

Research Article

Parents Perspective of Social Determinants Affecting Childhood Immunization in Oro Bay Rural In Ijivitari District of Oro Province, Papua New Guinea

Gaudi Gerison and Gigil Daniel Marme*

Department of Health Management and Systems Development, Divine Word University,
Papua New Guinea

*Corresponding author

Gaudi Gerison Daniel Marme, Department of Health Management and Systems Development, Divine Word University, Madang Province, Papua New Guinea, Tel: 79928735; Email: gmarme@dwu.ac.pg

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Keywords

- Papua New Guinea (PNG)
- Childhood immunization
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- Social Determinants of Health

Abstract

Introduction: Immunization is considered as the most effective public health strategy that aims to prevent children from infectious diseases. The aim of this paper is to examine rural parents' perspective of social determinants affecting childhood vaccinations in Oro Bay rural in Oro Province, Papua New Guinea (PNG).

Method: A descriptive qualitative study design using semi-structured interviews and Memoing was employed with fifteen parents of children under five years old using maximum variation sampling technique with diverse sociodemographic background. Thematic analysis was used to transcribe, de-identify and code data to identify emerging themes.

Results: This study found that social determinants of health (SDOH) have considerable effect on childhood vaccination programs at Oro Bay communities.

Conclusion: This paper concludes that rural parents' experiences of children immunization activities produce a nuanced understanding of how parents in rural villages managed multiple social determinants including individual and health systems characteristics for a successful immunization program.

ABBREVIATIONS

PNG: Papua New Guinea; SDOH: Social Determinants of Health; QDA: Qualitative Data Analysis; FGD: Focus Group Discussion; CEO: Chief Executive Officer; NDoH: National Department of Health

INTRODUCTION

Globally, childhood immunization is regarded as the most effective public health strategy that aims to vaccinate and protect children and mothers from contracting infectious diseases [1]. Childhood immunization can be easily implemented at workplace, home, communities and healthcare settings, thus protecting the health of children and preventing unnecessary deaths and disabilities connected with infectious diseases [1]. Child morbidity and mortality remains a serious public health concern in PNG. According to a World Bank report, 54 children die per 1000 live births [2]. This report argued that these unnecessary deaths are partly attributed to poor immunization status. Additionally, child mortality rates in PNG are high compared to

other neighboring countries [3]. The National Department of Health (NDoH) [3] states that one child in every thirteen births (n=1 per 13) in PNG will die before they reach their fifth birthday. The international comparisons show that PNG has high infant mortality of 57 per 1,000 live births and under five mortalities of 75 per 1,000 live births compared to Fiji, Kiribati and Marshall island [3]. Generally, PNG has a weak health systems compared to other neighbouring countries. The defragmentation in health systems potentially affects the effectiveness of health programs. Prideaux [4] concluded that majority of health systems in PNG are weak and poorly supported. His study on health systems and leadership in Madang Province shows that there was inadequate support given to health managers to perform their duties in the districts. In agreement with Murray [4], the World Bank [2] reported that high maternal deaths, infant and child mortalities and burden of infectious diseases like tuberculosis, malaria, pneumonia and diarrhoea are Indicators of rather than attributed to the weak health systems. Furthermore, Asante and Hall [5] claim that poor management and leadership capacity in PNG has been a major concern for many years. They verify that district

health manager's that are not is mainly responsible for the district health services are insufficiently skilled with managerial skills. They summarized that inadequate skills and the ineffectiveness of health managers in PNG, are obstructed by weak administrative and management structures [5]. To improve the current poor child health indicators in PNG, childhood immunization was noted as an important public health strategy to improving children's health in the PNG health sector [3]. However, recent World Bank report [2] shows some significant improvement in the implementation of children programs. They commended that child health programs in PNG have improved by 20% in the last decade attributed to good program implementation and improved environmental circumstances.

This research investigated the subjective experiences of rural parents and guardians of children under five years old about social factors affecting the implementation of childhood immunization in Oro Bay, Oro Province in PNG. Childhood immunization is an important global public health intervention and many authors discuss this topic in many different contexts. Jheeta & Newell [6] study in Africa and Asia argued that parents' knowledge and attitudes towards childhood vaccination have a greater impact on childhood immunization status. Odusanya et al. [7] findings of determinants of vaccination coverage in rural Nigeria concur that parental knowledge of vaccination has a greater influence on full immunization status. They concluded that children that completed full vaccination coverage are from mothers with higher educational level and adequate information on vaccination. The authors also discovered that there is a significant correlation between mothers' knowledge on immunization and attendance to vaccination program conducted by private healthcare facilities. They noted that mothers preferred to vaccinate their child at a private health facility than a state health facility. Several other authors reported similar findings mostly from developing countries in Africa [8] and Egypt [1]. In PNG, Freeman, Thomason and Bukenya [9] examine social factors affecting the use of immunization in urban settlements in Port Moresby, Papua New Guinea. They discovered that mothers' general educational level has a strong influence on knowledge of childhood immunization. In contrast, they argue that the maternal education was not significantly linked with actual practice of bringing children to health facilities. Apart from this study, very limited literatures are available on parents' perspective of social factors using SDOH theories affecting childhood vaccination practices in the context of rural health services in PNG. There is a need to explore this phenomenon from the perspective of rural parents.

MATERIALS AND METHODS

Study design and participants

This study used qualitative methods because the researchers were interested in generating material on the subjective knowledge and experiences of parents in rural communities [10-14]. The study participants were purposively selected based on specific criteria [15]. Fifteen participants (n=14 female, 1= male) were key informants from the local communities including Eroro, Beami and Waiwi villages in Ijivitari District of Oro Province, PNG. Recruitment for the study was conducted through personal visitation, consultation and meetings with local village elders to identify relevant study participants. After establishing the initial

communication with potential parents willing to participate in the study, regular contacts to these villages were conducted during the period of the study from October 2017 to January 2018. To increase the number of participants, we visited the villages regularly with the parents and emphasise the nature of the study. The study site consists of both mountainous and flat land, and is located 50km South East of Popondetta town.

Instruments

In this study, semi-structured interview plays an important role in collecting wide range of data on social factors influencing child vaccinations at Oro Bay communities. Field notes were also used in this study to complement interviews data that cannot be recorded. The researchers used field notes to record actions, behaviours, facial expressions, activities and events observed in bullet points during the interview process. The field notes were summarised immediately after the interviews and analysed the interview data using thematic analysis framework [16]. We audio taped the interviews and had them transcribed professionally verbatim and used codes to maintain participants' confidentiality. The QDA Lite software was used to assist with the analysis of interview data and coding according to thematic analysis framework. Illustrative participants' quotes are consistently used throughout the findings section to add depth and richness to the interpretation [17].

Data were collected using semi-structured in-depth interview and Memoing (Field Notes). All 15 participants were interviewed and audio-taped their narratives with permission from the participants. The duration for each interview lasted 30- 45 minutes using a conversational style preferred by the participants. The researchers also conducted two focus group discussions (FGD).

Ethics approval

Ethics approval was granted from Divine Word University Faculty of Health Sciences Research Committee (DWUFHSRC#07). We also sought permission from gatekeepers such as Chief Executive Officer (CEO) of St Margaret's district hospital and local communities to conduct the study in the respective vaccination catchment areas.

RESULTS AND DISCUSSION

Socio-demographic characteristics of the study participants

Table 1 below shows the characteristics of the study participants. A total of fifteen participants (male=1, female=14) participated in this study. Majority (n=14) of the participants were female with an average age of 30 and have completed primary education level. None of the parents have a tertiary qualification. They were all married and originated from the surrounding communities with vast experiences of the local settings and the health services delivery.

Distance and transportation to vaccination sites

Mothers in Oro Bay Rural travel long distances to access to healthcare services including vaccination activities. This has a significant impact in terms of travel time, cost, and time away

Table 1: Socio-demographic characteristics of the study participants.

Variable	Number
Sex	
Female	14
Male	01
Age	
0-18 years	0
18-30 years	05
31-50 years	09
51 year and above	01
Education	
Primary level (Grades 1 – 8)	04
Secondary level (Grades 9-12)	11
Tertiary level (University & Colleges)	0
Marital status	
Married	15
Single	0
Villages	
Erero	06
Beami	05
Waiwi	04

from their homes. Compared to urban areas, the transportation services in rural places are often lacking. At Oro Bay, it takes roughly 4-5 hours for parents to walk from the villages to the clinic facilities at St Margaret's hospital which is located 50 kilometers from Popondetta town. Furthermore, walking long distances with their child is a problem to many parents. One woman said she don't want to carry her child and walk for 4 hours to the main road to catch a public transport to the health facility. After boarding public transport, mothers travel another 30 minutes to reach the vaccination facilities. As this parent mentioned, "I don't want to walk long distance with my child to the main road and travel 30 minutes again to the clinic" (Participant 2).

On the other hand, accessibility to effective transport infrastructure in rural areas facilitates easy access to vaccine services and promotes vaccination attendance. Participants maintained that due to poor transport access and long travelling distance may contribute partly to children not being fully vaccinated. The geographical conditions also prevented health workers from providing health services in rural places. The health workers cannot go to the villages because there is no road connected to the villages. According to one participant, Participant 1: "Due to long distance and no road access is going through my village, I don't want to walk long distance with my child to the main road".

The same situation has also affected health workers to deliver health services to these villages. It is difficult for health workers to carry medical supplies and walk for several hours to the villages. This may partly explain the reasons why health workers cannot provide vaccination services at the rural villages in Oro Bay. The accessibility of health services could be effectively addressed if clinics were delivered closer to communities through

health extension activities in rural areas where there is limited transportation infrastructure. Fourteen out of fifteen parents living in remote villages reported that walking long distance with their children to access vaccination service is a burden. These parents maintained that regular foot patrols into these rural villages would improve vaccination attendance and full immunization coverage. The lack of access to effective transport system negatively influenced parents to attend full immunization coverage. Therefore, good roads in the districts are conduit to access adequate health care for the majority of rural population.

Parental knowledge of vaccinations and attitudes towards them

In many empirical studies, general parental education is associated with increased access to health services and successful immunization outcome. This study discovered that parental lack of knowledge of vaccination has prevented them from attending immunization programs. Three mothers claimed that they stopped attending vaccination clinics because they were not provided with adequate information about the side effects of vaccination. When parents are not provided with adequate information about the side effects of vaccination, they may distrust the health care system. This lack of information has negatively affected parents' choice to attend vaccination clinics. Three parents reported that they lack confidence in the medical intervention and develop their own method to treat the side effects at home. One mother stated that her child got sick in the afternoon after coming back from a vaccination program. She attributed the cause her child sickness to the vaccination program "Participant 2: "I don't believe in immunization because when I took my first child for immunization and in the afternoon she was sick so I think immunization is not safe, it makes children sick". Furthermore, when parents are not provided with the right information from the health workers, they may never return to health facility to seek medical treatment. Parents questioned the role of vaccination when they see vaccination scars on their children's arm. One parent claim that receiving many vaccinations injections is unhealthy to her child. "Participant 4: "I don't really believe in immunization because from observation, many injections are given to the kids so I think immunization is not healthy as many scars on kids' body". Participant 6: "I stopped going to the clinic because too many injections are given to my baby and when I return home my baby starts to get sick".

The results show that the parents' inadequate knowledge of modern medicine has questioned the relevance of the vaccination and its benefit to the child's health. Additionally, inadequate information provided to the parents about the likely negative effects of vaccination has adverse effect on the child immunization status. Health education and community awareness activities should be promoted in all rural communities.

Health workers' attitude towards parents-social treatment by health workers

Parents lack of trust in health workers and their limited knowledge of vaccination influence parents' attitudes towards childhood immunization. While knowing little about vaccinations does not automatically translate into negative attitudes, a lack of trust in health workers or modern medicine seems to be highly

influential. One mother said that health workers are not generally helpful to parents during medical consultations. This statement seems to come from previous experiences of nurses' attitude towards patients and therefore decides not to take her child for vaccination. Furthermore, the mother decides not to take the child for medical help when the child is sick and instead used local knowledge to treat the child. Participant 8: I thought the nurses would be angry so I decided not to take my baby for immunization. When my son is sick after being immunized, I usually bath him with warm water". Health workers' actions towards mothers is partly a contributing factor to improving children's health. As in the previous interview notes, we found similar situation where parents basically do not have the right information to make informed decisions. In addition, religious affiliations have also influenced parents' knowledge of vaccination. One mother voiced suspicions that childhood vaccination was associated with religious beliefs and she claimed that health workers kept this information secret. Participant 7: "I know that Immunization is important but since the nurses do not explain the effect of the vaccination I fear if they hide something secret like 666 so I lack trust on immunization". Employing health workers with the right knowledge and skills in all health facilities is important because they provide relevant health information to patients. Adequate parental knowledge of vaccination is associated with increased accessibility to health care services.

Inconsistent delivery of childhood vaccination program

The inconsistency in the vaccination program has affected many parents. The participants reported that cancelling scheduled vaccines services potentially put parents at risk of never returning back to vaccinate their children. At Oro Bay villages, if parents miss the first vaccination, many factors limit parents' abilities to continue vaccinations such as meeting demanding family obligations, long travelling distances from the villages to health facilities, and travelling cost. One parent claims that she stopped attending vaccination program after many unsuccessful attempts to bring her child to the clinic. She argued that every time she reported to the clinic, she was told to come back the next day. This practice has caused frustration among the parents. Furthermore, the economic burdens imposed on the parents including travelling cost, labour cost, missing out on other family responsibilities has affected parents' abilities to attend vaccination program. Participant 5: "I stop going to the clinic for my child's immunization because every time when I go there the nurses would say go back and come the next day so thus I gave up and on that wait for longer time". Health workers postponed clinics services for many reasons. Some of the obvious reasons include shortage of essential vaccinations, syringes, needles and cold chain logistics. This situation has painted a bad image of the healthcare system in general and many parents lack trust and never returned. In addition, deferring vaccine services also delays the child's vaccination status. Another participant made similar report that she was told to return next time and thus never went back to complete the immunization. Participant 3: "After some time, the nurse arrived and told us to go back and come the next day. By the time we came home my baby became sick because I carried him in the hot sun. However, I didn't give up, the next day I went, walking from far distance to the clinic

and again the same thing happened". Good management of essential vaccination medicines are critical to increase the level of vaccination coverage and improved health outcomes for children.

Health workers behaviour and attitudes towards parents

Parents were concerned about health workers' attitude towards them at the health facilities. Parents perceptions of health workers behaviour have varied adverse implications including not attending future vaccinations and refrained from seeking medical treatment at the health center. One parent witnessed a staff being aggressive to parents and does not want to put herself into the same situation and refrained from seeking further medical help at the health center. She mentioned that to prevent her from going through similar unfriendly experiences, she decided to use alternative local treatment for her sick child. "Participant 2: "For the first time I took my child for her second immunization and discovered that the nurses talk aggressively to us the parents so from that time on wards I don't go for my child's immunization. When she gets sick I boil warm water and wash her"

This study shows that issues associated with the behaviour of health care providers are clearly important, especially concerning the relationship between the parents and health care workers at the immunization point. Some parents raised similar concerns with having to wait long hours to get medical treatment and has caused frustration among parents. During our data collection at one of the health facility, we observed that it took 20 – 30 minutes for one patient to consult a health worker. We also noted that only one nurse was working at the time of our visitation and that could have partly contributed to the long hours of waiting. Additionally, the multiple tasks involved to manage the patients at the clinic site was another important determinant contributing to long waiting time. The participants stated that many of them withdraw from immunization clinics because of the long waiting time. Participant 5: "I stop going to the clinic for my child's immunization because every time when I go there I would wait there for more than two hours and my child felt very tired and cried a lot, even though I opened the tap and washed him. In my mind I thought my baby would be the first one to be treated, however, the nurse treated her relatives first instead. I was waiting there for a very time and at last my baby got treatment. From that time, I quit going back to the clinic again". The health workers' attendance and punctuality to work have the potential to influence patients' health seeking behaviour. In contrast, giving priority over close friends and families compared to general population is a critical concern. Participants reported that nurses' preference to see friends first over others have discouraged other parents from attending immunization clinics.

Gender roles, norms, and power dynamics and access to healthcare

Both men and women face major obstacles in accessing health services. Frequently, these obstacles arise from underlying gender roles and power dynamics. Women in this study lacks power to make decisions, coupled with men's limited knowledge and access of childhood vaccination and its importance to the

health status of children. Hence, the direct influence of gender inequalities that shaped these decisions can be difficult, and if not impossible to address them. One mother from this study reported that she sometimes missed vaccination services as she attends to domestic work while the men is not willing to help her to bring the child to the vaccination site. Participant 5: "I sometimes skip vaccination because I do garden work and housework and my husband does not help me". In such situations, health workers can develop strategies that accommodate these inequalities and barriers by addressing these issues, thereby increasing access to health information and vaccination activities and improving health outcomes of children.

Connecting the links between the rural communities and local health care providers may improve families access to gender sensitive health information and health services. The current study discovered that many women are concerned about their husbands behaviour and may not access health services including vaccination programs without the support from their husbands, families, and or community. Health interventions that are arranged that connects communities and local health care facilities may improve the frequency of health seeking behaviour by communities. When there is lack of capacity to deliver gender sensitive health information and services to husbands, they may not support their wife to access health services. For example, a husband replied to her wife that childhood vaccination is not his problem and does not support her to meet the healthcare cost. When the gender sensitive roles, norms and power dynamics are not addressed, men see childhood vaccination as women's responsibility and they have no part in this health program "One participant reported, ". I quit taking my child for immunization because when I ask my husband for money to take our child for immunization, he always responds to me in an aggressive way saying "it's your responsibility, take her for vaccination, and do not ask me for money as I'm not your Automatic Telling Machine (ATM). (Participant 15). Another woman made similar comment that vaccination activities are not men's responsibility and therefore do not offer to help the mothers, Participant 3:" I don't take my child for immunization because my husband doesn't give me money or even help me to take him to the clinic". Gender roles and responsibilities at Oro Bay rural villages play a role to determine family activities. The demanding household activities a woman does also prevented them from taking the child to the immunization facility. Two (2) participants from the fifteen (15) participants said that attending to demanding family obligations has prevented them from taking their children to be vaccinated. In addition, men do not bother to help the women during these busy schedules. Two (2) women testify that it is a cultural practice that they are engaged with household activities and therefore missed the vaccination program. Participant 1:" Most of the times I don't come for my child's immunization due too many house work keeps me busy and I forget about the immunization". Another mother also reported similar events where they were occupied with household work and her husband is not willing to help the mother to bring the child to be vaccinated. Participant 5: "I sometimes skip vaccination because I do garden work and housework and my husband does help me". In Oro Bay, the different roles and responsibilities of men and women have an impact on childhood immunization.

Prioritising family obligations over health needs

Prioritising family demands and obligations have a negative influence on childhood vaccination. Two (2) parents said that attending to social events such as death of a relative and bride price ceremony has taken up their time to bring their children to the vaccination clinics. Families in Oro Bay are very much part of traditional culture and have a close family bond and missing important family event such as death and bride price would be a disgraced to oneself. In such situation, families in Oro Bay placed preference of fulfilling family obligations over children immunization status. These two mothers talked about being able to manage multiple family obligations like attending funeral services, bride price activity and vaccination clinics and do not have time to bring the child to the vaccination site. One participant said they attended a death of a relative and missed the vaccination. Participant 1:" My baby missed her 5th immunization, I didn't bring her to the clinic because on that same day of her immunization my sister in law passed away so I was at the funeral and forgot about the immunization. After a week my baby was very sick and when I took her to the St Margaret's district hospital the nurse really got on me, after I told her that I missed her immunization". The other parent said she missed the vaccination clinic because the entire family went to assist her sisters' bride price festival. "Participant 8:" After the first vaccination of my son since his birth in the St Margaret's District hospital, I don't go back for immunization again because on his second immunization, I attended my sister's bride price so from that time on wards".

Parents level of education and health literacy

Education is among the most significant social determinant of health. A parent in this study portrayed the challenges she encountered because she missed out the benefit of attaining a good education. This participant who dropped out of the formal education system finds it extremely difficult to cope with the issues of life and eventually impacting on the vaccination status of her child. She also reported that due to financial constraints to meet the cost of medical care, she uses traditional medical treatment to treat her sick child. However, the child has not recovered from her treatment and thus puts the child's life at risk of developing further serious health problems. Parental general educational level and knowledge is an important predictor of correct immunization for children age. Participant 6:" I didn't complete my education, I dropped out from grade five and married and when I was pregnant four months, my husband died on a car accident, thus makes my life very complicated. Now my baby feels sick I make steam with green leaves and wash her for her to get well but she isn't recover yet".

People with no education has missed out on many good benefits such as getting a paid job, proper marriage decisions, access to timely healthcare, and have an improved living standard. A mother in this study reported that because she is not employed in a formal job, she now depends on her parents for support. However, the parents are aging and therefore cannot adequately sustain their living conditions for the entire family. This participant lives on a basic minimum income at the mercy of her aging parents. Subsequently, the lack of income to meet the explicit and implicit cost of medical care has prevented her

from taking her child for vaccination and the child has not been fully vaccinated.” I live with my parents and they are old and their lands are used by brothers for farming, thus we live in poverty. Sometimes when they feel sorry for me and my baby and give me k5(2.5AUD) or k10 (5AUD), I think of my daughter’s clothes. Hence, I don’t have money to take my baby for immunization so I forget all about immunization.”. The general education of individuals is associated with improved living standards, paid employment, higher income and high level of health outcomes

Household Living Conditions

Generally, access to healthcare services and vaccination programs in rural communities is limited. Ijivitari is the district headquarter of Ijivitari district and has five local level governments (LLG) including Oro Bay Rural, Safia Rural, Afore Rural, Popondetta Urban and Tufi Rural. The current study was conducted in Oro Bay Rural Local Level Government where rural villagers live on a minimum income of K4.00 (2 AUD) per day. The costs of living for the family is a major concern when confronted with medical conditions over other basic needs such as clothing, foods, and meeting family obligations. Therefore, fathers generally seem to be conscious of this financial circumstance. Three participants affirm that their husbands prioritized other family needs more important than child vaccination. They mentioned that the gender roles men and women have in the communities have influenced the process of making decision in the household. This study revealed that men regarded child immunization as women’s role as mentioned by one of the mothers. Several other mothers also reported that when they ask their husband to help them with some money to take the child to be vaccinated, the husbands gave negative responses. This is what three mothers have to say about the importance of understanding the roles of men and women in the household. “it is your duty, take the child to the clinic” (Participant 1, 7, 14). These negative responses from the fathers and the different opinions between the child health and welfare has limited mothers from attending child clinics to vaccinate their children, posing greater risk of contracting easily preventable contagious diseases. As previously asserted, villagers earn income from the sales of sweet potato, coconut and sago but there are few opportunities for income for these activities. The inadequate economic activities play a major role in access to essential healthcare services including immunization programs. The deprived living standards in rural communities are associated with reduced childhood immunization status, thus, increases the risk of childhood morbidity and mortality associated with diseases, and further places more pressure on the already overstretched healthcare system. This is what one participant had to say about “Participant 1: “I quit taking my child for immunization because when I ask him for money to take our child for immunization, he always responds to me in an aggressive way saying “it’s your responsibility, take her for vaccination, and do not ask me for money as I’m not your ATM machine here” and thus always results in chaos between us so though she not only my responsibility so if he would be smart enough to speak such words why would I waste my time taking her for immunization thus I gave up.”

Employment

Employment is another key social determinant of health. Employment means that a person is fully engaged in a fulltime job and has regular income. Children coming from employed parents who are working on a paid job is more likely to access healthcare services including vaccinations compared to children coming from unemployed parents. One of the parents mentioned that both spouses are villagers and are not employed in any form of paid work. These parents maintained that they do not have adequate money to pay for all the direct and indirect cost such as the child health record book, transport fares and medical cost. As a result of this financial constraints, the child was not taken to the clinic facility to be vaccinated. At Oro Bay rural, the family’s demand for basic necessities are high and the income the families earned is low and are struggling to meet the demands of the high cost of living. They stressed that the little income they earned from selling garden products from their subsistence farming were used to purchased groceries from the store such as cooking oil, soap and lighting accessories for domestic use. This is what one parent had to say about income and accessing vaccination program. Participant 4:” We do not take our child because both of us are unemployed and live on subsistence farming and have not enough money to consider her clinic card and pay for dingy fee to travel to the clinic. Little we earn from selling garden foods and fish, we buy cooking oil, soap, and torch for the house”. After spending all we receive, we realize that we have nothing left/ insufficient money to buy her clinic card and pay the fees charged.”. Limited financial resources that occurred as a result of unemployment is a major social determinants affecting effective vaccination childhood activities in Oro Bay, Rural. The participants’ statements show that there is a positive association between accessibility to health services and employment.

DISCUSSION

This study was conducted in a rural district with majority of the parents who completed primary education and all of them are villagers with no formal job. These sociodemographic features potentially affected parents’ abilities in many different ways to bring their children to fully complete the vaccination status. The local communities are served by outreach and mobile clinics, making access to health facilities from the villages and access to the villages by health centres vital factors in vaccination coverage rates. The results also show that the distance taken for the mothers to travel to the health facilities is a major limiting factor to seek healthcare including vaccination programs in Oro Bay Rural. Studies have shown that accessibility to healthcare services in low and middle income countries have been identified as the major determinant of health seeking behaviour. This problem is also seen in Kenya with diabetic patients in rural communities [18]. The long travelling distance has impact their choice of health facility, cost of health services, number of clinic consultations and mode of transport from their villages to the health facility. Blanford, Kumar, and Luo [19] agree that organising health services closer to the communities such as increasing regular mobile clinics, establishing community health post (CHP) in rural villages, and improving rural roads and transport infrastructure could increase the level of accessibilities to healthcare.

Access to primary health care is important to good health, yet, several issues have seriously prevented communities in rural villages to access basic healthcare [19]. Blandford [19] argued that the timely use of individual health services is significant to accomplish optimum health outcome. Ideally, communities in rural villages should be able to confidently and conveniently access essential primary care including vaccination services. The WHO [20] concur that access to healthcare is critical for general health and wellbeing, prevent diseases, prompt diagnosis and management of diseases, quality of life, prevents morbidity and mortalities and increase life expectancy. As such, this study reveals that rural communities very often face obstacles to health services that limit their capabilities to seek quality healthcare. Thus, essential and relevant health care services should be available and obtainable in a timely manner in order for people residing in rural villages to have adequate access to necessary healthcare to have good health [18].

Parental general education and knowledge of gender sensitive health services and are key determinant of health seeking behaviour. Providing adequate health information to both parents may reduce the dynamics of gender norms and dynamics of power played between the husband and wife. It is obvious in this study that the lack of education and gender sensitive health information has limited women from attending vaccination sites for their children. Vezzosi, Santagati, & Angelillo [21] study in Naples in Italy shows that parents who are educated develop a positive attitude towards vaccination and better knowledge of dangers and benefits of immunization. In addition, the frequency is high with parents who know about immunization and had knowledge of immunization. Mothers at Oro Bay maintained their position to attend vaccination program despite negative staff behaviour, cost of medical care and long travelling time. Mothers knew the importance to immunization but simply missed vaccination schedule due to demanding family obligations. Much of the literatures regarding refusal to vaccinate their children is associated with maternal knowledge and attitude towards immunization [22]. Twesigye discovered that women in rural Uganda in Africa missed vaccination because of fears of side effects, ignorance/disinterested and laziness. Recent work on the adoption of new intervention by Njidda et al. [23] suggest that the introduction of new interventions may take time for some women to accept, as they may be confronted with confusion, doubts and suspicious. This may be important for women with low educational level and may require adequate information from health workers to help them to make informed decisions. One women in this study mentioned that health workers have not explained clearly to her regarding vaccinations and suspected that it could be related to religious beliefs. Despite these efforts to educate parents the need to vaccinate their children through discussions of preventable diseases, and effectiveness of vaccines to protect them, some decline to have their children vaccinated [23].

The reasons for not vaccinating children in other parts of the world are similar to the experiences of parents in Oro Bay rural villages in PNG. Vezzosi et al., [21] study confirms the findings of our study that travel, financial problems, being fearful of side effects, discouragement from husband or family, crowds or long waits, lack of time or being too busy and, disrespectful health

staff are common phenomena among parents. Bakhache et al. [24] discovered that some mothers dislike causing too many pain to their children when they see vaccination scars. They argue that both parents should be provided with adequate health information including unwanted side effects such as fevers, sore, redness and scars as a result of vaccination. Several mothers at Oro Bay said similar perceptions of vaccinations.

CONCLUSION

The factors influencing caregivers' demand for childhood immunizations vary widely between, and also within, developing countries. Research that elucidates local knowledge and attitudes, like this study, allows for decisions and policy pertaining to vaccination programs to be more effective at improving child vaccination rates. As is common with any qualitative research, it is context specific and therefore the findings may not be automatically generalised to other population. However, immunization is a global program and is a key health plan in the current national health policy in PNG, and therefore, the results may be beneficial for health professionals delivering immunization programs in other parts of PNG. There is a need to conduct further research on how gender roles, norms and power dynamics in Oro Bay district and more broadly in PNG influenced parents' decision making process in the family to access healthcare services. The results generated from this study may be useful for maternal and child health nurses, program managers and health workers to plan immunization programs and develop health policies from the perspective of mothers accessing vaccination services at the rural villages.

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