>Reflective</td>
<td>Physical</td>
</tr>
<tr>
<td>• Having knowledge about the feature of rabid dogs (+)</td>
<td>• Believe that dogs will have various negative consequences on children (+)</td>
<td>• Private vaccine providers are available (+)</td>
</tr>
<tr>
<td>• Having knowledge about the human rabies symptoms (+)</td>
<td>• Perceive rabies risk in all types of dogs (+)</td>
<td>• Various options for transportation are available (+)</td>
</tr>
<tr>
<td>• Having knowledge about two components of rabies post exposure treatment (+)</td>
<td>• Perceive rabies risk in all types of dog exposure (+)</td>
<td>• Uncomplicated administration (N)</td>
</tr>
<tr>
<td>• Able to pay attention and memorise health worker’s advice (+)</td>
<td>• Perceive negative risk of rabies on scratches (-)</td>
<td>• Limited opening-hours of health facility (-)</td>
</tr>
<tr>
<td>• Perceive rabies in swollen wound (+)</td>
<td>• Believe wound cleaning could minimise the chance of rabies (+)</td>
<td>• Affordable vaccine (+)</td>
</tr>
<tr>
<td>• Believe vaccine can prevent rabies (+)</td>
<td>• Believe the immediacy to obtain vaccine is important (+)</td>
<td>• Free vaccine is available (+)</td>
</tr>
<tr>
<td>• Believe vaccine will effective if all injection series are followed (+)</td>
<td>• Believe traditional medicine could not guarantee child’s safety (+)</td>
<td></td>
</tr>
<tr>
<td>• Believe vaccine may hard for the children (N)</td>
<td>• Believe traditional medicine can help heal the wound (-)</td>
<td></td>
</tr>
<tr>
<td>• Believe traditional medicine could not guarantee child’s safety (+)</td>
<td>• Perceive impropriety in the service given by health workers (N)</td>
<td></td>
</tr>
<tr>
<td>• Knowing there are still rabies victims (+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Knowing the area is rabies endemic (+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical</td>
<td>Automatic</td>
<td>Social</td>
</tr>
<tr>
<td>• Having wound cleaning (treatment) skills and practice (+,-)</td>
<td>• Feeling anxiety to dog bite injuries (+)</td>
<td>• Having health worker in social network who have access to the information about vaccine availability (+)</td>
</tr>
<tr>
<td>• Able to organise and planning the treatment (+)</td>
<td>• Concerned about the history of rabies in the area (+)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Knowing there are still rabies victims (+)</td>
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</tr>
<tr>
<td></td>
<td>• Knowing the area is rabies endemic (+)</td>
<td></td>
</tr>
</tbody>
</table>
5.1. Parent’s capabilities to engage in rabies post-exposure prophylaxis

5.1.1. Knowledge about rabies in dog

The majority of parents already have some knowledge about rabies in dogs to some extent. Many of them described rabid dogs by their abnormal behaviour. They mentioned rabies in dogs would make them look fierce, have a tendency to bark incessantly, scratch, bite people, and run rashly. A few parents said that rabies could cause dogs to be afraid of light, salivate excessively, and be afraid of water.

“According to the story of course, if a dog contacts rabies, it will go running, be afraid of water and people, then walk during the night, and bite anything. That is all.” –P11

Other than abnormal behaviour, some parents also mentioned some symptoms of rabies in dogs by their physical appearance. Not many of them described rabid dogs as having a tongue that always sticks out, its tail tucked between its legs, abnormal ears, red eyes, weak, and thin looking.

5.1.2. Knowledge about rabies in humans

According to the majority of parents, the general cause of rabies in humans is related to exposure to dogs, in form of bites or scratches. Even though dogs are often considered to be the main cause of rabies, three parents added that cat bites or scratches can also result in the same disease.
Furthermore, parents also described what humans would develop when they get rabies. All their remarks demonstrated that rabies could result in the development of abnormal behaviour and appearance in the human victim. The first and the most repetitive impact rabies has, is the tendency for a human being to mimic dogs’ behaviour. The tendency to bite or scratch people and bark like dog are the most frequent characteristics of a rabies victim which were revealed during interviews with parents. One parent who believes that rabies can cause death in human’s death also mentioned that the dead body of rabies’ victim will look similar to a dog.

“In adults, I have seen with my own eyes, their figure is like that of a dog. Until they died, their movement is like that of a dog.” – P9

Other abnormalities in behaviour according to parents are fear of light, convulsions, sensitive to other humans and noises that comes from dogs, fear of water, and has mouthful of foam.

“Fear, fear of water. Afraid of light, look like if they see something they will be afraid. Afraid of people, afraid of light, that kind of fear. They kind of want to bark like a dog even howling. That is what I have seen.” – P18

5.1.3. Knowledge about post exposure treatment subsequent to dog bites
The majority of parents mentioned that the initial treatment for a dog bite is to clean the wound. More than a half the participants acknowledged the use of both water and soap as the main ingredients for cleaning the wound. Other than that, some parents also described hot water as an important ingredient.

“But I just know I have to wash the bite wound cleanly with hot water. First I press it with dampened cotton wool, and clean it with hot water. When it’s clean I rinse it with a little bit of running water. Rinse. That’s it.” – P18

Furthermore, the majority of participants mentioned washing the wound with soap and rinsing it with running water as the correct procedure for cleaning the wound. On the other hand, some parents also added ‘brushing or rubbing the wound’ and wiping it with cloth.

“I just know from elders, to clean the wound use only hot water. Rinse the wound with it, take a cloth, press, and wipe it” – P9
The majority of parents did not mention the exact amount of time they take to wash the wound. Only a few of them mentioned that it takes 10-15 minutes. According to the interview, instead of time, certain signs are given to indicate the wound has been cleaned. All the signs are based on subjective measures of the parents themselves. The first sign is that parents will make sure if the wound has been cleaned or the bleeding has stopped. Another sign to stop the cleaning process would be the appearance of the ‘white meat’ (local term) on the skin.

Besides cleaning the wound, most of the parents also mentioned vaccination as the correct treatment for dog bite injuries. Most of the time, parents mentioned to take the child for vaccination just after the wound had been cleaned. Eight parents repeatedly mentioned that anti-rabies vaccination should be carried out as soon as possible. However, one parent suggested that the vaccination could be delayed for up to one week.

5.1.4. Memory and attention

Memory of the parents can play an important role to determine the completion of rabies prophylaxis among children. Almost all of the parents who were asked why they would be involved in the second part of the vaccination process was because they remembered the message from the vaccinator on their first visit.

“[The nurse] said this week. Come for second vaccine in a week’s time. [...]. I always kept it in my mind. Every day that week, I thought about rabies. I was afraid. So, I had to go for that second vaccine”. –P17

The possibility to forget vaccination schedule can occur. One mother mentioned that her husband tended to forget everything. Some parents used a calendar as a reminder to make them aware of the next vaccination appointment.

5.1.5. Capacity in performing first aid

In the described behaviour, the majority of parents mentioned that they are involved in cleaning their child’s dog bite wound. The majority of them used running water and soap to clean the wound. Other than soap, parents also used salt and hot water as ingredients for cleaning wounds. The techniques, brushing, rubbing, pressing, and wiping the wound were mentioned repeatedly in the interview.

“I went quickly to get water and find soap. This compact soap, they said is the best for this. I pressed it on [the wound]. Leave it he cried. I pressed [the wound] until blood came out, and the white meat appears. Then I took him to health department” –P13
Besides, traditional remedies for dog bite wounds were used by nearly all of participants. The use of traditional remedies is either to complement or become the main treatment for dog injuries. Popular traditional remedies are traditional oil and coffee powder. Other traditional remedies are tamarin seed powder, betel leaf, galangal, ‘Binahong’ leaf (Anredera cordifolia). Other than herbs, ‘black stone’ is also used repeated many times. Black stone is a rare local stone that is known its absorption of toxic technique from dog bites.

5.1.6. Organising skills
Children were very dependent on the capacity of adults to organise their treatment. According to the interview with parents, some children should sacrifice their school time to go for vaccination treatment. This can include several hours to some days depended on the opening times of the treatment centre or the condition of the children. Obtaining permission from the school is often needed and this depends on the adults who are close to them such as their parents or relatives. Moreover, children were also very dependent on the capacity of parents to find information about vaccine supply and accompany them to the health facilities to get vaccinated.

5.2. Parents’ motivations to engage in post-exposures treatment
5.2.1. Beliefs about consequences of dog exposures
For the majority of parents, the dog exposure has many serious consequences in humans. In line with the findings found in children, the majority admitted that dog exposure could lead to rabies. Other consequences linked to dog exposure are further infections, such as tetanus, trauma, or disability.

Furthermore, expenses for treatment including vaccine and transportation is also mentioned as a consequence of dog exposure, in particular for the vaccine, as some parents mentioned the high costs they have to pay when a dog bite occurs. However, even though parents revealed their concern about the price of vaccine, they often admitted that expenses for the treatment of dog bites should not be a barrier to treating the child. Some parents did mentioned that the safety of their children was more important than the costs for vaccine and transportation.

The consequences of dog exposure related to dog status and wound type will be elaborated hereunder.
Beliefs about consequences of dog exposures: risk perception to the dog status

From the interview, dog status can be grouped based on dogs vaccination status and the status of ownership (domestic or free-roaming dogs).

For dog vaccination status, parents perceived that vaccinated dogs are having a lower risk for causing human rabies than dogs that are not vaccinated. However, more than a half said they would still take their children to get vaccinated even though they realised the responsible dog had had an anti-rabies vaccination. Precaution to rabies is the main reason why parents still engage in the post-exposure treatment in such situation. Most of them assumed that the risk of developing rabies when exposed to dogs whether vaccinated or not is the same. Furthermore, a few of participants considered that there was no uncertainty if the dog had been freed from rabies after vaccination.

“Already. The dog has already vaccinated. But I was not sure. I was afraid. That vaccine could it really get rid of the poison or would it is still there? We don’t know. Maybe the doctor said. We are common people. We don’t know if the rabies poison has vanished. Maybe the dog will get rabies, we don’t know” –P18

Domestic and free-roaming dog status also influence how parents perceive the risk to dog exposure. Four parents believed that domestic dogs are safer than wild dogs. All of them mentioned that domestic dogs have been cared by their owners and have been vaccinated. In the end, even though they considered that domestic dog were safer, all of them still went for anti-rabies vaccinations when their child had been bitten. This perception could be influenced by dog ownership status or how well parents knew the dog itself. Three out of four parents who believed domestic dog to be safer is the owner of the dog who attacked their children. One of them was not the owner, but said she already knew the dog very well.

Beliefs about consequences of dog exposures: risk perception to the type of wounds

The majority of parents believe that all types of wounds ranging from scratches, large and small, bleeding or not from dog exposure can cause rabies in their children. The main reason for this was the lesion of the dog’s saliva on the wounded skin.

“Well, there is something I heard, even though the scratch is little, the skin is still affected. The human who has a dog bite still has to do that. No need to say it is bleeding, or the wound has to be large. We have to go for vaccination. The dog scratches, the bite already contain dog saliva. We have to for vaccination.” –P8
Particularly for scratches, even though many parents in this study believed that scratches could lead to rabies, however a few of them still considered that this type of wound would not have such consequences. For them, either cleaning the wound or applying coffee powder to the scratches would be adequate.

Parent’s perception for rabies risk can also be influenced by the presence of blood in the wound. A mother mentioned, that a deep wound with no blood loss is more likely to contract rabies than the one without blood. According to her, this can transmit the virus faster.

“I think like this, oh this virus must spread so fast because it is under the skin and it is not bleeding. If it is bleeding, it means the poison has come out as well. If we wash it, or press it, it will come out. But this is not the case, so I also feel anxious.” –P17

Some parents also perceived the risk of rabies based on the manifestation of the wounds. Two parents believed that a swollen wound (with inflammation) is an important sign to the threat of rabies whereas one of them only considered the swollen wound to be a sign of rabies. Another added that the swollen wound indicates a threat to rabies because the skin has been affected on the inside.

5.2.2. Beliefs about benefits of dog bite treatments
Beliefs about benefits of wound cleaning
Most of the parents cleaned the wound before taking their children for further treatment. Two mothers, who have health background, mentioned that cleaning the wound is a form of cleanliness, to kill the virus, and will cut the chain of infection. Other participants whose background is not in from health also had a similar point of view. One participant explained that cleaning the wound is necessary to minimalize the risk of getting rabies. Two others mentioned that rabies could spread all over the human body through the bloodstream if the dog bite wound is not washed.

“Washing the wound. What first come to my mind when I think about it is I am sure that the bacteria from dog saliva will spread through the blood stream, in the blood vessels. I believe all of it will enter. If it enters, and reaches up to the heart, it will kill my brain. Death.” –P3
Beliefs about anti-rabies vaccine

As mentioned earlier, the most frequent reaction following the wound cleaning process is to seek vaccination. Even though the responsible dog has been vaccinated, in the described behaviour, the majority of participants still strive to have their child vaccinated after a dog bite incident. This indicates that there is a high need and also trust to anti-rabies vaccine as one essential component for treating dog bite injuries.

According to parents, the majority do believe that vaccination is the only way to kill the rabies virus which some participants also referred to as ‘bacteria’, or ‘poison’. Three participants mentioned that vaccine is vital whereas others said that it is the only way to guarantee keeping their child free from rabies.

According to two parents, the vaccination is vital since the ‘bacteria’ or ‘virus’ which cause rabies can still live for years inside the human body. Even if the wound has been healed after a period of time, there is no uncertainty that the person is safe from rabies. One mother added that the anti-rabies vaccine is essential nowadays because the virus which causes it is getting stronger than the old time. The confidence in the anti-rabies vaccine is also endorsed by perceiving that it is produced by educated people and research.

Almost all parents have their child be vaccinated immediately. A mother mentioned that immediate vaccination is necessary to prevent death by rabies when she recalled her experience seeing a rabies patient die because of postponing the vaccination. Two parents explained that immediate vaccination is a good prevention for rabies. Whereas, other parents mentioned that immediate vaccination is vital because rabies virus can enter and spread throughout the human body quickly.

“I am scared. Maybe because the virus entered so fast and it can be spread around. So, it enters the body quickly. And, vaccination should be taken quickly.” –P17

Two mothers explained they would be fully relieved after the series of vaccination has been completed. Other parents however mentioned that they would only be reassured three months after vaccination. In addition to this, there were also two parents who claimed they will only be assured when the dog responsible is alive and healthy after a period of time.

Finally, none of the participants were of the opinion that vaccine would bring more harm than good. However, even though the majority of participants trusted the vaccine, there is still concern that the vaccine might not benefit the children 100%. One parent said that the vaccine might be too heavy for her child.
“Maybe in my mind, I am sad. This child is still very young and he must be treated with vaccine. I don’t know if this medicine is harsh or not. But for sure it may have an impact. When you put it into the body. As a common person I really do not understand.” –P1

5.2.3. Beliefs around traditional medicines
Traditional medicine in form of herbs and other locally-derived remedies for dog bite is the most recurrent topic in the interview with parents of dog bite victims. In the described behaviour, some parents still used them as the main or complementary treatment for dog bite injuries. The use of traditional medicine is perceived by parents to be multi-functional as it can prevent blood-clotting, stop bleeding, prevent infection, or heal the wound.

Very few of the parents mentioned traditional remedies as part of the correct treatment for dog bite injuries, however some explained that they heard of their success. Most of parents, however, considered that the application of these traditional remedies would not guarantee that their children would be protected from rabies. Parents have more faith in modern treatment compared to locally-derived medicine. They feel reassured that the vaccine can prevent them from getting rabies.

“Doctor and vaccine. We have more confidence in vaccine. Compared to oil, we do not know if the oil can really eliminate rabies or not. For sure, vaccine really kills it.” P18

One mother also mentioned that the rabies virus is more powerful nowadays compared to former times when she saw many people healed only by using coffee powder.

“The traditional treatment is old now. In the past, if dog bit you, I still remember when I was still 5th grader coffee powder could heal it. Now, why can’t [the wound] be healed? The virus is too powerful. Yes, in the past, I just used coffee powder, flour, betel leaf, betel fruit, galangal, and it was healed.” –P13

5.2.4. Parents’ perception about professional capability
Almost all parents in this study never complained about the capability of professionals who engage in their child’s treatment. Some parents mentioned that they are confident and satisfied with the service given by the health professionals in their area. However, one parent was worried about the effectivity of anti-rabies vaccine when she saw how
it was dealt with, particularly at the free vaccination centre. For her, the vaccination room should be clean and the injection done carefully. However in reality, she observed almost the opposite.

“I felt unsure. Because, just after she took the vaccine, unlike other nurses, she did not pay attention where to inject it, she simply injected it. Therefore I was unsure. Not like when we go to doctors. They will press and press first, search which part needs to be injected. Here they just injected it. [...] Furthermore, I feel they did not clean the area. If someone wants to be vaccinated, the room has to be clean. There, it is open. I think the vaccination room should be closed. After they took the medicine from the pull box it should be sterile because it will be used. But it was not there.” – P17

5.2.5. **Anxiety to dog bite injury**

The initial reaction to a dog bite injury by the majority of parents was full of emotional expression. Words such as worried, panic, afraid, angry, cry, trauma, and shock appeared many times when they heard their children had been injured by a dog. Most of the parents said they were afraid that their children would get rabies and die.

According to the parents, emotional reactions may affect their engagement in the rabies prophylaxis treatment. Some parents mentioned when they were in an emotional state, they could not think but to seek help quickly either by going to midwives, hospital, or vaccination centre. Three parents were recorded to have gone to the health care facilities with the fresh wound because they were in panic. Others sought help by contacting their relatives or friends for advice.

The anxiety to dog bite injuries escalated when the treatment was delayed. Two participants in the interview explained during the delay, they always check their children’s breathe during the night, or if they felt sleepy or dizzy, or if they were afraid of light before finally taking them to be vaccinated.

“The thing is, I felt restless. I wanted night to change into day so that I could have that child vaccinated. That night when I fell asleep quickly I heard his breath. I was scared.” – P14

For two participants, the anxiety to dog bite injuries did not even change after the treatment had been completed. Even though their children had already been vaccinated, the anxiety towards dog exposure still remained for some time. One mother
and one grandmother mentioned that they always checked their child’s condition after the recommended treatment had been completed.

“I felt happy and unburdened because he had already been vaccinated. Yes, I felt nothing would happen. Yes, after vaccination it would be alright. But, I continued to check his condition, and his movements. I was afraid he might be afraid of water and light. Dangerous” –P18

5.2.6. Influence from previous experiences

The foregoing experience related to rabies can be a cue for parents to decide immediately whether to take their children for treatment. There were three parents who mentioned they had seen with their own eyes, someone who had contracted rabies in the past. According to them, this experience has made them afraid and they worry about their children. In the behaviour described, all three parents took their children immediately to the treatment centre to get help on day zero of the exposure.

“We were traumatized. My in-laws had a child once and the neighbour took the child to the hospital. I witnessed it in the hospital. The child’s hand were tied to the bed when he grappled. One of the adults said the child contracted rabies. I was afraid.” –P13

Three others who also took their child immediately for treatment mentioned recalled their experience of some years ago when there were so many rabies victims in their area. A grandmother who is also guardian of a child recalled a terrifying situation in the past when she heard almost every day on the radio that someone had died from rabies.

5.2.7. Effects from present situation

Not only a former situation, but also the present situation could also affect the immediate reaction of parents or a child’s guardian to seek rabies prophylaxis treatment. Five participants described that the area they live in right now is not yet free from rabies. Two parents admitted that the rabies virus still exists in Flores Island. Three other mothers declared that they often heard about rabies cases in their area. One mother further explained that rabies is still actively reported by the media.

“Because here is still an endemic area. In recent years, we in Ngada were included in the endemic area. I will go and get vaccinated not only for dog, but also cat scratches.” –P10
5.2.8. **Presence of children as a cue to take action**

Engagement to the treatment can be influenced by emotional bonds between parents. Two mothers who find help immediately after a dog bite injury described that the reaction and the appearance of their children just after the incidents made them so emotional. Two parents and one grandmother further described that the feeling of losing their children made them afraid and they panicked.

“In my mind. Because he stays with me, even though he is not my biological child. Even though I’m his grandmother. I I see him as my own child. Therefore I had to react. So yesterday, because I felt he was my own child, I have children too, I tried to call my niece to ask her if there was any vaccine. I will try and go to the doctor because I have never been treated by Doctor Ivan. He also has it.” –P20

5.2.9. **Social practice as a cue for action**

How people usually practise and respond to dog bite cases in society can influence parents to engage in rabies prophylaxis treatment. This was revealed to one parent. What a community usually did to a scratch resulting from dog bites has influenced how she felt about the risk of dog bites.

“Yes it is. Afraid. I hope it will not end up like that [rabies]. This is because trauma. It is not me alone. There are many people out there like that. Sometimes they come at night. Or, yesterday the dog bit. Dog bit. We saw there was no wound, only a bit of a scratch.” –P10

5.2.10. **Reinforcement**

The final part of automatic motivation is reinforcement. Even though, this cannot per se be linked to the automatic motivation which occurs in parents, but a strategy which can initiate automatic motivation among children. Through interviews, parents tried to use ‘punishment’ and ‘reward’ cues to influence the willingness of children to engage in the rabies prophylaxis treatment. Two parents mentioned they attract the children by giving them a gift following the treatment.

“Yes, and then for the second visit he told to me he wants fried food so that his leg will not feel hurt. [...] he loves banana fritters. [...] He said he wants to do it if he holds a banana fritter in his hand. So, I bought it from the market above, and gave it to him. Yes, during the vaccination he held and bit it.” –P18

Some parents also mentioned that they would try to sew thoughts of anxiety about the consequences of dog bite injuries to increase their willingness to go for treatment.
“She was crying. [...] He was so restless. Afraid of the syringe. But it was not so difficult. I told him if he refused the injection, his leg would have to be cut off. This is why he wants to do it. If he refuses, it means his leg will be cut off. This wound is from dog a bite. If the wound spreads above this area, then his thigh will be cut out.” —P15

5.3. Opportunities according to parents
5.3.1. Availability of health facilities and support
There are four types of health facility which parents sought for treatment following the injuries. These facilities are government-owned including general hospital, community health centres, the anti-rabies vaccination centre; and privately-owned facilities including clinics and drug stores. They provide either one or both components of post-exposure prophylaxis treatment for rabies. According to parents, the general hospital and community health centres can provide first-aid and wound treatment such as stitching or other treatments for dog injuries. The anti-rabies vaccine itself is free-of-charge in the anti-rabies vaccination centre and has to be paid for in the privately-owned facilities.

“If not here, in community health centres, FMN [private provider], or by going to Doctor Ivan. Ah. With him it is more expensive.” —P19

The above-mentioned facilities can be categorised as the official places for parents to find treatment following exposure to dogs. In addition, there are also non-official places where victims can seek help. Health officers who work for the village for example. One mother mentioned she went to the midwives in her village to seek treatment as she did not know where to go during her moment of panic.

“At that time, what I had in mind was just go to the midwife [in the village]. No one told me to do so. It was because I was afraid of this dog. This is my only child. My one and only.” —P15

5.3.2. Availability of free vaccine
According to data from Ngada Department of Health in late November 2015, Bajawa residents are the biggest recipients of free anti-rabies vaccine in the entire Ngada area. This marks there is a high demand of free vaccine in Bajawa. This is supported by the majority of parents who also mentioned the vital need of the free anti-rabies vaccine. Most of the parents prefer to have free vaccines for cost-related reasons.
“Other than that, I am not thinking about the price. In a private doctor’s surgery the price is expensive. One injection is 500.000\(^1\). So, I am not thinking about free stuff. By chance it was available and our government has provided it.” — P1

In the middle of great needs however the availability of free vaccine cannot be predicted. The government has already supplied thousands of anti-rabies flacons, according to health officials. However, it always run out quickly. At some moments or even for months at a time, health workers explained that there would be an absence of free vaccine. If no free vaccine is available, parents, however, are willing to search for vaccine in other places such as providers in the private sector. No parents ever mentioned that they would stop searching for vaccine if the free vaccine has run out.

Based on an interview with a health worker working private provider, the availability of vaccine in her centre is always available throughout the year, even though the regular supply can be said to be limited. She added, if the demand is high on the private scale, then supplies may possibly run out as well. If there are no supplies in Ngada, some parents mentioned the possibility to search for anti-rabies vaccine in the neighbouring regencies,

“What I am afraid of is if the [free] vaccine is not available. It means I have to go anywhere to look for vaccine. I have thought about it. [...]. The private doctor, that night I called him. He said one vaccination would cost 450.000 rupiah. Only for one hand. On the right one, and the left one. That means one vaccination at a time vaccine would cost 800.000 rupiah\(^2\). [...] But, if there is really no [free] vaccine anywhere, I have to force myself to go to that private doctor.” — P17

5.3.3. Accessibility to the vaccination service
The opening-hours of vaccination centre

Besides distance and mobility, the opening hours of health facilities can also be seen as one factor affecting the access to PEP treatment. The reason why opening hours is important is because the nature of dog bite injuries themselves is an emergency.

According to health officials, the free vaccination service centre, is officially open for 24 hours 7 days a week. However, most parents in this study are not aware of this information. For them, the opening hours of the free vaccination service centre are limited to working hours. This is found to affect the urgency of some children to obtain

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\(^1\) Approximately €33 (€1 equals to IDR 15000)
\(^2\) Approximately €53 (€1 equals to IDR 15000)
vaccine treatment. Based on interviews with parents, nearly all of the children who were injured on weekday afternoon delayed their vaccination for some hours or until the following day.

“At that time, according to the explanation from the nurse. I am not blaming the nurse. This is based on the explanation from the nurse, which maybe the best for them. Even so, Saturday, Sunday, it is closed, right. [...]. Based on our experience, we know that office people do not work on Saturday or Sunday. Yes, for the government. This is government department. From what I think, I don’t know if they are open or not.” –P11

**Mobility to seek treatment**
Accessibility to treatment can be closely related to mobility. Interviews with parents from Bajawa described that the effort needed to reach the health facilities has already been supported with several modes of transportation which are not difficult to find. According to parents, a motorcycle is the most frequent mode of transportation that they used to visit the health facilities. This is either their own motorcycle or Ojek (the motorcycle taxi). Some parents already have their own motorcycle and others used Ojek. Ojek can easily be found in Bajawa. Other than ojek, ‘Oto’ (mini taxi cab) was also used by parents. One parent also explained that the time spent to reach the facility is not long.

**Uncomplicated administration**
According to the interviews with health workers both in the private (FMN service) and public sectors, there is no need for complicated procedures to enable patients to obtain services in health facilities, for example, providing a letter of reference or other supporting documents from a doctor or other authorities. Dog bite victims may access help for wound cleaning and vaccination by going directly to the health facilities. Three parents explained that the service at the free anti-rabies vaccination centre was fast and uncomplicated. One parent mentioned it only took 10 minutes inside the vaccination room. Another parent added that the vaccination was done immediately after she arrived.

**5.3.4. Affordability of vaccine**
The affordability of vaccines is one of the important factors that may influence some parents’ decisions in choosing treatment for dog bite injuries. Although, in many interviews parents explicitly stated that 'child safety' is more important than the 'cost'.
Considerations about the cost of vaccine continues to be one of the facts which surfaced in interviews with parents. As also have mentioned before, that free vaccination is still urgently needed. The option to pay for vaccines offered by the private sector is still the least desirable option or 'forced' option as described by parents, because of the high price of vaccine.

“Suggestion for the government, the supplies must always be available so that the community do not have to pay to a private doctor. Even more so, it has to be minimum of two or even three injections. The price is high. In a week, 900.000 rupiah, is quite a lot to pay. However, if we give it back to the community, and they are aware of the vaccine.” –P2

5.3.5. Support from social network

Having a health worker as a friend in a social network may influence the engagement of prompt treatment among the children. Some parents mentioned that they were helped by the information they got from their friends or relatives who worked in a health facility. The information parents mainly wanted to have was about vaccine availability and where they could find it. Support from personal networking may be beneficial for the parents.

“I said, I called his uncle who by chance is working in the health department [anti-rabies vaccination centre]. So they have access to information. [...] I hope the health department always has available supplies. It was by chance because I have a niece there. If not, maybe I would have to go to the community health centre, or pay a doctor” –P20

5.3.6. Social supports and from neighbours

Neighbours can play a role in parents’ decision-making. According to the interviews, neighbours have influenced them in giving advice, warnings, or instructions about what should be done in case of a dog bite injury.

“There were reactions from people who heard. This child told me. People around responded. They said, first wash [the wound] with soap. And then I had a spontaneous feeling to go to the community health centre. [...] At that time, there were so many people who came suddenly.” –P11

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3 Approximately €60 (€1 equals to IDR 15000)
4 ‘Uncle’ in Indonesia is used as a polite call for adults male. No family relationship is required to be able to call someone an uncle.
In addition, according to the parents, neighbours can also be a means of support for continuity of the treatment. Some parents mentioned that neighbours reminded them or their children to make the second vaccination visit. Other support given by neighbours is also related to their role in the social setting. The existence of neighbours has created the identity of a community in a way so that they are responsible and look after each other in dog bite cases. Indirectly, they can also increase the responsibility of parents to take charge of dog bite injuries by creating a supportive atmosphere.

“Finally people can say, you can’t take care of your child. People said, these parents, their child has been bitten but what, this is a dog - why is there no reaction. [...]?. If we are silent and do not seek treatment, people will say, why are these people reacting so calmly to dog bites, they are really calm, don’t they feel burdened?” –P9

5.3.7. Support from nearby health workers
Based on the interviews, most parents described the role of health workers who live nearby the participants as very important to lead them. Health workers are needed to explain what steps they need to take after the bites occur. In a moment of panic, some parents could decide to wash the wound immediately and take the child for vaccination because they followed the health worker’s advice who live nearby them.

“At that time, he injured his left calf. In this area, for prevention, there is no subsidiary health centre. There is no preventative medicine. Therefore I must go to the hospital. [I got the information] from village midwife here. [She said], “You have to go to the hospital. But you must wash it before you go. Wash it clean with soap. You don’t know it? Right?”” -P15

5.3.8. Social responsibility of dog owner and the possibility of conflict
Based on the interviews, most parents described the role of health workers who live nearby the participants as very important to lead them. Health workers are needed to explain what steps they need to take after the bites occur. In a moment of panic, some parents could decide to wash the wound immediately and take the child for vaccination because they followed the health worker’s advice.

“At that time, he injured his left calf. In this area, for prevention, there is no subsidiary health centre. There is no preventative medicine. Therefore I must go to the hospital. [I got the information]
from village midwife here. [She said], “You have to go to the hospital. But you must wash it before you go. Wash it clean with soap. You don’t know it? Right?” -P15

5.3.9. Social responsibility of dog owners and the possibility of conflicts
In Bajawa, parents said that the dog owner must take responsibility to prevent biting even though according to some parents this is not an official rule. In cases where the incident happens, the dog owner is responsible for paying for the entire treatment given to the victim and also for taking control of the dog who caused injury.

“If this is related to the case of a dog bite, then the dog owner should handle all of it. She has done her entire part. I never knew how much she paid. […]. Even more, she offered, to take the child again if the wound had not healed.” –P12

The sanctions for not complying with this can be both a personal conflict or in a neighbourhood setting. Some parents said that the head of village and the villagers have an important influence to put pressure on dog owners to take responsibility.

5.4. Conclusion
Below, a brief conclusion is made to represent the findings from this chapter.

Capabilities
Unusual behaviour such as biting people without provocation was the most recurrent feature of rabid dog mentioned by parents. Mainly, the parents knew that rabid dog could expose rabies to humans. To avoid rabies, parents mentioned to perform wound cleaning and seek vaccination. Vaccination was more often occur than wound cleaning. In wound cleaning, water and soap were mainly considered as the proper ingredient. Add to that, some parents also mentioned to use hot water. Rinsing, brushing, rubbing, or wiping the wound with cloth were considered as the proper wound cleaning methods. In practice, parents were involved the most in cleaning the wound. Besides wound cleaning, the application of traditional herbs were still used as the main or complementer ingredient for wound treatment. In seeking vaccination, mainly parents saw that immediacy is important. In addition, the capacity to memorise health worker’s advice at the first vaccination visit and organising the visit were important for parents to accomplish the treatment.
Motivations
Parents believed that dog exposure will lead to many negative consequences for their children including rabies and death. All types of dog (including domestic, free-roaming, and vaccinated dogs) and types of wound were perceived to contain rabies risk for the majority of parents. Some parents, however, believed that superficial type of wound will not lead to rabies. To avoid rabies, parents mentioned vaccination and wound cleaning as part of the treatment to be conducted after dogbite injury. Seeking vaccination was repeated more often than performing wound cleaning. The effectiveness of vaccination to prevent rabies was associated with the immediacy, the professional people behind vaccine, the failure of traditional treatment to tackle rabies, and the completeness of the vaccination series. Even though traditional treatment was not considered again as the main treatment for dogbite injury, herbs were still used because parents believed it could help treat the wound. Besides considering the effect of dog exposure and its treatment, parents also energised by emotions toward dogbite injury, the history of rabies in the area, the rabies situation in present time, and the usual practice in the society. Moreover, the fear of losing a child has involved in the health-seeking behaviour of parents as well.

Opportunities
Based on interviews with parents, Bajawa has provide opportunities that can make the engagement for rabies PEP possible. The accessibility to vaccine has been supported by the availability of public (free) and private (paid) vaccine providers, various local mode transportations, and uncomplicated procedure at the health centre. The possibility that vaccines will be run out and the limited opening-hours of free vaccine provider are two points that may weaken the engagement to rabies PEP. Besides visible resources in the environment, society is also source of opportunities. Neighbors and social network have provided parents with direct supports such as information, advice, or help. In addition, society also provides indirect support with a set of norm where people have to take care of each other when dogbite injury happens. The involvement of dog owner to give moral and financial support for the victims is also endorsed by the norm in society.
6. Result III: Possible mechanism to reach immediate, appropriate, and complete rabies post-exposure treatment

In this chapter, I will try to integrate the findings above and discuss the mechanisms which can explain children’s engagement in rabies prophylaxis treatment in Bajawa. Firstly, an overview of the results mentioned above has been put in a table which is in Appendix 1.

6.1. Children’s engagement in rabies post-exposure treatment in Bajawa

In this study, children’s engagement following exposure to dogs is expected to be (1) immediate and appropriate in the local wound treatment and to be (2) immediate and have a complete series of vaccinations and/or RIG. Based on the results above, it can be said that the immediacy to seek post-exposure prophylaxis treatment following dog bites has been very high among participants. Nevertheless, postponing the treatment for some hours or even days still happened. Many children involved in this study also have completed the series of vaccinations recommended by local health workers (others were still engaged in on-going treatment when they participated). The RIG however is not given in Bajawa, therefore the completeness of RIG will not be discussed further. Furthermore, various method of local wound treatment is also found among parents, making the appropriateness to wound cleaning as questionable.

6.2. Immediate and appropriate wound treatment

Immediate of wound cleaning

The majority of children in this study already obtained the first component of rabies prophylaxis treatment immediately following the dog bite injury. Parents were found to be the individuals most involved at this stage. Most of parents were found to be quick and responsive in performing the procedure for their children. Even though, a few parents were late cleaning the wound which was likely because of a lack of knowledge about the correct procedure or they were panic-stricken.

Even though the parents can be considered to be the main actors in performing wound cleaning, the immediacy of children’s engagement to rabies prophylaxis treatment was not only influenced by them. Children also played a very important role in accelerating the immediacy of wound treatment. Based on the results above, three major roles which can endorse the immediacy to engage in wound cleaning are attached to children. Firstly, children are potentially involved in the wound-cleaning process, their active participation is essential for wound notification, along with their willingness to join in the treatment is also desirable.

From the findings, immediacy to the first rabies prophylaxis treatment among children in Bajawa is likely to be effective when:
1. Both children and parents already have the knowledge that wound-cleaning is an essential part of the treatment for dog bite injuries.

2. Both children and parents believed that exposure to dogs can have severe consequences.

3. Both children and parents perceived that dog status (vaccinated and ownership) does not guarantee risk-free rabies.

4. Both children and parents believed that all types of wounds from dogs can potentially cause rabies (including scratch types of wound, in which contrasting opinions often occur).

5. Both children and parents believed that wound-cleaning would lower the risk of rabies.

6. Children are willing to report all types of wounds (including scratches in which contrasting opinions often occur).

7. Parents have the capacity and confidence for wound-cleaning.

8. Parents were supported by the environment in which the owner of dog was willing to be responsible and there is a convenient and fast way to obtain advice or help to perform wound cleaning.

It is worthwhile considering that immediacy may have also happened automatically. Many times the children and parents were found to be quick in finding help in the midst of an emotional situation. Most of the children in this study stressed that the wound in itself was terribly painful and parents also displayed lots of negative emotions just after they had been notified that their children had been attacked. Furthermore for some children, the possibility of being punished has lowered their willingness to report their parents.

Below the diagram of possible mechanism to the immediacy of wound cleaning has been made.
Figure 5. Possible mechanism that explains the immediacy of wound cleaning.
**Appropriateness of wound treatment**

Besides immediacy, appropriateness to wound treatment (wound-cleaning and other treatment applying to the wound) is questionable. Even though most of the time parents were found to be prompt in the wound-cleaning process, yet very often there are inconsistencies in the given procedure. Even though many used water and soap, various ingredients such as hot water, water only, salt, and traditional herbs also frequently mentioned. The massive wound cleaning techniques are also often described, although rinsing seems to be the only technique used by most parents. These include brushing or rubbing the wound and even a few only wiped the wound with a cloth. Parents are also likely to use subjective measures such as giving a sign to finish the wound cleaning process. Wound cleaning is ready when bleeding stops or no more blood comes out of the wound or until the ‘white meat’ appeared in the wound.

According to the findings, not only parents’ but also children’s cooperation in the appropriateness may also be necessary. Several factors which may influence or improve the appropriateness to wound cleaning are:

1. Both parents and children have the correct knowledge about wound cleaning; both have the skill to clean the wound properly and be confident about it.
2. Both children and parents should be aware of the consequences to dog exposure.
3. Parents believed in the benefits of wound cleaning and perceived it as the best procedure compared with traditional ways.
4. Children are willing to make an urge to report their wound.
5. Parents and children have a supportive environment in which they can find assistance or the correct instructions about wound cleaning.

It is also important to note, that parents seemed to be involved in influencing their children’s skills for cleaning wounds as most of the children mentioned that they got the knowledge from their parents. In practice, some children who tried to do the wound cleaning process themselves, followed the procedure in a similar way to that of their parents.

Below the possible mechanism to the appropriateness of wound treatment has been made.
Children as dog bite victims

**Capability**
- Psychological
  - Knowledge about rabies in human
  - Knowledge about wound cleaning for dog exposure
- Physical
  - Wound cleaning skills

**Motivation**
- Reflective
  - Consequences of dog exposures and rabies in human
  - Risk perception to dog status and type of wound
  - Beliefs about benefit of wound cleaning
  - Perception about capability to do the wound cleaning
- Automatic
  - Parental role and punishment

**Appropriate Wound Cleaning**

**Opportunity**
- Social
  - Instruction or help from personal network and neighbor
- Physical
  - Availability of health facilities

Parents

**Capability**
- Psychological
  - Knowledge about rabies in human
  - Knowledge about wound cleaning for dog exposure
- Physical
  - Wound cleaning skills

**Motivation**
- Reflective
  - Consequences of dog exposures and rabies in human
  - Risk perception to dog status and type of wound
  - Beliefs about benefit of wound cleaning
  - Beliefs about traditional remedies

Figure 6. Possible mechanism that explains the appropriateness of wound treatment
6.3. Immediate and complete series of vaccination

Immediacy in vaccination

Almost all of the children in this study had their first vaccination promptly after being injured. Many children were responsible in informing their parents about their injury which enabled them to be vaccinated quickly. None of the parents made the decision to avoid or stop following the vaccination procedure. Nevertheless, there were delays of several hours and even days. The main reason for delaying vaccinations was the time difference between the incident and the opening-hours of the facility. Parent’s whose child was attacked by a dog in the afternoon or at night also on Friday afternoon could be said to have the greatest possibility of postponing the treatment. In children’s experiences, delays happened because they were unwilling to report the injury due to fear of punishment and of the injection.

In conclusion, some factors which are believed to have influenced the immediacy to vaccination are when:

1. Both parents and children perceived that scratches could also lead to rabies.
2. Both parents and children perceived that all exposures to dogs have severe consequences despite the status of a responsible dog or type of wound.
3. Parents and children are aware of the benefits of vaccination after dog bites
4. There is a supportive environment in the neighbourhood which sets the norm to increase the responsibility of a dog’s owner and its presence All parts of community is responsive to the children’s dog bite injury, information about vaccine is available for all parents, vaccine is affordable and accessible, particularly when the treatment centre is open longer.

Immediacy to the treatment may also occur automatically. As previously mentioned, parents and children become very emotional when the dog bite incident occurs. Anxiety to punishment and a syringe has caused children to postpone their treatment. Common practice in a community can also influence the decision to take the children immediately for vaccination. Usual practice in society has led parents to search for vaccination immediately despite the perception about the size of wound or the dog status.

Below, the possible mechanism to the immediacy of vaccination has been made.

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5 The vaccination centre which provides free anti-rabies vaccine
Children as dog bite victims

**Capability**
- Psychological
  - Knowledge about rabies in human
  - Knowledge about vaccination as rabies PEP

**Motivation**
- Reflective
  - Consequences of dog exposures and rabies in human
  - Risk perception to dog status
  - Risk perception about type of wound
  - Beliefs about benefit of vaccination
- Automatic
  - Stress after dog bite injury
  - Previous experience regarding injection
  - Reinforcement from parents

**Opportunity**
- Social
  - Influence from neighbor
  - Support and influence from children’s peers
  - Responsibility from dog owner
  - Information about vaccine availability
- Physical
  - Accessibility (longer opening-hours of health facility, uncomplicated administration, reachable distance to health facility, availability of transportation)
  - Affordability and availability of vaccine

**Immediate vaccination**

**Parents**

**Capability**
- Psychological
  - Knowledge about rabies in human
  - Knowledge about vaccination as rabies PEP
- Physical
  - Interpersonal skills and organisational capacity

**Motivation**
- Reflective
  - Consequences of dog exposures and rabies in human
  - Risk perception to dog status
  - Risk perception about type of wound
  - Beliefs about benefit of vaccination
- Automatic
  - Presence of children
  - Anxiety to dog bite injury
  - Common practice in society
  - Influence of past experience
  - Affects from rabies situation at the present time

**Figure 7. Possible mechanism that explains the immediacy to seek vaccination**
Complete vaccination

A complete series of vaccinations is also part of the necessary rabies prophylaxis treatment. Most parents in this study reported that their children already followed the complete vaccination process recommended by the treatment centre they attended. None of the parents mentioned the intention to stop the vaccination process for their children.

Based on the findings, the completion of rabies prophylaxis treatment among children is achieved by the involvement of parents, children, and health workers. Health workers need to provide the schedule, parents need to pay attention to the messages from health workers, and children could remind their parents, if necessary.

Furthermore, to achieve complete the vaccination series, children’s experience to injection could play a part as well. Some children felt positive and more willing to follow the next series of vaccinations when their first injection experience felt positive. Many children who experienced the first injection as ‘not painful’ or ‘bearable’ are content to follow the next series of injections.

In terms of completing the treatment, neighbours can be influential. Certain norms in a community in which parents must be responsible for the children are likely endorse the fact that parents will accomplish the entire treatment process. The dog owner may also play a role in accomplishing the treatment as this is also part of their responsibility towards incident occurrence.

Below, the possible mechanism to the completeness of vaccination has been made.
Figure 8. Possible mechanism that explains the completeness of vaccination

Children as dog bite victims

**Capability**
- Psychological
  - Knowledge about vaccination as rabies PEP

**Motivation**
- Reflective
  - Consequences of dog exposures and rabies in human
  - Beliefs about benefit of vaccination
- Automatic
  - First vaccination experience

**Opportunity**
- Social
  - Influence from neighbor
  - Information from health worker
  - Responsibility from dog owner
- Physical
  - Accessibility (availability of transportation)
  - Affordability and availability of vaccine

Parents

**Capability**
- Psychological
  - Knowledge about vaccination as rabies PEP
  - Memory and attention to vaccination schedule

**Motivation**
- Reflective
  - Consequences of dog exposures and rabies in human
  - Beliefs about benefit of vaccination
- Automatic
  - Anxiety to dog bite injury
7. Discussion

7.1. Children’s engagement in post dog-exposure prophylaxis in Bajawa

As mentioned previously, children’s engagement after dog bite exposure is expected to be (1) immediate and appropriate in local wound treatment and to be (2) immediate in seeking and have a complete series of vaccination. Based on the results above, the immediacy among parents is already high. Many children involved in this study also have completed the series of vaccination. Still, postponing is likely to occur for some permissible delay (<24 hours) until late (>24 hours) after the incident occur (NCDC India, 2013). Lack of appropriateness of local wound treatment is found after cross-checking with the recommendation from WHO. The results below will be discussed with support from literature. Some variables may be considered as new in regard to the specific context of this study.

7.2. Influence of capabilities to engage in necessary PEP treatment

The domains of capabilities include the participants’ knowledge and awareness about rabies in dogs and humans, the post dog-exposure treatment, memory, attention and planning the treatment, which are found to influence the immediate, appropriate, or completeness of dog bite treatment.

Knowledge and awareness about rabies in dogs

The participants’ high awareness about rabies in dogs is likely to influence their immediacy to seek post-exposure treatment after bites. This happened not only in parents but also children. According to Hampson et al. (2008), the awareness that the responsible dog was having rabies has become the reason for the dog bite victims to follow the necessary PEP treatment when injured. In this study, parents have a high familiarity with the features of rabid dogs. In fact, almost all parents could describe correctly the features of a rabid dog. These are biting without any provocation, eating abnormal things, running for no clear reason, sensitive to humans, like to stay in darkness, have excessive salivation and foaming, and hydrophobia (WHO SEARO, 2013; Global Alliance for Rabies Control, 2016). It can be concluded that the high capability of the parents to recognise a rabid dog is involved in endorsing their responsiveness to the dog bite injury.

Unlike parents who could describe many abnormalities in a rabid dog, children could only mention two features correctly, including the tendency to bite people and excessive salivation. Almost all children judged rabid dogs mistakenly. According to them, physical characteristics such as having sharp teeth and even being pregnant are considered as dog rabies features. This is in line with the findings from several studies which found that children could not identify the behaviour of a rabid dog (Dodet, 2009; Khazaei et al, 2014; Jain and Jain, 2013). It is interesting, however, to see that low
awareness of the features of rabid dog in children in this study did not reduce the immediacy of children reporting to their parents. This study cannot explain clearly how much the effect of children’s awareness about rabies dog influenced their involvement in rabies PEP. However based on the results, it can be considered that the reason children sought help immediately is because they tend to overrate the feature of rabies in dog. No literature that explains this similar phenomenon have been found.

The second reason which endorse the immediacy to PEP is likely to be the awareness about human rabies in children and parents. Hampson et al. (2008) described that knowledge about rabies’ impact is important to influence people to find treatment. In this study, not only parents but also a few children are already familiar with the consequences of rabies in human. Mimicking the behaviour of rabid dog such as the tendency to bite or scratch and scream like a dog as well as convulsions, hydrophobia, and excessive foam in mouth, and premature death are in line with the common signs and symptoms of furious type of rabies released by World Health Organisation (WHO SEARO, 2013; WHO, 2015). None of the participants however recognised the paralytic symptoms of rabies which is known to be more subtle (WHO SEARO, 2013).

The third possible reason that can explain the attitude to engage in rabies PEP is the knowledge about post dog-exposure treatment. Again the study from Hampson et al. (2008) remarked the importance of rabies PEP knowledge because it can influence much the health-seeking behaviour among animal bite victims. In this study, both children and parents already knew two components of rabies PEP including vaccination and wound cleaning. Vaccination seemed to be more popular for the participants. Wound cleaning was also mentioned as one part of the treatment, but not as often as vaccination. It is possible that their familiarity to vaccine occurs because both parents and children already went through the dog bite experience in the past. Some parents did obtain knowledge about PEP after having their first dog bite case experience.

**Knowledge and skills of wound treatment**

As mentioned earlier, one of the concerned behaviour components is the appropriateness of wound treatment. This appropriateness is closely linked to the level of knowledge and skills to perform the proper treatment.

Based on the results, knowledge and wound treatment skills about proper wound cleaning is likely to be low among parents and children. The inappropriateness in wound cleaning especially regards the method used by parents and even children. Even though some parents already knew and practically have used water and soap, many are still mistaken. According to WHO SEARO (2013), washing and rinsing the wound should be done with water and soap, at least 10-15 minutes under running water. Only very few children and parents mentioned the recommended amount of time for wound
cleaning. Instead of using time, many parents often used their subjective judgement to determine the readiness of wound cleaning.

For parents the aim of wound cleaning is to force the blood to come out and stop the bleeding. However, this is in contrast with the recommendation as the aim shall be to remove as much as dog saliva which may be present on the wound (NCDC India, 2007). Moreover, extreme methods including brushing, rubbing, pressing the wound, and forcing the ‘white meat’ to appear are often known and used by parents and children. Even wiping wound with cloth is also done. According to NCDC India (2013), these methods can potentially worsen the condition of the wound, because wound cleaning shall be performed gently. The aim shall be to avoid expanding the skin trauma, even touching the wound with bare hand shall be avoided (NCDC India, 2013). The use of prohibited ingredients on the dog bite wound is also mentioned as part of proper treatment and practically has been performed by parents to their children. For example, instead of using normal water, three parents used hot water to rinse the wound. As part of wound treatment, some also applied salt and several local herbs which are considered as irritants such as tamarind seeds, betel leaf, lime, and oil (NCDC India, 2007; Amin, 2011).

Parents’ skills to perform wound cleaning is vital to achieve children’ immediacy in rabies PEP. This is because parents, especially mothers, are often time sought by children just after the dog bite incident occur. Many children mentioned themselves as capable to do the wound cleaning, however some children are still not confident about the procedure and about the result that they will have if they perform the wound cleaning alone. Children often relate to their mother for wound cleaning efforts. Among children who have done the procedure alone, the way children have done it is likely to be similar to how their parents perform the wound treatment. This suggests the importance of parents in influencing the behaviour of their children when facing the incidents (Mechanic, 1964).

**Memory, attention, and organising skills**

Regarding the completeness of necessary PEP memory, attention, interpersonal and planning skills to engage in PEP are also vital. These capabilities are likely to be missed among children. Therefore adults can be said to hold a vital role for the completeness of rabies PEP.

According to the literature, anti-rabies vaccination in Indonesia consists of series of injections and visits to the health facility which may take weeks between one and other visits (Tanzil, 2014). To increase the successfulness of children’s involvement to the treatment, the parents’ memory and attention of the vaccination schedule will be important. Parents described this accomplishment is likely to have happened because
they memorised and were attentive to the message from the health workers on their first vaccination visit. Possibilities to forget the visit however can happen, therefore planning or strategy is needed. The presence of a reminder is found to improve the awareness of parents. In terms of interpersonal and planning capabilities, parents were also able to be involved in arranging the vaccination visit and resources needed to make the vaccination visit happen, monitor the dog during vaccination weeks, asking permission from the children’s teacher in school, accompanying children to the vaccination facility, and crucial formal matters in the health facility.

In conclusion, knowledge about rabies in dogs, rabies in humans, and proper treatment influences the likelihood of parents and children to seek rabies PEP. Besides, the knowledge about proper wound treatment is found to be important as the demonstrated skills are not always in accordance to the guidelines. Involvement of adults to organise the treatment is needed to help children to accomplish the treatment.

7.3. Influence of reflective motivations to engage in necessary PEP treatment
According to the results, the concepts of beliefs and perceptions are found to motivate the parents and children to (not) follow the necessary dog exposure treatment. Below these concepts will be elaborated.

Beliefs about negative consequences of dog exposure
For children and parents, a dog bite incident is a serious event because it leads to many bad consequences in regard to rabies disease. Believing that there is risk for rabies following the dog bite accident could increase the responsivity of children to report and parents to seek immediate treatment. Hampson et al. (2008) mentioned that the immediacy to find the treatment after dog exposure is linked to the acknowledgement about its fatality. In this study, the fatality that rabies can result in premature death after dog exposure is repeatedly occur. It can be assumed that the likelihood to seek PEP is endorsed by the depiction of devastating consequences about rabies.

The effect of perceiving more risks in unfamiliar dogs
The status of responsible dogs, both domestic and free-roaming dogs, is not found to contribute much in the immediacy to seek the treatment. The dog bite injury caused by free roaming dogs and domestic dogs are still perceived to bring negative impacts for children’s life. Children and parents still perceive the needs to promptly seek the prophylaxis or consulted to the health professional in both cases. It is likely that the unfamiliarity to the responsible dogs drives this behaviour. Joseph et al. (2013) found that the unfamiliarity to the dogs has contributed to a faster response to seek the treatment. The concept of unfamiliarity is not only mean that the dog has no owner. Tenzin et al. (2012) linked the unfamiliarity to the dog ownership status. He found that
many people were slower to seek treatment because they were bitten by other people’s dog (Tenzin et al., 2012). The similar situation also occurred in this study where most children described to perceive risk in the dog bite case which involved domestic dogs that not belong to them.

**The effect of perceiving rabies risks in vaccinated dogs**
Among parents, the wound caused by vaccinated dogs are still considered as dangerous and can possibly lead to rabies. Many parents still perceive the needs for vaccination in cases which include bites from vaccinated dogs. Dog vaccination is believed to only lower the chance of rabies, not to eliminate it. This finding is interesting because it illustrates the contrasting opinion released by WHO (2015) who described that dog vaccination will drive down the need for rabies PEP among dogbite cases. Dog vaccination has become the priority agenda in the effort of eliminating rabies in people (Gongal and Wright, 2011; Sriaroon et al., 2006). This finding demonstrates that there is a doubt to the effectiveness of dog vaccination among parents (the user), which drives them to constantly seek PEP.

**The effect of different perceptions on the types of wound**
Different types of wound size (scratch/superficial, small, and large) is likely influence the intention of parents and children to seek treatment.

Studies by Khazaei et al. (2014) and Hampson et al. (2008) showed the slower response to seek PEP occur when victims experienced small or superficial wound. Similar situation happens in this study. Some parents and children who perceived that scratch from dog as not important showed the tendency to not seek vaccination regimen. Even more, for children scratches does not need to be reported to parents or to be consulted to health professional. Several studies also revealed the same situations. Studies conducted by Khazaei et al. (2014), Matthias et al. (2015), Joseph et al. (2013) revealed that children with minor bites or scratches were tend to not inform their parents after dogbite injury.

Other than size, the development of wound can also trigger participants’ perception about the urgency to seek treatment after dogbite. A high chance of rabies is linked to the inflamed wound compared to the healed wound. In this study, the inflammed wound has increased the response of both children and parents to seek the treatment. In addition, to the type of wounds, the perception linked to the presence of blood has also triggered the urgency to seek the treatment. The presence of blood believe to be the sign that the wound is less dangerous for rabies. Similar findings due to these perceptions are lacking in the rabies literature.
Beliefs about traditional treatment
Parent’s beliefs to the benefits of traditional remedies for dog bite injury can influence the appropriateness of dogbite wound treatment. Most parents in this study still believed that herbs can be used as the main or complementer ingredients for wound treatment. According to Jain and Jain (2013), Dodet et al. (2008), Hossain et al. (2012), Amin (2011) and NCDC India (2007), the use of herbs for wound is inappropriate for dog bite management as it can give damaging effect to the wound. In the context of Bajawa, the influence of continual success from the previous generation is likely to influence parents to continue using herbs for dog bite wound.

Trusting the effect of vaccine
According to Hossain et al. (2012), trust to the vaccine result can influence the decision to engage in the treatment. In this study, the high trust to vaccine has endorsed the intention of parents and children to seek vaccination immediately. For parents trust to vaccine has affected the completeness of treatment as well. Vaccine is believed to be the best option over native treatment as it is believed to give healing effect to the wound and also prevent rabies to occur. The repeated successfulness of vaccine, the failure of traditional medicine, and the trust to professional people behind vaccine are reasons to believe in the effect of vaccine.

In conclusion, based on cross-checking with literature, similar situation shows that perceiving fatality in dog exposure, perceiving risk in unfamiliar dogs and in superficial wounds are all important factors that can drive motivation of parents and children to find PEP. It is worthwhile to consider that doubt in dog vaccination and high trust in human vaccination may drive parents to constantly seek PEP.

7.4. Influence of automatic motivations to engage in necessary PEP treatment
The engagement in PEP can also be driven by automatic processes. The role of emotion, which is triggered by various situations, has influenced the quicker decision to engage in the behaviour. These concepts will be discussed below.

The effects of anxiety on dog bite injury
The dog bite experience has resulted in many negative emotions among children and parents in this study. Emotional reaction has been shown to quickly result in the decision to engage in the treatment. This is in line with Petty and Cacioppo (1986) who stated that emotions may shape attitude and lead to the same desired behaviour without too much involvement in a cognitive decision-making processes. For the parents, the mere presence of dog bite injury, the local history of rabies, and the present situation are all giving cue that rabies exists. This has urged the immediacy of parents to search the treatment. For children, the negative emotions after dog bite
triggered fear, trauma, and physical pain. These feelings endorsed them to report immediately to their parents.

The presence of children
The sole presence of children can affect a quick decision for parents to find the treatment after the incident. The fear of losing a child and child’s condition after the dog bite incident have triggered empathy among parents to quickly find help. This is in line with the study in Bhutan which showed that the presence of children has endorsed the likeliness to seek treatment (Tenzin et al., 2012). In Nairobi as well, the vulnerability of children is the reason parents are more likely to find treatment (Taffa and Chepngeno, 2005).

Social norms
The usual practice in society can also drive the automaticity to search for treatment. In this study, parents were influenced by the usual practice wherein people showed the urgency to find the treatment, regardless of how big or small the size of the wound. The effect of this usual practice is linked to the role of descriptive norms. According to Cialdini, Reno, and Kallgren (1990), a descriptive norm directs behaviour by providing cues about what people usually do in the community. Beside descriptive norms, injunctive norms were found to also influence automaticity of the concerned behaviour. Injunctive norms direct the behaviour of the parents by telling what the community thinks they ought to (or not to) do (Cialdini, Reno, & Kallgren, 1990). The fear among parents to be judged by other people as the result of a lack responsiveness and responsibility of their children’s treatment is considered to direct the parents’ health seeking behaviour.

The effect of injection experience
The injection experience can be an important conditioning factor for children to engage in the PEP treatment. The positive experience with the syringe has increased the willingness of children to follow the treatment. Subsequently, the negative experience has made children refuse to engage in the treatment. This is in accordance with a study by Taddio et al. (2012) who found that vaccination compliance is linked to the level of needle-fears among children.

The effect of reward and punishment
The operant conditioning which consists of reinforcement and punishment, proposed by Skinner in 1938, has been known to have a role in shaping the behaviour of a person (McLeod, 2015). In this study, the reward and punishment are also recognised to influence behaviour, especially among children. The fear of both verbal and physical
punishment has weakened the willingness of children to inform the parents about their situation. In addition, reward has increased children’s willingness to accomplish the treatment. Reward and punishment can be two important factors that can be used as a strategy to trigger automaticity in children behaviour.

In conclusion, the similar situations which could show the effect of automaticity to rabies PEP uptake are lacking in the literature. However, some basic theories such as the effect of norm and operant-conditioning can explain that rabies PEP can also works beyond cognitive-processes. The emotions triggered by experience and present situation are likely to direct the adoption of PEP faster. Moreover, the mere presence of children and social norm provide cues for parents to immediately seek the treatment.

7.5. Influence of opportunities for children’s engagement to necessary PEP treatment.
According to Michie, van Stralen, and West (2011) opportunities are divided into two categories social opportunities and physical opportunities. In regard to the physical opportunities, resources available in society will be discussed. Whereas, with respect to the social opportunities the effect of social influence, social support, and the possibility of conflict in the societal context will be elaborated.

Accessibility of PEP in Bajawa
The accessibility to treatment can contribute to the support of children’s involvement in the necessary PEP. In Bajawa, the presence of a private vaccine provider has enlarged the opportunity for parents to meet the treatment. Besides that, the presence of public transportation is also available. A study by Joseph et al. (2013) revealed that the availability of a local mode of transportation is very important to influence the immediacy to PEP treatment. Next, the likelihood to access the treatment has also been improved by a fast and uncomplicated service in the treatment centre. Khazaei et al. (2014) showed that a straightforward system is known to influence the initiation to PEP treatment. The only barrier for the treatment access which is found in this study is the opening-hours of treatment facility, especially at the free vaccination service centre. Many parents and a few children found to postpone the treatment because this facility is only limited to working-hours. The same situation was also found in a study conducted by Joseph et al. (2013) where closed clinics have lowered the initiation to PEP.

Availability of vaccine
The uncertainty of free vaccine availability has become a concern for many parents in this study. At some period in the year, according to the health workers, there is
possibility that the vaccine supply will run out. The system which allows the existence of private vaccine providers and the possibility to obtain vaccine in the neighbouring regency has become an important asset for parents to fulfil the needs of PEP treatment for their children when this situation happens. Searching on neighbouring regencies nonetheless, can become another issue related to distance and time to search vaccine.

**Affordability of vaccine**
The affordability of vaccine can enlarge the opportunity to meet rabies PEP. Fang et al. (2010) and Hossain et al. (2012) revealed that vaccine’s affordability can determine the immediacy to access to the treatment. In Bajawa itself, the participants have been supported by the free vaccines provided by the Ngada government. According to Khun and Manderson (2007), through the free of charge policy, parents will not see vaccine as a commodity anymore with price attached to it. As an implication of this, the vaccine will be seen as a convenient option which then makes the opportunity to obtain vaccine outgrow. As mentioned previously, at one moment in Bajawa, the availability of free vaccines can be in shortage. In this situation, parents may return again to see vaccines as commodity. The high price of vaccine is always considered as a forced-option by parents because the demand in the area is also high. In conclusion, affordability can still be said as an important physical opportunity to meet rabies PEP.

**The mother as the most important supporter for children**
Parents become important individuals for children as they mostly rely on them for dog bite injury. According to Schor et al. (1987), for children’s engagement in every treatment, the role of parents is always important (Schor et al., 1987) Parents’, particularly the mother, are the individuals who children find the most in this study. This marks the importance of mothers as a person who takes care of health in the family. Especially in developing countries, children still relied the most on the role of mother for health-seeking behaviour (Khun and Manderson, 2007; Mbagaya, Odhiambo, and Oniang’o, 2005). The mother is also likely to be the best contributor for the children’s engagement in the treatment as they have power to judge the children’s condition and to influence other family members to seek the treatment (Uchudi, 2001; Goldman and Heuveline, 2000).

**Influence of social network**
The parents’ social network including their friends who work in the health sector and neighbour can enable the parents to access the treatment faster. Parents could access information about the availability of vaccines or instructions to perform wound treatment from their friends. A study conducted by Brunson (2013) showed that
parents’ decision for children’s treatment is affected by their social network in whom they can find advice and direction.

The presence of health workers in the social network is also important. Dezoti et al. (2013) showed that having a relationship with health workers in the social network can be an important part of social capital that serves support to the parents. Not many of the parents in this study however could have connection with a health worker and this had influenced the immediacy for children to obtain vaccine in this study. Expanding the chance of the parents to have a connection with health workers may become an asset to PEP management in Bajawa.

The role of dog owners
The involvement of dog owners can also widen the opportunity for children to engage in the rabies PEP. In Bajawa, the involvement of dog owners in the dog bite cases is encouraged by the norm that is set by society. Possibility for conflict can happen if the dog owner does not follow the rule in the community. This includes bearing all the treatment costs. In some cases, the dog owner must also show the initiative to give moral support to the victims and victims’ family. The same situation also happens in other endemic areas. In the Philippines, the dog owner has been given much attention under the Animal Welfare Act. This includes to shoulder all medical expenses incurred for the victim’s injuries (The Philippine Animal Welfare Society, 2013). It is still unknown if in Bajawa, a similar regulation concerning the attitude of dog owner has been released.

Finally it can be concluded that opportunities are needed to make rabies PEP possible for children. Similar situations in other literature have also emphasized this course. Availability of free vaccine seemed to be the most important thing to ensure the engagement of rabies PEP is immediate and complete because with free vaccine, rabies PEP will not be looked as a commodity. Literature also support the importance of having a supportive social environment. The involvement of mother is crucial for children. Not less important also the presence of social network and responsible dog owner to make rabies PEP feasible.
7.6. Implication of the research to the COM-B model

The COM-B model is a ‘behavioural system’ that contains an interactive model in which every component of the system has causal links to each other. Based on the model, if a change happens in one component of behaviour, the effect of this change can also influence other components in the system, either reducing or reinforcing them (Michie, van Stralen, and West, 2011).

In response to the previous nature of COM-B, what this research has found may add two possible concepts to this model. Firstly, the meaning of interactive links in this model may need to be explored again by exposing the model to separate groups in the society, with also taking into account the socio-cultural context of this group. For example in this study, the internal components that exist in children are likely not able to directly fructify in the desired behaviour. Parents hold the large control on the desired behaviour. As a result, the meaning of interactive links in the existing model will not be strong enough to explain the behaviour as it only falls in the concept of willingness. It is assumed that the high context prevailing in the community and the power-vulnerability attached to the children endorse this cause. The second thing is, there is a possibility that the interactive links between the components of behaviour does not just happen vertically among the behavioural components of one group, but also horizontally from one group to another group. For example, in this study, parents’ capabilities’ with the treatment could influence children’s awareness for rabies and their skills in wound cleaning. The relationship and the chance of intensive interaction between these two groups can possibly add more interactive links to the model.
8. Conclusions

Through exploration based on the theoretical domain framework of COM-B model, several factors involved in children’s engagement in rabies post-exposure prophylaxis in Bajawa have been found. From the results, it can be concluded that not only parents but also involvement of children is crucial to the successfulness of their engagement in proper post-exposure treatment after dog bites. The role of children is to accelerate the engagement of rabies PEP by both giving active report and willingness to join the treatment. Children were found to postpone the treatment because of several internal reasons such as fear to report, perception of the type of wound, and experience with injections. Nonetheless, the involvement of parents can be said to be the most crucial in the PEP uptake among children. Since they can both influence their children and they also have power for decision-making, their role is vital to make sure the engagement to rabies PEP can be immediate, appropriate, and complete.

Furthermore, several factors which can influence children and parents to engage in necessary rabies PEP were found from this study. These factors, which were explored through the COM-B model, remark the importance of having correct knowledge, awareness, skills, beliefs about dog exposure and rabies PEP, sustainable support from people and environment and also explain that the uptake for rabies PEP among children is likely to be driven by automatic mode. There are several important things which may need to be noted from the findings in relation to the uptake of necessary rabies PEP.

First, the knowledge about rabid dogs among children can be said low but the awareness of rabid dog is overrated. Many children seemed to exaggerate the feature of rabid dog as a dog who has sharp teeth. It is likely for children that all dogs who bite them are considered as dogs who can bring rabies disease. The same thing also happened among parents. Even though parents are more aware and have correct knowledge about rabid dogs, they are still likely to think that all dogs have the potential to bring rabies for their children regardless of their status.

Secondly, this study also found that some parents and children may still unaware that scratches wound can also cause rabies. Even, scratch is considered as a non-typical dog bite exposure. Furthermore from the majority, skin lesions, the presence of blood, and the inflammed wound are three important signs to notice the dog bite wound.

The third thing is related to the appropriateness of wound cleaning as it was found to be low among children and parents. Factors which endorsed this are likely to be the minimum knowledge parents and children have about proper wound cleaning, the minimum skill they have to perform it, and their beliefs about traditional treatments.
Next is related to the resources in the environment, particularly the availability and accessibility of both material and social support. For example, the availability of free vaccine is likely to be the biggest worry among parents in this study. Furthermore, the opening-hours of free vaccine facility was found many times to become the reason to postpone the treatment. Reachable support from social network and health workers can be said highly needed, in order to give advice and instruction for rabies PEP.

The last thing is about automaticity. Emotions were mainly found to not be a destructive factor for the uptake of rabies PEP; rather they were found to efficiently drive the parents and children to conform with the treatment. However it is worth considering that emotion can influence children’s willingness to inform the wound to the parents which in the end could reduce immediacy to PEP.

9. Relevance of this research to the knowledge gaps
Children are not only known as the most vulnerable group for rabies disease but also tend to be neglected in many related research (WHO, 2012). In response to the low involvement of children in rabies studies, this study serves as one study which can give new colour to enrich rabies research as this study involves children and provide their interpretation and experience to the dog exposures and its treatment. In addition to improving the body of knowledge on rabies issue, children’s participation in this research is also become one way to support the increasing need to empower children to be social actor in the society, in which they can be heard (Powel and Smith, 2009; United Nations, 1989).

Furthermore, the relevance of this study is linked to the context of Flores itself especially in Ngada regency where the information about rabies PEP uptake is low. The knowledge derived from this study may serve a starting point to fulfil this gap. Add to that, given dog bite cases and the number of children (0-15 years) who receive rabies PEP is high (426 from 1023 dog bite recorded cases per October 2015 at rabies vaccination centre), information from this study can also be used as a basis for programme evaluation. Finally, not only has this study provided factors influencing treatment uptake in children, the given mechanism which is intended to describe the possible path for rabies PEP uptake may also add more information to the body of knowledge concerning rabies.
10. Research strengths and limitations

Strengths

There are some factors considered as strengths in this study. First, this study was based on the examination of previous research findings. Knowledge gaps were derived from both through literature study and by consulting with people who worked in the field. Secondly, the adoption of various methods to separate groups were established. This might reduce the effect of researcher bias. Moreover, interviews with health workers and documents review have also done. The story telling interviews for children and in-depth interviews for parents were conducted. From storytelling interviews, a chance for a clearer interpretation about children’s situation was also reached since children were more able to express themselves and easier to engage in the topic. Next, the use of purposive sampling by using the record from rabies vaccination centre or find directly the victims in the field has enriched the information in this study. This study also allows a fair treatment to both children and parents for example by giving them the opportunities to refuse to participate and other conditions revealed in the consents. According to Shenton (2004), this means that participants who involved in this study are already opened to share and the data can be more trusted.

Limitations

There are some factors considered as limitations in this study. First is related to the transferability. As also other qualitative studies may encounter, the findings and conclusion from this study are likely impossible to be generalised in the larger area and population, due to the specific group and other social demography factors attached in the area where this research is conducted. However, according to the Shenton (2004), the findings may still applicable in condition if there is similarity on the context found in other population. Next to the limitation, there was no member-checks of the data collected to the participants. The reasons driven this decision were due to the anticipation of reading issue among some participants and time-related issue as the transcription process was unfortunately took longer from what the investigator has expected. Furthermore, investigator bias is also possible to occur as the findings might be influenced by the interpretation which follows the preferences of the researcher. The previously conducted literature study and the COM-B model which is used by the researcher can limit the more grounded interpretation on the results.
11. Recommendations

Behavioural factors and the possible mechanisms which may explain rabies post-exposure prophylaxis uptake among children in Bajawa have been described by this study. Several recommendations for practical use in the field and scientific purpose are established based on these results.

Practice

For practical use, the results from this study can become a platform for policy makers, public health practitioners, or rabies observers to evaluate the effectiveness of rabies PEP programs. The experience which derived directly from the user of the program may help them to see the general picture if the related on-going program is now walking in desirable way. Furthermore, the researcher also wants to invite practitioners and program planners to develop a program which is not only parents-oriented but also involves the children in the process. Even more than that, the findings also suggest to value the involvement of neighbours and dog owners in the effort.

From the findings, several things emerged which hopefully can be recommended for practice used in the field:

1) To improve both the knowledge and capacity of parents and children thus increasing their skills and motivation to perform immediate and appropriate wound cleaning.

2) To improve knowledge about dog bite wound severity and rabies in humans among children and parents to avoid misperception about the wound.

3) To give understanding for parents to be more positive in giving support when their children encounter any dog exposure case; this is especially needed to reduce the feeling of insecurity among children to report the incidents.

4) To endorse parents to be more supportive with children on their first experience with injection to overcome the influence of negative experience with syringe which may happen among children.

5) To influence all components in the community, including neighbours and dog owners on the importance of prompt, immediate, and complete engagement of rabies PEP. In the context of Bajawa, one way to increase support on this matter can be by emphasizing that “one child’s safety is everybody’s responsibility”. The local culture which values mutual obligation and harmony can support this cause.

6) To provide a supportive environment where there are accessible information about vaccine availability, a fast and convenient way to obtain help in wound cleaning, and longer opening-hours of the free vaccination service. For the latest, the researcher has obtained the information from local health officials that the free vaccination centre has been opened for 24 hours in 7 days. However, none of the parents in this study ever mentioned about this change. This may be due to lack dissemination of information to the community.
The last remark from this study which also acts as an invitation to further be discussed by practitioners in the field is the possibility that there is an over-used of rabies vaccine among children in the field. This conclusion comes from the frequent doubt the parents have shown for dog vaccination programs and the excessive fears of the rabies in the past. Most parents in this study thought that vaccinated dog will still bring the possibility to transmit rabies virus. As a further implication, if this is really the perception of most parents in Bajawa, the effect of the merit program for rabies elimination (which is mass dog vaccination) may be difficult to be evaluated on the surface.

Research
There are several recommendations in regard to further research this study can give. First, a quantitative study may be needed to see a better picture of rabies uptake in population and to see which components have strong correlation to the desired behaviour. This can be useful for further build effective intervention. This study may serve as a platform for a further quantitative study, in a larger population in Bajawa area or in another area in Flores which has a similar context with Bajawa.

Secondly, a study that can follow the parents and children from the start of treatment to the end of vaccination regimen and see the process may also be needed. The purpose is to have a more thorough explanation about the mechanisms that can explain rabies PEP engagement. The result may be useful to add more direction to the mechanism provided by this study. In addition, it can also better explain whether the first vaccination experience can also change the capability, motivation, and opportunities among parents and children for their future behaviour.

Thirdly, this study is not focused on exploring the appropriateness of vaccination. A further study can focus on this topic because the success of children’s engagement to rabies may also be influenced by this factor. Health workers and treatment centres can be involved with this purpose.

Next, further studies may involve respondents who never had animal bite cases before. The results of such study can be used to complement findings from this study, and to see how far the community is prepared to respond to dog bite injury. Last but not least, the role of emotion may also need to be explored more, as it is likely to direct the behaviour quickly. In the context of rabies PEP engagement based on this study, emotion can go in two directions, positive or negative. Further research may explore what the automaticity can offer on the PEP engagement and how to control it.

Finally, the “necessary” concept of rabies PEP uptake in this research is only limited to the concepts of immediate, appropriate wound treatment, and complete vaccination.
Further research may also explore the concept of “necessary” related to re-exposure treatment and the influence of PrEP on children’s engagement.
12. References


Appendices

Appendix 1. Overall review of findings

<table>
<thead>
<tr>
<th>CAPABILITY</th>
<th>Children</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge about rabies in dog</td>
<td>Rabies in dog was mostly judged based on its physical appearance and its abnormal behaviour. Most of children mentioned that a rabid dog has sharp teeth and like to bite humans. A few children mentioned rabid dog is salivating excessively.</td>
<td>Rabies in dog was mostly judged based on abnormal behaviour. Rabid dogs would have fierce look and the tendency to bite people. A few parents mentioned rabid dog will afraid of light and always salivating.</td>
</tr>
<tr>
<td>Knowledge about rabies in human</td>
<td>Only a few could describe what rabies in human is. However, almost all agreed that dog exposure can cause rabies. A few mentioned cat and monkey can also make rabies. Mimicking the behaviour of dog is the most recurrent feature of rabies in human.</td>
<td>Most of parents agreed that dog exposure can cause rabies. Not many mentioned cat can also cause rabies. Mimicking the dog behaviour was the most repeated feature of rabies in humans. Besides a few also mentioned fear of light, convulsions and sensitive to other humans.</td>
</tr>
<tr>
<td>Knowledge about post exposure treatment after dog bites</td>
<td>Most of children knew wound cleaning and vaccination as treatment after dog injury. Rinsing the wound with or without brushing/rubbing and wiping method were mentioned by many. The time spent for washing the wound was mostly based on subjective measure. Mother was repeated mostly as source of knowledge.</td>
<td>The majority knew wound cleaning and vaccination as the treatment after bites. Washing with water and soap was the proper ingredient mentioned by many. Hot water was also mentioned by a few parents. Brushing/rubbing the wound was often repeated as the method to wash to wound. Wiping the wound with cloth also mentioned however only by a few parents. For the time to wash the wound, many parents would use subjective measure.</td>
</tr>
<tr>
<td>Skills to do the wound cleaning</td>
<td>Many children assessed themselves as capable to do wound cleaning. However, there were confidence and physical condition issues to perform wound cleaning. Children worried about the procedure they perform and prefer to have their parents, as they felt the final result is cleaner and the procedure is right. In the middle of terribly pain children could not perform the first aid.</td>
<td>Almost all parents used running water and soap to clean the wound. Other than soap, salt and hot water also used. Brushing, rubbing, pressing, and wiping the wound repeatedly occurred in the interview. Traditional remedies for dog bite wounds were also used by nearly all of participants to complement or to become the main first aid ingredient for dog injury.</td>
</tr>
<tr>
<td>Memory and attention</td>
<td>//</td>
<td>To pay attention and remembering health worker’s message at the first visit seem to give strong influence to pursue complete vaccination.</td>
</tr>
<tr>
<td>Organising skills</td>
<td>//</td>
<td>The capacity to obtain permission from the school is often needed and this capacity lies child’s parents or relatives. Children were also very dependent on the capacity of parents to find information about vaccine supply and accompany them to the health facilities to obtain vaccination.</td>
</tr>
<tr>
<td>MOTIVATION</td>
<td>Children</td>
<td>Parents</td>
</tr>
<tr>
<td>Consequences of dog exposures and rabies in human</td>
<td>Children believed that all dog bites is an important event. For them, dog bites can lead to rabies and death. Rabies was categorised as a serious disease because of its ability to claim human’s live and make them look like dogs. Almost all mentioned that dog exposure need to be treated.</td>
<td>The majority believed dog exposure has many serious consequences in humans including rabies disease, death, and further infections or disease. Child’s trauma towards dogs, expenses for vaccine and transportation, and disability were mentioned by a few parents as well. Almost all mentioned rabies is a fatal disease and can claim human lives.</td>
</tr>
<tr>
<td>Risk perception related to dog status</td>
<td>The risk of injury which comes from domestic and stray dog was perceived to be almost similar. Most of the children described that injuries come from either dogs’ still need rabies prophylaxis. However, this perception may also influenced by the status of dog ownership or unfamiliarity to the dogs.</td>
<td>Both vaccinated dog and domestic dog were perceived by parents to have a lower probability to cause rabies in human. The act of precaution to rabies seemed to be the reason of most parents to bring their children to receive vaccination after exposure from vaccinated and domestic dogs. Some parents argued the dog status (whether it is domestic, vaccinated, or not rabies) would not influence the possibility for rabies because they believed the area where they lived is still prevalent for rabies.</td>
</tr>
<tr>
<td>Risk perception related to the type of dog bite wounds</td>
<td>Almost all children perceived the risk of rabies in all types of wounds ranging from scratch, small, and large type of wound. The risk was particularly obvious in the small and large type of wound. But for scratches wound, there were a few children categorised it as not vital therefore for them, this type of wound does not need to be reported or brought to the health facility.</td>
<td>The majority of parents believed all type of wounds may still linked to rabies. However, for scratches contrasting opinion occurs. Some mentioned it would lead to rabies, others not. The development of wound (inflammed wound) and also the presence of blood in the wound could also influence parent’s perception that there is a risk for rabies there.</td>
</tr>
<tr>
<td>Beliefs about benefits of dog bite treatments</td>
<td>Children were positive about the treatment. Particularly for vaccination, most of the children mentioned that vaccine has benefits for the dog bite injury to avoid rabies and also heal the wound. A few children described that vaccine shall</td>
<td>Most of parents did the wound cleaning before they took their children to further treatment. A few parents described that wound cleaning is a form of cleanliness, to kill the virus, shall be performed to cut the chain of infections, and minimalise</td>
</tr>
<tr>
<td>Beliefs about capabilities to engage in the treatment</td>
<td>Parents or guardian and health worker are two identities where children seemed to put their confidence to undertake the treatment.</td>
<td>Almost all parents in this study believed in the capability of health professional for dog bite injury. Some parents mentioned that they confident and satisfied. One parent however worried for the effectivity of anti-rabies vaccine when she looked at how the management of vaccination took place particulary at the free vaccination centre.</td>
</tr>
<tr>
<td>Beliefs around traditional medicines</td>
<td>//</td>
<td>Some parents used traditional medicine as the main or complementary treatment for the dog bite injury for some reasons which mostly was to stop the bleeding. Eventhough most of them knew, have used in the past, or even heard the success of these traditional medicine, but most of them still believed that the traditional treatment would not guarantee their children will free from rabies.</td>
</tr>
<tr>
<td>Anxiety to dog bite injury</td>
<td>The majority of children felt the dog bites as a negative experience which gave them physical pain, fear, and trauma. This seems to also influence the occurrence of help-seeking behaviour. Many children actively informed their parents about the incidents just after dog bites. Rejection to be brought to health facility and wound cleaning are not found in the short story and interviews with children.</td>
<td>The first reaction from the majority of parents to the dog bite injury was mainly full of emotional expression. Some parents mentioned they could not think and needs assistance or instruction. The anxiety to dog bite injury even more escalated when the treatment had to be delayed and for some parents it did not relieved after the treatment had completed. Emotions may influence a fast response and set the condition to always be ‘ready’ to pursue a complete treatment.</td>
</tr>
<tr>
<td>Influence from previous personal experiences</td>
<td>The impression obtained by children about injection can be very important because to influence child’s willingness. Some children who felt their first visit injection as ‘not hurt’ or ‘usual’ were positive to continue the treatment. Fear to syringe before the</td>
<td>The previous personal experience related to rabies could bring a permanent devastating image about the consequences of dog bite exposures. Some parents who were immediate to bring the children to the treatment described they have seen</td>
</tr>
</tbody>
</table>
treatment has also made one child refused to attend vaccination. or experience the rabies situation in the past.

<table>
<thead>
<tr>
<th>Affects from present situation</th>
<th>//</th>
<th>The present situation may influence the immediacy for rabies prophylaxis. Some parents were influenced by the reality that their area was endemic for rabies and media also involved by informing that rabies cases is still occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of children as cue for actions</td>
<td>//</td>
<td>The presence of children can influence the immediacy to treatment. Some parents described the appearance of their children just after the incidents and the feeling of losing them have made some parents felt very emotional.</td>
</tr>
<tr>
<td>Social practice as cues</td>
<td>//</td>
<td>The usual response to dog bites injury performed by the community has influenced the decision of one mother to bring the children even though the wound was just a scratch.</td>
</tr>
<tr>
<td>Reinforcement from parents</td>
<td>The fear of punishment from parents had lowered but also had increased the attempt to report the dog bite injury. Postponing the treatment for some hours until some days were happened as a result of this.</td>
<td>Some parents described to use ‘punishment’ and ‘reward’ to influence willingness of children to join the treatment. Parents also tried to plant ‘anxiety’ about negative consequences behind dog bite injury to make children willing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPPORTUNITY</th>
<th>Children</th>
<th>Parents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of HF</td>
<td>//</td>
<td>There were four type of health facilities which parents used to find treatment after injuries. These facilities were government-owned facilities including general hospital, community health centres, and anti-rabies vaccination centre; and private-owned facilities including private clinics and private drug stores. Some parents also sought help to the health officer who worked for the village for example the village midwives.</td>
</tr>
<tr>
<td>Availability of vaccine</td>
<td>//</td>
<td>Most of the parents found vaccine available at the anti-rabies vaccination centre which is provided by the government. Parents described the high need of this free anti-rabies vaccine. However, many parents showed there are some moments when the free vaccine will out of supply. In this situation, parents decided to still search vaccine to other</td>
</tr>
</tbody>
</table>
places. There were no parents ever mentioned that they would stop searching for vaccine. Some parents would even search for anti-rabies vaccine in the neighboring regency.

<table>
<thead>
<tr>
<th>Table heading</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening hours</td>
<td>Several children mentioned the opening hours at the health facility [free anti-rabies vaccination centre] could be one reason to postpone the treatment.</td>
</tr>
<tr>
<td>Mobility</td>
<td>//</td>
</tr>
<tr>
<td>Administration</td>
<td>//</td>
</tr>
<tr>
<td>Affordability</td>
<td>//</td>
</tr>
<tr>
<td>Peer influence and peer support</td>
<td>Peers could influence how children perceived about the consequences of rabies. Peer could also triggered fear to the treatment. In addition, peer could also be supporter that affect the immediacy of a child to engage in treatment after dog exposure</td>
</tr>
<tr>
<td>Social support from personal network</td>
<td>//</td>
</tr>
<tr>
<td>Social support from family</td>
<td>Family was the most important supporter for dog bite case in children. They hold the power for decision-making. Mother, especially, was the most repeated individual who took care of PEP after the dog bites occured. Some children who lived together or lived nearby their</td>
</tr>
</tbody>
</table>
extended family also got help from family members.

<table>
<thead>
<tr>
<th>Social support of neighbors</th>
<th>Neighbor could accelerate children’s engagement to PEP by informed the family about the child’s condition or helped to establish first aid, and accompanied to vaccination centre.</th>
<th>Neighbors could influence parents’ decision-making by giving advices, warnings, or instruction about what should be done to dog bite injury.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supports from health worker</td>
<td>Health workers were needed to explain what steps parents need to do after the bites occur. In the real experience, some parents could be calm, perform wound cleaning, and bring the child for vaccination because they got advice from health worker.</td>
<td></td>
</tr>
<tr>
<td>Social responsibility among dog owners and the possibility of social conflict</td>
<td>The dog owner could involve to support all the cost spent along the treatment including vaccination and transportation cost. Other support which given by them was also the moral support.</td>
<td>The norm in the area is that the dog owner has to be responsible to involve in the entire treatment received by the victim including the payment for vaccine and another treatment. They need to also take control of the dog who cause injury. The sanctions for not comply with this can be conflict both personal or in neighborhood setting.</td>
</tr>
</tbody>
</table>
Appendix 2. Informed consent parents

Indonesian Language

Penjelasan dan Persetujuan untuk Berpartisipasi dalam Penelitian dari Orang tua / Pengasuh

Saya akan membacakan penjelasan tentang penelitian ini sebelum bapak/ibu memutuskan untuk terlibat sebagai responden dalam penelitian ini dan memberi izin anak anda untuk berpartisipasi. Karena anak anda juga akan dilibatkan dalam penelitian ini, saya juga akan membacakan penjelasan yang sama kepada anak anda untuk menanyakan kesediaannya.

Tujuan dari penelitian: Tujuan penelitian ini adalah untuk mengeksplorasi atau mendalami faktor-faktor yang berhubungan dengan keterlibatan anak dalam pencegahan rabies pasca gigitan anjing.


langsung mengakhirinya. Interview akan berlangsung selama 45-60 menit dan akan direkam.

**Waktu yang dibutuhkan:** Waktu yang dibutuhkan selama penelitian ini adalah kurang lebih 1 jam dari waktu bapak/ibu dan 1 jam dari waktu anak bapak/ibu.


**Keuntungan:** Tidak ada keuntungan secara langsung yang ibu dan anak ibu dapatkan selama berpartisipasi dalam penelitian ini. Penelitian ini ditujukan untuk menolong peneliti memahami faktor yang berpengaruh dalam kesuksesan dalam pencegahan rabies.

**Kerahasiaan:** Wawancara yang direkam akan diketik. Rekaman, hasil ketikan, dan foto hasil karya anak anda akan disimpan dalam tempat yang aman yang hanya bisa diakses oleh peneliti, asisten peneliti, dan pembimbing penelitian ini. Akses hanya diperbolehkan dibawah izin peneliti. Beberapa petikan pembicaraan dan hasil karya akan dicantumkan dalam laporan akhir, namun peneliti tidak akan mencantumkan nama Bapak/ibu maupun nama anak ibu. Nama Bapak/ibu dan anak ibu juga tidak akan disebutkan atau dicantumkan dalam media komunikasi yang lainnya. Setelah analisis berakhir, rekaman pembicaraan akan dihapus.

**Kesukarelan:** Partisipasi Bapak/ibu dan anak ibu bersifat murni sukarela.

**Hak untuk berhenti berpartisipasi:** Bapak/ibu berhak untuk membataln partisipasi dalam penelitian ini. Bapak/ibu juga berhak tidak mengikutkan anak ibu dalam penelitian ini. Jika Bapak/ibu membataln keterlibatan setelah proses pengambilan data berlangsung, seluruh rekaman wawancara akan dihapus segera.

Berikut adalah fotokopi dari deskripsi yang saya paparkan. Setelah mendengar paparan tersebut, apakah masih ada yang masih belum jelas bagi Bapak/Ibu? [berhenti sejenak]
Atau apakah Bapak/Ibu memerlukan waktu untuk berpikir terlebih dahulu? [berhenti sejenak]

Persetujuan:
Apakah Bapak/Ibu setuju anak ibu berpartisipasi dalam penelitian ini?
Jika iya, boleh katakan “Ya, saya setuju anak saya ikut berpartisipasi”.
Jika tidak, boleh katakan “Tidak, saya tidak setuju anak saya berpartisipasi.”

Apakah Bapak/Ibu setuju untuk berpartisipasi?
Jika iya, boleh katakan “Ya, saya setuju untuk berpartisipasi”.
Jika tidak, boleh katakan “Tidak, saya tidak setuju berpartisipasi.”

[Jika setuju] Nama: __________________________ Tanggal: _____________________

Jika anda memiliki pertanyaan dapat menghubungi:
Yosi Marin Marpaung, SKM
Nomor telepon: 085288872498
Research Title: Exploring factors influencing children’s engagement in rabies post-exposure prophylaxis: a qualitative study in Bajawa, East Nusa Tenggara

Verbal consent parents

Parent/Guardian Informed Consent Agreement

I will read this consent agreement carefully before you decide to participate in the study. I will also read an assent agreement for your child, to both you and him/her. This will be audio recorded.

Purpose of the research study: The purpose of the study is to explore internal and external factors influence children’s engagement in the necessary rabies post-exposure treatment.

What your child will do in the study: Firstly, your child will be requested to write a story. The topic is “a child who is bitten by dog”. Your child can either tell about his/her past experience or make an imaginary figure. The pencil and the papers will be prepared by the researcher. After finishing the writing, your child will be asked to share their story. Afterwards, s/he will be asked some questions related to the story behind his/her work. The interview will be around 20-30 minutes and it will audio taped. There are no right or wrong answer. Your child is free to answer, can skip any question that makes him/her uncomfortable, and s/he can also stop the interview at any time. Your child can keep the pencils and the artworks with him/her. Before, the researcher will take a photo first with the work. The information derived from your child will be treated in confidence. The researcher will not reveal your child’s name under any condition.

What you will do in the study: In this study, the researcher would like to also interview you. There are around 10-15 questions would be asked. In this interview, the questions are about dog bite experience on your child and the treatment. If your child had no experience with dog bite, questions about how you react and feel if in the future your child experience dog bite will be asked. There are no right or wrong answer. You can stop whenever you like. If you want to take a break or having other conditions that make you uncomfortable, you can deliver it to the researcher. S/he will pause or finish the session. The interview will take around 45-60 minutes and it will be audio taped.

Time required: The study will require about one hour of your time and also one hour of your child’s time.
**Risks:** There may be possibility that your child have trauma with the dog bites. Therefore, during story telling interview with your child, to minimize this, the researcher will describe as many as possible about the purpose of the study to the child and what they will do. Your child is free to choose whether s/he wants to participate or not. Moreover, the researcher will use child-friendly technique during the data collection. Your child do not have to tell specifically about their experience. When your child are asked to write the story or to draw, s/he can choose to share his/her own story or make a new imaginary figure. During interview, the researcher will also remind you that there is no right or wrong answer. Your child is free to answer, can skip any question that makes him/her uncomfortable, and s/he can also stop the interview at any time. Before the research is conducted, the researcher has requested permission from national unity, politics, and public safety agencies, public health authorities, and the local animal husbandry department as well. For the parents/guardians, there are no anticipated risks in this study. Physical, social, and political risks are limited.

**Benefits:** There are no direct benefits to you or your child for participating in this research study. The study may help us understand what factors influencing the child engagement in the post-exposure prophylaxis on rabies.

**Confidentiality:** The recorded interview will be transcribed to verbatim transcription. The audio, transcription, and the photograph of your child’s artwork will be secured in the safe place. It can only be accessed by my permission. Some quotations and artworks from your child may be used in the report, but we will never reveal your name and your child name under any condition including on the report or other media of communication. After analyses done, all the audio file will be deleted.

**Voluntary participation:** Your child’s participation and/or your participation in the study is completely voluntary.

**Right to withdraw from the study:** You have the right to withdraw your child and yourself from the study at any time without penalty. The participant’s tape will be destroyed should you decide to withdraw.

**How to withdraw from the study:** If you and/or your child want to withdraw from the study, tell the researcher. There is no penalty for withdrawing. If you would like to withdraw after your materials have been submitted, please contact my number.

Here is the copy of the description. After hear all this description, do you may be have something which are still unclear? Or do you need time to think about it? [Pause]

**Agreement:**

**Do you agree to allow your child participate in the research study above?**

If yes, then you can say “yes I agree that my child participate”.

If no, you can say “no I don’t I agree that my child participate”.

99
Do you agree to participate in the research study described above?
If yes, then you can say “yes I agree to participate”
If no, you can say “no I don’t agree to participate”

[Mention] Name:_________________________ Date: _____________________

If you have questions about the study, contact:
Yosi Marin Marpaung, SKM
Telephone: 085288872498
Appendix 3. Informed assent children

**Indonesian Language**

**Judul penelitian:** Eksplorasi faktor-faktor dan mekanisme yang mempengaruhi keterlibatan anak dalam pencegahan rabies pasca gigitan anjing: sebuah penelitian kualitatif di Bajawa, Nusa Tenggara Timur

**Verbal assent children**

**Penjelasan dan Persetujuan Berpartisipasi dalam Penelitian dari Anak**

Saya akan membaca ini bersama dengan Ibu atau Ayah kamu. Pembacaan ini akan direkam.

Dalam penelitian ini saya ingin mengetahui tentang pandangan kamu soal kasus gigitan anjing dan pengobatannya.


Dalam studi ini, mungkin kamu tidak suka dengan pengalaman masa lalu digigit anjing. Jika kamu tidak suka untuk berbagi cerita dengan saya, kamu bebas mengatakannya kepada saya. Alasan mengapa kamu saya libatkan dalam penelitian ini, adalah untuk lebih mengenal kondisi anak-anak terkait kasus gigitan anjing.

Jawaban kamu dan seluruh kelakuan kamu selama sesi menulis cerita dan bertanya tidak akan disebarluaskan. Nama kamu akan dirahasiakan dan tidak akan ada orang lain yang membaca hasil penelitian ini yang akan tahu bahwa itu adalah kamu. Saya akan mengunci hasil karya kamu dan hanya saya dan tim peneliti saja yang tau.

Ada kenang-kenangan yang saya akan berikan untuk partisipasi kamu.

Ini adalah fotokopi dari apa yang saya baru jelaskan. Setelah mendengar penjelasan ini, apakah masih ada yang belum jelas? Atau kamu butuh waktu untuk memikirkan? [berhenti sejenak]

Persetujuan:
Apakah kamu setuju untuk berpartisipasi dalam penelitian ini?
Jika iya, boleh katakan “ya, saya setuju”
Jika tidak, boleh katakan “tidak, saya tidak setuju”

[Jika ya, sebutkan] Nama : ____________________ Tanggal: ____________________

Jika kamu memiliki pertanyaan dapat menghubungi:
Yosi Marin Marpaung, SKM
Nomor telepon: 085288872498
Research Title: Exploring factors influencing children’s engagement in rabies post-exposure prophylaxis: a qualitative study in Bajawa, East Nusa Tenggara

Informed Assent Agreement

I will read this paper with your Mom or Dad. This is audiotaped.

I want to learn about your views about dog bites accident and its treatment.

As part of our study, I would like to ask you to write a story. The topic of the story is “a child who is bitten by dog”. You can either tell about your past experience being a dog bite victim or you can also make a new imaginary figure. The pencil and the papers will be prepared by me. After finishing the writing, you will be asked to share your story. Afterwards, you will be asked some questions related to the story behind your work. I will be ask around 20-30 minutes and it will audio taped. There are no right or wrong answer. You can freely answer, can skip any question that makes you uncomfortable, and you can also stop the interview at any time. You can keep the pencils and the artworks with you. Before, I will take a photo first with the work. I will not reveal your name in the work and in your answer. The entire writing a story until finish may take 45-60 minutes.

Risks/Benefits: Being in this study may be bring you memory about being bitten by dog. If you feel you do not like to share it with me, you are free to say it. The reason why I include you in this study is to help me know more about children conditions.

Confidentiality: Your answers to our questions and behaviors during the process will be kept private. Your name will not be used, and no one who reads about our study will know it was you. I keep things locked up so only me and the researchers could see them.

You can participate in this study. You also can not participate in this study. You can stop during the study at any time. The audio tape will be destroyed should you decide to withdraw.

If you want to stop doing the study, tell me. My name is Yosi Marin Marpaung. If you choose to stop before we are finished, any answers you already gave will be destroyed. There is no penalty for stopping. If you decide that you don’t want your artworks or the recording in the study but you already turned them in, also contact me.
There is souvenir (stationeries) for your participation. You can still have the item if you stop the study.

Here is the copy of the description. After hear all this description, do you have something which are still unclear? Or do you need time to think about it? [Pause]

**Agreement:**
*Do you agree to participate in the research study described above?*
If yes, then you can say “yes I agree to participate”
If no, you can say “no I don’t agree to participate”

[Mention] Name of participants: _______________________Date: ________________

**If you have questions about the study, contact:**
Yosi Marin Marpaung, SKM
Telephone: 085288872498
Panduan storytelling interview untuk anak-anak

Hal yang perlu diingat:
- Izin dari orang tua
- Appresiasi untuk karya anak
- Kebebasan anak dalam berpendapat
- Kerahasiaan
- Mendengar aktif, pertanyaan eksplisit/langsung, dan terbuka

Latar belakang dan persetujuan berpartisipasi (5 menit)

Apakah semuanya sudah jelas? Apakah kamu memiliki pertanyaan atau sesuatu yang ingin dikatakan? Jika kamu punya, jangan sungkan untuk mengatakannya kepada kakak.

Apakah kamu mau berpartisipasi untuk menolong kakak mengetahui tentang kasus gigitan anjing? Jika kamu tidak suka, kamu bisa saja tidak berpartisipasi.

Menulis (30 menit)
Menceritakan cerita (5 menit)
- Beri penghargaan pada anak

Wawancara (20 menit)
Sekarang, kakak ingin tahu lebih nih tentang:
**Beberapa kemungkinan pertanyaan:**
1. Kapan ya gigitan anjing itu terjadi pada kamu? Mengapa gigitan itu dapat terjadi?
2. Anjing itu, apakah itu anjing kamu atau anjing yang lain? 
   Apa yang kamu lakukan setelah digigit anjing ini?
3. Apa yang akan kamu lakukan jika kamu digigit oleh anjing yang lain?
   Mengapa kamu melakukan itu?
4. Apakah kamu melaporkan luka goresan? Luka kecil? Luka besar?
   Mengapa?
5. Apa pengobatan yang diberikan kepada kamu? Bagaimana diberikan?
   Apa yang kamu rasakan? (baik atau tidak)
6. Jika pengobatannya diperpanjang selama dua kali atau lebih dari dua kali, apa yang kamu rasakan?
7. Kakak juga ingin tahu, apakah anjing rabies itu menurut kamu? 
   Dari mana kamu pelajari tentang itu?
8. Apakah menurut kamu yang akan terjadi pada anak, jika ia digigit oleh anjing rabies ini?
9. Apakah kamu tahu tentang pengobatan terhadap luka gigitan anjing?

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**English Translation**

**Story telling interview guide for children**

**Things to keep in mind:**
- Permission from parents has to be guaranteed first
- Appreciation to child’s work
- Give them freedom to express their self
- Confidentiality
- Active listening, direct, and open question

**Background information and assent (5 minutes)**
Hi, how are you? My name is kak Yosi. I live in Depok, Jawa Barat. Now, I am studying in the Netherlands. May I know your name and how old are you now? Thank you very much for your presence here. I am really appreciate it. Today, I am here because I am interested to get more insights from your views about dog bites accident and its treatment. Today, there will be two activities that I wish we can do together in a fun way. First is that I need you to write a story about ‘a child who is bitten by dog’. You don’t have to talk about yourself specifically, although you can if you wish. You are free to write as much as you want. You can make a very short story or a long story. I will prepare the papers. I will wait until you finish. There is no bad result. For the work you make, you can keep it with you after I take a picture of it. The second activity is that I am really interested to know more about your story.
Thus, I want to hear the story you made from you and ask you some questions about your story. You don’t have to answer any questions you did not wish to answer and you can also stop me questioning you at any time. It will no longer than 20 minutes. Once again, there is no right or wrong answer. For the interview, I will record it and will treat your responses in confidence and I will keep it anonym for you.

Is everything clear or do you have something to ask? If you have something you want to ask or to tell, do not hesitate to ask me. I will find a way to help you.

Do you still want to participate to help me to know more about dog bite? If you feel you don’t like the theme, you can withdraw.

**Writing (±30 minutes)**
Okay, for now, first you can write your story. No worries, there is no good or bad result. The topic is “a child who got bitten by dog”. You can make your experience as the story. Here is the paper and the pencils. You can ask more paper if you want. Do not worry, I will give you enough time to do it. If you need more time, it is fine.

**Storytelling (5 minutes)**
Give appreciation to the child

**Interview (20 minutes)**
Now, I would like to know more about
Some possible questions:
1. When and where did it happen to you? Why did it happen?
2. The dog, is it your dog or other dog?
   What did you do after bitten by the dog?
3. What will you do then if you are bitten by other dog?
   What makes you do so?
5. What was given to you? How it was given?
   What did you feel? (good or bad)
6. If the treatment is prolonged to two or more days of visit, what do you feel?
7. I really want to know, what is rabid dog according to you?
   How did you know about it?
8. What do you think will happen to a child, after they get bitten by this rabid dog?
9. What do you know about the treatment to dog injury?
Appendix 5. Interview guide for parents or guardian

Indonesian Language

Panduan wawancara untuk orang tua atau pengasuh

Latar belakang dan persetujuan penelitian


• Untuk wawancara ini saya akan menjaga kerahasiaannya pada laporan akhir meskipun saat analisis data. Saya dan tim tidak akan memunculkan nama ibu dalam kondisi apapun.

• Wawancara ini berlangsung selama 45-60 menit.

• Sebelum memulai interview, saya ingin meminta izin untuk merekam interview ini. Rekaman ini akan membantu saya untuk mengetahui apa yang perlu ditingkatkan selama proses penelitian, dan juga menghindari informasi yang hilang selama saya mencatat. Saya tidak akan membagikan hasil rekaman di luar tim saya. Rekaman hanya dapat diakses oleh pembimbing dan asisten riset.


• Mungkin sudah terlalu panjang, apakah ada yang masih kurang jelas atau yang ingin Bapak/Ibu tanyakan?

• [Jika partisipan memberikan respon positif] Jika demikian, saya akan memulai rekaman wawancara.

Pertanyaan

Pertanyaan pembuka

- Saya dengar di Flores, masyarakat hidup dekat dengan anjing. Apa pendapat Bapak/Ibu tentang hal ini?

Pertanyaan utama dan pengikut

1. Apakah anak Bapak/Ibu pernah mengalami kasus gigitan anjing sebelumnya?
2. Dapatkah Bapak/ibu menceritakan lebih banyak tentang pengalaman itu? [tipe anjing, tipe luka, sudah divaksinasi atau belum, ukuran luka, lokasi luka]

3. Apa yang membuat Bapak/ibu tahu pada waktu itu bahwa anak Bapak/ibu mengalami luka gigitan anjing saat itu?

4. Apa yang Bapak/ibu pikirkan (dan rasakan) tentang risiko dari luka tersebut saat itu?

5. Apa yang Bapak/ibu lakukan untuk luka tersebut saat itu? Bolehkah cerita tentang pengalaman?
   a. Penanganan yang dilakukan?
   b. Mengapa memilih cara itu? [keuntungan, kerugian, perasaan, isyarat untuk bertindak, ekspektasi hasil, efikasi diri]
   c. Kapan dan dimana penanganan tersebut dilakukan? Mengapa?
   d. Siapa yang memberikan?
   e. Berapa lama?


7. Apakah anak ibu menyelesaikan pengobatan/penanganan yang direkomendasikan? Apa yang membuat demikian?

8. Apa yang Bapak/ibu ketahui tentang rabies pada anjing?

9. Apakah yang Bapak/ibu ketahui tentang rabies pada manusia?
   a. Apa yang Bapak/ibu akan pikirkan (dan rasakan) tentang kemungkinan luka (yang dialami anak ibu) tersebut dalam menyebabkan rabies? [tipe anjing, tipe luka, ukuran luka, lokasi luka]

10. Apakah yang Bapak/ibu ketahui tentang penanganan yang tepat untuk rabies?

11. Apakah yang Bapak/ibu pikir diperlukan oleh anak ibu untuk mendapatkan akses untuk penanganan yang tepat tersebut? [pemahaman tentang pertolongan pertama pada luka, dukungan fisik, faktor yang terkait fasilitas kesehatan, dan dukungan sosial]

Sekarang kita sudah di ujung wawancara kita. Apakah Bapak/ibu memiliki hal-hal yang ingin ditambahkan? Terima kasih yang sebesar-besarnya untuk waktu dan jawaban-jawaban yang Bapak/ibu berikan.

Jika Bapak/ibu mungkin memiliki informasi tambahan yang berkaitan dengan topik ini yang belum ditanyakan atau terlewat, atau Bapak/ibu mungkin memiliki pertanyaan selanjutnya, jangan sungkan untuk menginformasikannya pada saya melalui nomor telepon ini. [berikan kertas berisi nomor telepon].

Nomor telepon: 085288872498
Interview guide for parents or guardian

Background information and consent

- Hi, how are you? My name is Yosi Marin Marpaung. I live in Depok, Jawa Barat. Now I am a Health and Society Master student of the Wageningen UR in the Netherlands. May I know your name? Once again, thank you for your presence and really nice to meet you.
- I am going to have an interview. The purpose of this interview is to get more insight about factors associated with children’s engagement in the post-exposure treatment after dog bites. This research is a part of my master degree completion and also to inform policy makers. The reason why I chose you to participate is because I think you are suitable to the criteria that I need in my study. Either because you have a child who experienced dog bite victims or you have at least a child in range of 5-15 years and dog in your house.
- We want you to know that we will keep the anonymity in our final report and during our analysis of the interviews. We won’t use or reveal your name under any condition.
- This interview will last 45-60 minutes.
- Before starting with the interview, I would like to ask you for permission to record the interview. The recording will help me to understand which aspects we can improve in our speaking during the interview, as well as to avoid missing some of your information by not being able to write notes. I won’t share this recording with any parties outside my research team, I will only share the recordings with my supervisor(s) and research assistants. Can I record it?
- I would like to inform you that there are no wrong or right answers in this interview. I can stop whenever you like. If you want to take a break or having other conditions that make you uncomfortable, please just let me know, we can pause or finish the session.
- I know that is quite long, is everything clear or do you have something to ask?
- (If participants give positive feedback) If so, I would like to start the recording now.

Questions

Opening question

- I heard that Flores people live close with dog, what do you think about that?

Main and follow up questions

10. Did your child ever experience dog bites in the past years? Can you tell me more about it? [type of dogs, vaccinated dog or not, type of injury, size of injury, site of injury]

11. What made you know at that time that your child got a dog bite?

12. What did you think (and feel) about the risk of that injury?

13. What did you do for the injury? Please tell me about your experience.
   a. What treatment(s)?
   b. Why did you choose the treatment? [benefits, cost, feelings, cues to actions, outcome expectation, self-efficacy]
   c. When and where was the treatment applied? Why?
   d. Who was applying the treatment(s)?
111

14. What were your experience after the first visit of treatment? [children reaction, feelings]
15. Have your child completed the treatment? What made it so?
16. How do you know if a dog is rabid or not?
17. What do you already know about human rabies?
   a. What do you think (and feel) about the chance of the injury to develop rabies? [type of dog, type of injury, size of injury, sites of injury]?
18. What do you already know about the proper treatment of rabies?
19. What do your child need to access the proper treatment? [skills for first aid, physical support, factors related to health centre, social support]

Now we are at the end of our interview, do you have some additional things you want to add?
Thank you very much for your time and your answers.

If you think you can provide other information related with the topic that I haven´t asked for or missed, or if you have further question, please don’t hesitate and share with us to my phone number [give a piece of paper contained my number].

Phone: 085288872498
Appendix 6. Ethical clearance

Ethical Clearance

To whom it may concern

The following project proposal has been reviewed by the Social Sciences Ethics Committee (SEC):

Title: “Factors influencing children’s engagement in rabies post-exposure prophylaxis: a qualitative study in Bajawa, East Nusa Tenggara”
Project team: Yosi Marpaung
Funding: Indonesia Endowment Fund for Education (LPDP) – (LPDP is funding all expenses needed for applicant’s master degree, not specifically in the research project. There is no influence of LPDP in the research process)

The Committee has concluded that the proposal deals with ethical issues in a satisfactory way and that it complies with the Netherlands Code of Conduct for Scientific Practice.

With kind regards,

[Signature]

Prof. Dr Marcel Verweij
Chair Social Sciences Ethics Committee
Appendix 7. Several pictures from the field