Maternal and Child Health in Underdeveloped Areas and State Borders

Yendris Krisno Syamruth[1], Hari Basuki Notobroto[2], H Kuntoro[2]

[1]Student of Doctoral Program of Public Health, Faculty of Public Health, Universitas Airlangga, Mulyorejo, Surabaya, Indonesia; Lecture at Faculty of Public Health, Nusa Cendana University, Kupang,Indonesia, [2]Lecture at Faculty of Public Health, Universitas Airlangga, Jl. Mulyorejo Kampus C, Surabaya, Indonesia

Abstract

Background: Mother and child are two vulnerable groups in the family. The health of families in underdeveloped and border areas is still slowly progress. The high degree of maternal and child health in each family in underdeveloped and border areas is a benchmark for a national's public health.

Purpose: The study aims to explore the various factors that correlate with the health of mothers and children in families who live in underveloped and state borders by using the perspective of supply and demand.

Methods: The research was conducted with observational analitic by survey in underdeveloped areas and state border in 3 border districts in 9 sub-districts with 18 villages in Nusa Tenggara Province, Indonesia. There were 396 families selected from the population by multistage random sampling.

Results: The results showed that pregnancy examinations or Antenatal Care services, delivery by health personnel in health facilities; Immunization factors and family planning participation are indicators of Maternal and Child Health, and home environmental factors, healthy lifestyle factors, infectious disease factors, non-communicable diseases, socio-economic factors, and accessibility factors are some of the factors related to MCH.

Conclussion: This study concluded that environmental health factors, healthy lifestyle and behavior, infectious and non-communicable diseases, socio-economic, and accessibility factors are related to the health of mothers and children in families living in underdeveloped areas and state borders and Antenatal Care services, delivery by health personnel in health facilities; Immunization factors and family planning participation were reflective indicators of Maternal and Child Health in families who live in underdeveloped areas and state borders.

Keywords: *Maternal and Child Health, underdeveloped and state border areas, family health.*

Introduction

The family as the smallest unit of society is an important part that affects the health status of a region's community. The mother and child group is one of the vulnerable groups in the family. Families who live in underdeveloped areas and state borders are a minor burden for the health development of a country. Several family-based studies provide results on the importance of family health in supporting public and state health in a broad sense.

In order to develop people who live in bucolic and underdeveloped areas, solid support is needed, not only in one aspect, but the support must be integrated with financial support, planning, evaluation, exchange of information and coordination, technology, promotion,

Corresponding Author:
Yendris Krisno Syamruth,
Student of Doctoral Program of Public Health
Faculty of Public Health, Universitas Airlangga,
Jl. Mulyorejo Kampus C, Surabaya, Indonesia;
E-mail:yendris.krisno.syamruth-2017@fkm.unair.ac.id

and extension of liability in terms of healthcare[1]. The expenses incurred by the family because family members are sick can result in disruption of the family economy[2]. A study and the results stated that the degree of family health can be improved if you pay attention to the health elements of vulnerable family members, such as mothers and children, especially in terms of maternal ANC services, family socioeconomic status, as well as regional access disparities[3].

Another study on low and middle income underdeveloped areas in several Asian countries found that high child mortality rates with environmental health were a determinant factor[4]. The availability of health service facilities and infrastructure for Primaryc Health Center (PHC) and their networks in border areas had not been fulfilled properly, the pattern of health services at the PHC in the border area is not optimal[5]. A study in communities in the border areas of Indonesia and Malaysia, found that the obstacles experienced in health services for residents at the border were the need for referrals to hospitals which were often constrained by transportation, both cost and long distances with poor road conditions[6]. The purpose of this study was to explore the various factors that correlate with the health of mothers and children in families who live in underveloped and state borders.

Material and Method

This research was conducted by analytic observational through a survey in 3 districts (9 sub-districts and 18 villages) in underdeveloped and border areas in East Nusa Tenggara Province, Indonesia from August to November 2019. The sample size was 396 families selected by multistage random sampling. Family heads and housewives were selected as respondents. The independent variables of this study were nutritional factors, Healthy life style and behaviour, health of the home environment, infectious and non-communicable diseases, socioeconomic, accessibility, mental and spiritual factors, while the dependent variable was maternal and child health. All variables are in the form of an ordinal scale and analyzed using the Spearman correlation test at a 95% confidence level with 5% alpha..

Result

From the three districts, it is known that the average age of the household heads is 40.40 years (standard deviation 12.28) with the youngest 18 years and the oldest 83 years. The average number of family members in one house is 5 people (standard deviation of 2 (two) people), with the smallest number being 1 (one) person and the most being 11 people. More detailed information can be found in table 1 (Table 1).

Table 1. Distribution of Respondents Based on Information from The Head of The Family (n=396)

No	Variable (based on the family head)	Frequency	SD
1.	The average age of the head of the family	40.40 years	±12.28
2.	The average number of family members in one house	5 people	±2
3.	The head family by men	93.4%	
4.	Family marital status	96% married	
5.	Education based level	86% primary and secondary	
6.	Work in informal sector	69.2 %	
7.	The average of family in working age	2	±2.1

At Antenatal Care Service (ANC), the highest in the category of the examination was for all family members

who had babies (86.4%) with the highest proportion in Belu Regency (97%) and the lowest in Rote Ndao Regency (76.5%). For the variable of childbirth by health personnel, the highest was in the category of examinations by health workers (90.4%) with the highest proportion in Belu Regency (100%) and the lowest in Rote Ndao Regency (80.3%). The variable number of infant deaths and the variable number of maternal deaths for the three districts is homogeneous with no incidence in the last year. The highest immunization coverage variable was in the category of all family members who immunized with Southwest Sumba Regency having the highest proportion (94.7%) and the lowest in Rote Ndao Regency (89.4%). The highest stunting variable was in the no-incidence category (88.1%) with the highest proportion in Southwest Sumba (99.2%) and the lowest in Belu Regency (79.5%). The highest participation variable for family planning programs was in the category of family members who participated (43.9%) with the highest proportion in Belu Regency (86.4%) and the lowest in Southwest Sumba Regency (0.8%). The highest variable of exclusive breastfeeding in all categories was giving exclusive breastfeeding to babies (89.9%) with the highest proportion in Belu District (99.2%) and the lowest in Southwest Sumba (77.3%).

The results of the cross tabulation of each variable show that the health factor of the home environment has a significant correlation with the health of mothers and children with the spearman correlation coefficient (Rho) of 14.2% where alpha is less than 0.05. Clean and healthy lifestyle factors have a significant correlation with maternal and child health with a Spearman correlation coefficient (Rho) of 29.7%, infectious disease factors have a significant correlation with maternal and child health with a spearman correlation coefficient (Rho) of 34.5%. Non-communicable diseases have a significant correlation with maternal and child health with a spearman correlation coefficient (Rho) of 20.7%, socio-economic factors have a significant correlation with maternal and child health with the spearman correlation coefficient (Rho) 19.3%, accessibility factors are significantly correlated with maternal and child health with a spearman correlation coefficient (Rho) of 10.4%, while nutritional, mental and spiritual factors do not correlate with maternal and child health.

Table 2. Correlation between Maternal and Child Health with Other Variables (n=396)

No.	Correlation between Maternal and Child Health	Spearman Correlation (*rho*)	*P sign*
1.	Home environmental health	0,142	0,005
2.	Clean and Healthy Living Behavior	0,297	0,000
3.	Infectious diseases	0,345	0,000
4.	Non Communicable diseases	0,207	0,000
5.	Social Economy	0,193	0,000
6.	Accessibility	0,104	0,039

Discussion

The results showed that the MCH indicator with the Antenatal Care (ANC) service variable was dominated by the frequency of services in border areas, while those in underdeveloped areas showed high incompleteness of services, even though antenatal care was an important support for family health status[7].

Complete ANC services ensure better care, delivery and even post-delivery processes, controlled maternal and child health and of course become the basic capital for the development process in the region[3]. Belu Regency as a representation of the border region has a better number of ANC services compared to the other two areas which can be caused by other supporting factors such as sufficient awareness and knowledge of prospective mothers and mothers about antenatal care services in health services, awareness of family heads, accessibility, the activity of Posyandu's cadres (MCH integrated services in villages), and socio-economic factors.

A healthy delivery is that which takes place in an adequate health facility and is handled by a health worker. Indicator of coverage of maternal and child

health programs is the number of deliveries assisted by health personnel[8]. The study found that in Rote Ndao regency have the highest in terms of not utilizing childbirth with health personnel, due to access and socio-economic factors that make it difficult to reach services and availability of transportation at any time, although the ANC factor is quite good. The distance traveled and the availability of personnel are important factors in accessing adequate health services for each family[9].

The use of adequate childbirth services can reduce the high level of maternal and child health problems. The availability of health personnel at service facilities plays an important role in the healthy delivery rate in health facilities. The monitoring of the growth of children under five in border areas is relatively low due to a lack of understanding and awareness from the family and the sub-optimal activity of health service cadres. Toddler health determines the nutritional status and health of the mother itself and of course has a direct effect on family health, because toddlers are a vulnerable group[10]. The habit of consuming vegetables and fruit in the family correlates with the nutritional status of the family, including nutrition in high-risk age groups such as pregnant women and infants and toddlers. Humidity in the house is at high risk for the spread of respiratory diseases. Humidity is also triggered by the condition of the floors of the houses, earthen floors are still found in several families in the archipelago and underdeveloped areas. The family's socio-economic and knowledge factors play a role in this. Access to and availability of family latrines is one of the requirements for a healthy house, the availability of latrines is a serious concern of the government with the many triggers it is hoped that families seek to provide latrines independently.

Healthy Lifestyle, such as non-smoking, bathing/ tooth brushing habits, washing hands with soap, and regular and measurable physical activity. Smoking also interferes with the fulfilment of the main needs of family members who should have priorities such as health and education. Smoking is a trigger for lung cancer and tuberculosis.

The incidence of TB in the family is also triggered by the humidity of the house and the density of the occupancy. The facts obtained indicate that areas with relatively humid housing conditions indicate the number of TB sufferers that still exist. Humidity, poor lighting, and overcrowding influence the incidence of TB, therefore the risk of infection is higher. Sufficient knowledge followed by breaking the chain of transmission by modifying the shelter and early detection can reduce TB cases. Other infectious diseases such as diarrhea, which attacks high-risk groups, can interfere with the health status of the family, especially under five.

The facts in the families in the three regions show that in the border areas the number of families who do not suffer from hypertension is relatively high. This is due to the limited consumption and intake of marine-sourced foodstuffs supported by environmental conditions with more intake of plant-based food and livelihoods, most of which depend on agriculture. Communities whose livelihoods are fishermen and live around the coast tend to be more susceptible to hypertension than people who live and make a living in agriculture.

Another factor that is also described in this study is the incidence of DM and it is known that the highest cases are in underdeveloped areas, this can be caused by several triggering factors such as lack of physical activity and exercise, high carbohydrate food intake and an unbalanced diet and regular health check behavior has not become a habit as an early detection effort.

Costs incurred by the family when sick can cause socioeconomic status to be disrupted and if it is not supported by funding or insurance, the family's ability to be paralyzed. Per capita income is an important factor in improving family welfare including the health of vulnerable groups, namely children[11].

Providing adequate accessibility to the family means fulfilling the right to a healthy life for family members, even though the distance, time, and location of the house is a challenge[12,13,14]. The ability to access health facilities is important given the high mortality rate due to delays in finding health facilities due to the distance factor[15,16,17]. The travel time factor is a factor other than distance which is also related to the health status of the family, at some locations it is found that it is close but the travel time is long and vice versa, the distance is long but the travel time is short due to the available road and bridge network. In underdeveloped areas, family accessibility is lower than in border areas due to the more available road and bridge networks[18].

Families who are closer to access to health services have a much higher life expectancy than families who live far from access to health services[19].

The government's role in the field of health services is very important and requires more efforts, especially in the reach of services in remote areas in underdeveloped areas and state borders by scale up the budget the supporting infrastructure and the availability of health personnel[20,21]. The health of mothers and children of a family is very much determined and shaped, especially by awareness of childbirth in adequate health facilities with the helpers of which are health workers, with intensity of service and regular antenatal care [22]. Family planning follows a life cycle from early childhood to adulthood to old age. Family planning programs help regulate pregnancy spacing, meet the needs and concerns of all age groups, and immunization ensures the health and immunity of each family against attacks by various infectious diseases and contributes to family health, especially for children as the successor of the family generation.

Conclusion

This study concluded that environmental health factors, healthy life style, infectious and non-communicable diseases, socio-economic, and accessibility factors are related to the health of mothers and children in families living in underdeveloped areas and national or state border.

Ethical Clearance: This study had passed ethical clearance issued by Ethical Committee of the Faculty of Nurse, Universitas Airlangga, Surabaya, Indonesia.

Source of Funding: This study is self-funded research project.

Conflict of Interest: Nil.

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