

Knowledge of pneumonia, perceived susceptibility and mothers' care-seeking behaviour in Saki West Local Government Area of Oyo State, Nigeria

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Abstract

Background: Pneumonia is one of the public health issues that is prevalent in Nigeria. Perceived susceptibility and the knowledge of health issues have been identified as essential predictors of care seeking behaviour. However, there is scarcity of studies that have linked these variables (perceived susceptibility and the knowledge of pneumonia) with on mothers' care seeking behaviour.

Objectives: This study examined the influence of knowledge of pneumonia and perceived susceptibility on mother's care seeking behaviour for under-five children in a selected area of Oyo State.

Methodology: A cross sectional research design was adopted while multi-stage sampling method was used to randomly select 546 women for the study. The questionnaire served as the instrument for data collection. The age of the participants ranges 15 and 53 years with 28.49 ± 6.99 . Results were analysed using descriptive and inferential statistics.

Results: The outcome revealed that perceived susceptibility had a significant positive relationship with knowledge of pneumonia in mothers whose children were living with pneumonia ($r [546] = .275, P < .01$). Similarly, perceived susceptibility significantly and positively connected with mothers' care seeking behaviour ($r [546] = .088, P < .05$). However, knowledge of pneumonia did not significantly associate with care seeking behaviour ($r [546] = .045, P > .05$). Furthermore, knowledge level of pneumonia showed no significant association with mothers' care seeking behaviour ($t [544] = -.235, P > .05$). Finally, there was a significant association between knowledge of pneumonia and perceived susceptibility to the health issue ($t [544] = -3.65, p < .01$), as women with high knowledge level of pneumonia ($=34.56, SD=5.17$) significantly reported more perceived susceptibility to pneumonia than women with low knowledge level of Pneumonia ($=32.91, SD=5.19$).

Unique contribution: The current study has shown that mothers whose children are susceptible to pneumonia basically had some levels of knowledge of health issue and thereafter seek care for their children. This information will be useful for health campaigns on how to combat pneumonia.

Conclusion: The study concludes that perceived susceptibility is significantly associated with knowledge of pneumonia and care seeking behaviour among mothers whose children live with pneumonia. Also, knowledge level of pneumonia did not significantly link with perceived susceptibility.

Key recommendation: Efforts should be put in place to better improve mothers' care seeking knowledge of pneumonia with a corresponding possibility for improvement in care seeking behaviour.

Keywords: knowledge of pneumonia; perceived susceptibility; mothers' care seeking behaviour, Oyo-State, Nigeria

Introduction

The prevalence of pneumonia among children within the age range of five is becoming alarming, as pneumonia becomes one among the leading causes of death around the globe today (Black *et al.*, 2003). The disease accounts for about 16% death among global children (International Vaccine Access Centre [IVAC] 2016; United Nations Children's Education Fund [UNICEF], 2011). About 74% world's annual cases of pneumonia were contributed by Fifteen countries (Rudan, *et al.*, 2008; IVAC, 2012; UNICEF, 2012, 2006;). pneumonia cases in African countries including Kenya, Ghana, Nigeria, among others, form the foremost cause of children mortality with about 21% of under-five child(ren)'s death (Onyango, *et al.*, 2012; Tong, 2013; World Health Organization, [WHO], 2007).

Even though there is a slight drop in the percentages of mortality from about 35% since 1990 to 30% till 2015; the major killer of children remains the pneumonia disease mostly among the children of sub-Saharan Africa and in Southern Asia's low and middle-income countries with developing economy (United Nations Report, 2011; Wang, *et al.*, 2012). Moreover, as reported by UNICEF (2011), about 6million deaths were caused by infectious diseases; pneumonia cases (1.6million) shared largest proportion, diarrhoea (1.3 million) and malaria (0.7 million) of the 8.8 million deaths recorded among under-five years of age children worldwide in 2008.

According to reports retrieved from Demographic Household Survey and Multiple Indicator Cluster Surveys between 1998 to 2004, their studies suggested that care-seeking behaviour of the caregivers or parents with child(ren) living with pneumonia is responsible for the higher occurrence of pneumonia both in the developed and developing countries (UNICEF, 2012; WHO, 2006). Data between 2000 to 2010 from MICS and DHS showed that mother's care for children with symptoms of pneumonia was slightly increased from 54% to 60% in most of their studied developing countries in 2010 (UNICEF, 2012).

Despite significant success in mortality reductions and child survival efforts, there exist much disparities in morbidity and mortality among the richest and poorest households across regions (UNICEF, 2012). Johnson and Abdulkarim's (2013) review emphasized that the morbidity and mortality burden of pneumonia in childhood are most seen in poor countries, due to the care-seeking behaviour of the care-giver(s) and the relatives of the children living with pneumonia, and the subsisting risk factors including knowledge and susceptibility among others are responsible for pneumonia-related morbidity and mortality. Hence, a further study on the levels of care-seeking behaviour and its predictive factors is unavoidably needed.

Health seeking behaviour referred to as the illness behaviour that is situated within the broader conception of health behaviour, which emphasized the need for prevention of ill health and maintain sound mind (Olenja, 2004). According to Ahmed, *et al.*, (2000), the care seeking behaviour connotes the taken sequence of remedial actions in order to correct perceived ill-health. Operationally, health seeking behaviour requires any (in)actions carried out by individual to identify a health problem and finding an appropriate and suitable solution(s) to such health

problem (MacKian, 2003; Olenja, 2004). Various studies have described the dimensions of health seeking behaviour during illness episodes (Geldsetzer, *et al.* 2014; Moyer, *et al.*, 2014), such as the health care behaviour of people as described in their series of steps people take towards their healthcare popularly called the 'pathway models' while other dimension is the development of illness response or health seeking behaviour (Andersen, 1995; Rahman, 2000; Rosenstock, 2005). There has been debate on the dimensions of health seeking behaviour which has been due to the question of what enables the usage of health services and impacts the people to differently behave in relation to individual health (Tipping & Segall, 1995). As such, most of the past studies reiterated the parent or caregiver's choice to engage in a specific medical modality or channel which has been established to be influenced by varieties of factors including socio-economic status, gender, age, access to services, social status, level of income types and knowledge of illness and perceived service quality and individual illness susceptibility (Cronin, *et al.*, 2013; Gao, *et al.*, 2012; Webair & Bin-Gouth, 2013). Thus, there is paucity in research as regards the influence of perceived susceptibility and general knowledge on care seeking behaviour among mothers' whose children live with pneumonia in selected local government areas in Oyo state, southwestern Nigeria.

Knowledge of pneumonia and care seeking behaviour

Empirically, study has shown that knowledge of illness goes a long way in determining health seeking behaviour (Hadi, *et al.*, 2010). The more tenacious the caregiver/parent to identify and seek adequate care for their common child/ward's illnesses, the better and faster the reduced their child's mortality especially in developing countries. As revealed by researchers, the prompt knowledge about signs and symptoms of illness during childhood pneumonia depends upon mothers' perception and general knowledge about the pneumonia which thereafter determines their health seeking behaviour (Oyekale, 2011; Tanner & Vlassoff, 1998). Although, delays in seeking appropriate medical care could be due to poor knowledge of the illness, which contributes to severity of children disease (Leonard & MC, 2007). Additionally, scholars have discovered that parent's poor knowledge about the child (ren) illness results to poor practice of health seeking behaviour can be attributed to inability to early discoveries of signs and symptoms of the illness (Central Statistical Agency, 2012; Pérez-Cuevas, *et al.*, 1996). Similarly, the inability of the parents/caregivers to acknowledge that something is wrong with their child (ren) could result to that child (ren)'s susceptibility to a particular disease, which may also increase the rate of mortality (Greenwald, *et al.*, 1977). As such, specific or general knowledge about pneumonia is very important in reducing mortality.

Perceived Susceptibility to pneumonia and care seeking behaviour

The individual's tendency to perform certain health seeking behavior is connected to the perceived risk, benefits and barriers of possible behavioural change (Champion & Skinner, 2008). Additionally, Do, *et al.*, (2018) revealed that there are steady connections among possible quality of treatment or care, perceived susceptibility and health care-seeking behaviour among children in a formal sector. Similarly, various factors like socio-demographic factors, reported susceptibility, severity, obstacle or barriers, and benefits have been found to associate with treatment-seeking (Basavanthappa, 2008), with caregiver's who perceived their child (ren) are

susceptible to illness tends to be quicker in seeking treatment than caregivers who perceived that their child (ren) are less likely to be susceptible to illness (Dida, *et al.*, 2015). In Nigeria especially, early and promptly seeking treatment of formal sector facility was significantly related to perceived susceptibility (Do, *et al.*, 2018).

However, Ingabire, *et al.*, (2016) and Colvin, *et al.* (2013) showed that perceived susceptibility did not significantly correlate with care seeking behaviour of the mothers whose children are affected with illness.

Empirical Studies on Knowledge, Perceived Susceptibility to pneumonia and care seeking behaviour

Cody, (1993) reiterated in their qualitative study on the mother's perceptions of the etiology and proper treatment of childhood pneumonia that ,the majority of mothers believe pneumonia to have a physical rather than supernatural cause, specifically exposure to cold, and as such the illness should be treated with "hot" remedies. In the study, most of the mothers consulted practitioners of allopathic medicine (trained and untrained) hospital-based and private, and never sought traditional homeopaths, hakims or religious healers, or government doctors. Their result further showed that an increase in delay between onset of symptoms and admission was connected, with mother's who once had experience caring for a child with pneumonia behaved no differently than those without experiences; mothers from extended families reported health seeking behaviours, More so, no correlations was found between either gender or severity of illness on admission with health-seeking behaviours.

Additionally, Latunji, and Akinyemi, (2018) established in their cross sectional study that poorer participants were six times likely to have more inappropriate health seeking behaviour compared to richer participants. Also identified in their study, common and often visit to the hospital were basis of healthcare among the participants of study, followed by regular visit to chemist and traditional/orthodox healers. The authors found out that more than half of the studied participants stated that good service delivery is a very important issue affecting their health seeking behaviour, coupled with proximity of the participants and affordability of health services, prompt attention of the health care providers and readily-available drugs for patients. Furthermore in their study, the authors revealed that having some basic educational background was linked to a decreased possibility of looking up for healthcare from formal sources.

Similarly, Onyango, *et al.*, (2012) documented the identification of risk factors for severe pneumonia in under-five aged children among Kenyan. In their study, comorbidity and interruption in the seeking of treatment for more than three days were some of the recognized risk factors for severe pneumonia in children despite the fact that receiving home care antibiotics can be protective.

In the same vein, Agbokey *et al.*, (2019) established that their selected participants were knowledgeable about the signs and symptoms of pneumonia especially after their diagnosis although low knowledge for the risk factors pneumonia and as their first point of care, was health facility. Moreover, Kuuire, *et al.*, (2015) discovered in their study that individuals in the poor and poorest wealth cadre enrolled in the National Health Insurance Scheme were possibly not

going to seek treatment in a health facility than individuals in the richest wealth cadre who are mostly signed up for NHIS.

In Cassy, *et al.*, (2019) correlational study among Mozambique population, care-seeking behaviour among the participants in private-public sectors continued to be stabled especially during a period of 2011, with about 63.7% increase in 2015. The authors further reported that care seeking becomes common behaviour among mothers who had some levels of education and among those in poorer quintile, while mothers with higher level of education were less possible to seek care about their child's illness. Also in Mitiku, and Assefa,(2017), overall, 94.1% of the participants of their study reported that their illness has some common symptoms and factors which serves as the predictors of treatment-seeking such symptoms/factors could be place of residence, care givers age, knowledge of illness, perceived susceptibility and barrier to seeking of treatment.

However, Do, *et al.*, (2018) showed that there are variations in seeking treatment for illness of children under-five years across countries. In their study, seeking care for children under-five years was mostly taking in the formal health sector which is different standard of health in Nigeria and that of Madagascar. Other identified factors in the study include the caregivers' perceived social norms and knowledge of the cause of illness are possible factors connected with care-seeking behaviour.

In Sisay, *et al.*, (2017) study on the assessment of mother's health care seeking behaviour. The authors documented that most of the respondents in their study reported that, there were some of the childhood illnesses that are possibly not been treated by present day modern medicine before the discovery of the illness. Similarly recorded, mothers with higher educational level and qualifications were more likely to exhibit care-seeking behaviour compared with mothers with little or no formal education. Additionally, their study showed that place of participant's residence seemed a significant factor responsible for health care-seeking, as urban dwellers mostly seek health care than rural dwellers.

Despite these findings on perceived susceptibility, knowledge of pneumonia and care seeking behaviour, there are no published studies on either the correlation among or influence of knowledge of pneumonia, perceived susceptibility and mother's care seeking behaviour of under-five children in a selected area of Oyo-State. Also, there seems to be no consistency in literature as regard knowledge of pneumonia, perceived susceptibility relating to mother's care seeking behaviour of under-five children in a selected area, in Oyo-State. As such, further studies needed to be conducted to throw more light into this area and fill the lacuna in literatures. In view of this, two research questions were raised, the first is to see either there are significant relationship among knowledge, perceived susceptibility to pneumonia and health care seeking behaviour? While the other research question is to ascertain whether the knowledge level of pneumonia is significantly different on Perceived Susceptibility and Health Care Seeking Behaviour? To answer these questions, two hypotheses were stated and tested, these include: (1) there will be a significant relationship among knowledge, perceived susceptibility to pneumonia and health care seeking behaviour (2) knowledge level of pneumonia will be significantly different on perceived susceptibility and health care seeking behaviour.

Methods

Research Design

A cross sectional survey research design was employed in the study. The interested variables of the study includes: perceived susceptibility, general knowledge of pneumonia (low and high) and health care seeking behaviour. The independent variable in the study was general knowledge of pneumonia (low and high) while the dependent variables were perceived susceptibility and care seeking behaviour.

Participants

Five hundred and forty six (546) women who have one or more children under-five who is having or once had pneumonia and have lived in the community for up to 6 months were recruited for the household survey. The women's age ranges between 15 and 53 years with mean of 28.49 and standard deviation of 6.99 involved in the study. About 119(21.8%) Women had had one child at the time of the study, while 164(30%) women had two children, 138(25.3%) had three children, 91(16.7%) women had four children, 25(4.6%) women had five children and about 9(1.6%) women had 6 children at the time of the study. Additionally, about 119(21.8%) women had their children's age was as one year old; 164(30%) women had their children's age at two years old, 138(25.3%) women had their children's age at three years old, 91(16.7%) women had their children's age at four years old, while about 34(6.1%) of the women had their children's age at five years old when the study was carried out. Based on ethnic group, 516(94.5%) of the participants were Yoruba, 18 (3.3%) were Igbo and 1(0.2%) was Hausa; while about 11(2%) of the participants didn't specify their ethnic group. Similarly, 130(23.8%) women were Christian, 415(74.2%) women were Muslim while 1(0.2%) woman did not specify her religion. Based on educational qualification, about 108(19.8%) of the women had no formal education, 179(32.8%) of the women had primary education, 184(33.7%) of the women had secondary education, 61(11.2%) of the women had tertiary education, and 12(2.2%) of the women had postgraduate education, while 2(0.4%) women had PhD. The occupation of the participants varies from business, fashion design, unemployed, teaching, auxiliary nurse, to civil servant. One hundred and eleven (111) (20.3%) of the women had other sources of income while 435(79.3%) had no other sources of income. About 487(8.6%) of the participants claimed they were married, 52(9.5%) of the women were separated, 7(1.3%) women were divorced while about 5(0.9%) women were widowed at the time of the study. About 90(16.5%) of the women claimed they were living alone while 456(83.5%) of the women were living with their spouse at the time of the study.

2.3. Setting

The locations of the study were among the community households in the Saki West Local Government Area (LGA) of Oyo State, Southwest, Nigeria. This area is a multi-ethnic rural population and a border community under the Oyo North Senatorial District. The area has the highest prevalence of childhood pneumonia among all the LGAs in the State (Oyo State Ministry of Health Record, 2014). Saki West LGA was created in 1996 out of the defunct Ifedapo Local government. The total population of the LGA was 273,268 as at the 2006 population census (NPC, 2000 p 48). The 2017 estimated population of the area was 371,456 with 49,952 children under-five. The Saki West LGA has eleven wards with its administrative headquarters in Saki town, which is about 182km to Ibadan the capital city of Oyo state. Among the towns and LGA

that shared boundaries with the studied town, includes Saki East LGA to the east, Atisbo LGA to the west, Baruten LGA of Kwara State to the South and Republic of Benin in the west. The people of the studied town are primarily Yoruba people with other ethnic groups including Hausa, Nupe, Jugu, Zomba, Ibariba, and so on. The three major Health Institutions in the LGA are Baptist Medical Centre, the State Hospital and Muslim Hospital.

Sampling techniques

Participants were sampled into the study through a multi-stage sampling technique. The first stage of selection: a purposive sampling technique was adopted to select Saki West LGA, based on high prevalence of childhood pneumonia. Stage two of the sampling involved the clustering of Saki west into rural – urban communities and high and low density areas. The stage three employed simple random sampling technique to select streets and neighborhoods from the sub-clusters, while households with children under-five were purposively selected. However, household without a child or child (ren) under-five years old was excluded in the study. Mothers of children under-five and other significant others like grandmothers, aunties who also assist in childcare were selected into the study.

Instrument

The major instrument for the study was a structured questionnaire which consist of four sections including A, B, C and D.

In Section A, information on participant’s demographic characteristics like mother’s age, numbers of children, children’s age, ethnic group, religion, educational qualification, employment status, marital status, status of marriage were gathered.

In Section B: The perceived susceptibility scale was adapted as developed by Forsyth, *et al.*, (1996). The scale defines child’s vulnerability/susceptibility as the propensity to perform certain health behaviour due to perceived threat, benefits and barriers, which May likely lead to behavioural change. The 12-items scale was on 5-point likert format, with the items directly scored; the response format ranges from strongly disagree(1), disagree(2), undecided (3), agree(4), strongly agree(5). The instrument’s items were face validated before the pilot study. Some of the items include: “I get concerned about my child (ren)'s breathing or respiratory condition” “pneumonia can occur in any age group” “My child can be susceptible to pneumonia”. The higher the score, the more the tendency to be susceptible to pneumonia and vice-versa. The internal consistency for the scale during pilot-study was 0.89, while 0.90 Cronbach alpha (α) values were yielded during this study.

Section C: This aspect of the researchers’ instrument was named the Knowledge of pneumonia Scale. The items were developed and created by the researchers. The items described knowledge as the caregiver/parent tenacity to know and seek suitable and proper health care for their child(ren)’s common illnesses or the inability of the parents/caregivers to acknowledge that something is wrong with their child(ren) which may possibly lead to mortality, this is similar to Greenwald, *et al.*, (1977). The structured questions undergone standard scale development steps including content, face, and construct validity. The scale has 10items structured in 5-point likert format, with the items directly scored; The response format includes strongly disagree (1), disagree (2), undecided (3), agree (4) and strongly agree (5). Some of the questions/items of this aspect of questionnaire includes: “pneumonia is caused by environmental micro- organisms”

“Exposure to cold can cause pneumonia in children” Cooking with biomass fuel, wood, or saw dust can cause pneumonia” “Indoor air pollution can cause pneumonia”. The items are directly scored with higher score representing better knowledge of Pneumonia and vice-versa. The authors reported internal consistency of 0.78 during pilot study while 0.80 was documented during this study.

Section D: Care Seeking Scale Behaviour. The items of the scale were adapted from the questionnaire measuring intentions to seek professional help which was developed by O’Connor, *et al.*, (2014). In the scale, O’Connor, *et al.*, (2014) defines care seeking behaviour as the illness behaviour that is situated within the broader conception of health behaviour, which is prompted by a proactive way of seeking help from health professionals such as medical doctor, nurse, clinical psychologist and so on, concerning one’s child health status. Some of the items for CSSB include “I frequently have to keep my child(ren) indoor due to health reasons” “When there is disease going on around me, my child(ren) usually catches it” “Occasionally I am concerned that my child(ren) doesn’t always look as healthy as I think he/she should”. The scale has 20 items structured in 5-point likert format. The response format includes: strongly agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1). The greater scores denote proper care seeking behaviour and vice versa. Some of the items were scored indirectly while others are scored directly. During the pilot study, 0.76 internal consistency was reported, while 0.81 was documented during this study.

Ethical approval for the study

The study was approved by the Social Sciences and Humanities Research Ethics Committee (SSHREC) of the University of Ibadan, Oyo State, Southwest, Nigeria. Approval date for the study was between 28 May 2018 and 29 May 2019, with UI/Social Sciences Ethics Committee assigned number: UI/SSHEC/2017/0020. Participants’ informed consent was obtained during the collection of the data, from all participants before the commencement of the interviews and administration of the questionnaire.

Procedure

Having obtained the required approvals from the appropriate research ethical body in the state, the researchers located the households in the Saki West LGA of Oyo State, where the research was carried out and inquired about communities, street and households under the LGA. Having informed and arranged with the residents and heads of the towns about the purpose and relevance of the research, the researchers go round the streets following the criteria for inclusion and exclusion of the study as discussed in sampling techniques. The data collection lasted for nine (9) months with at least four times in a week including the weekend. The distributed questionnaire were six hundred (600), about five hundred and fifty (550) were completed and returned while five hundred and forty six (546) questionnaires were good for analysis. The consent of the participants was sought where the purpose of the study was clearly defined. The questionnaires were administered under the condition of anonymity and confidentiality. Each section of the questionnaire was in likert format. The Statistical Package for the Social Sciences software (IBM version 20) was used to analyze the completed copies of the questionnaires.

Data Analysis

The statistical tool employed in this study was descriptive statistics, multiple correlation and independent sample for t-test analysis.

Results

The Table 1 shows the Summary of Multiple Correlation Analysis of the relationship among perceived susceptibility, knowledge of pneumonia and mothers care seeking behaviour

Variables	1	2	3	Mean	SD
1. Perceived Susceptibility	1			33.90	5.24
2. Knowledge of pneumonia	.275**	1		34.50	5.99
3. Care Seeking Behaviour	.088*	.045	1	34.34	13.24

*. *Correlation is significant at the 0.05 level (2-tailed).* **. *Correlation is significant at the 0.01 level (2-tailed).* N=546

In the table 1 above, the results reveals the association among perceived susceptibility, knowledge of pneumonia and mothers care seeking behaviour for child(ren) living with pneumonia. From the result, perceived susceptibility significantly associated with the knowledge of pneumonia among these mothers($r(546) = .275^{**}$, $P < .01$). This finding indicated that, perceived susceptibility and knowledge of pneumonia significantly related. The more the mothers perceived their children as being susceptible to pneumonia, the more their knowledge about the pneumonia. More so, perceived susceptibility significantly linked with the mothers’ care-seeking behaviour ($r(546) = .088^*$, $P < .05$). That is, mothers’ perceived susceptibility significantly connected with their care-seeking behaviour. However, Knowledge of pneumonia did not significantly associate with care seeking behaviour($r(546) = .045$, $P > .05$).

Table 2 Summary of independent sample for t-test analysis showing the significant difference levels of knowledge of pneumonia on mothers’ care seeking behaviour and perceived susceptibility

Dependent Variable	Knowledge level of pneumonia	N	SD	df	t	P	
Care Seeking Behaviour	Low Knowledge of pneumonia	222	34.17	12.94	544	-.235	>.05
	High Knowledge of pneumonia	324	34.44	13.46			
Perceived Susceptibility	Low Knowledge of pneumonia	222	32.91	5.19	544	-3.65	<.01
	High Knowledge of pneumonia	324	34.56	5.17			

The results from table 2 above indicated that knowledge level on Mothers' Care Seeking Behaviour and Perceived Susceptibility. From the result, knowledge level of pneumonia showed no significant difference on mothers' care seeking behaviour [$t(544) = -.235, p > .05$], as participants with low knowledge of pneumonia [$= 34.17, SD = 12.94$] were not significantly different from those participants with high knowledge of pneumonia [$= 34.44, SD = 13.46$]. However, knowledge level of pneumonia significantly link perceived susceptibility [$t(544) = -3.65, p < .01$]. Additionally, mothers with high knowledge of pneumonia [$= 34.56, SD = 5.17$] significantly differ on perceived susceptibility than participants with low knowledge [$= 32.91, SD = 5.19$]. This implies that, mothers with high knowledge of pneumonia significantly are more susceptible to pneumonia compared with mothers with low knowledge of pneumonia.

2. Discussion and Implication of findings

The study investigated the influence of knowledge of pneumonia, perceived susceptibility and mothers' care seeking behaviour with under-five child (ren) in a selected LGA of Oyo-State, Southwest, Nigeria. From the correlation analysis, perceived susceptibility positively associated with the knowledge of pneumonia among mothers of child (ren) living with pneumonia. This shows that, mothers who perceived that their children are prone to pneumonia significantly related with their knowledge level of pneumonia. Their child(ren)'s vulnerability to pneumonia positively connected with the amount of information and awareness of pneumonia the women have gotten. This finding supports the idea that knowledge of illness goes a long way in shaping and influencing the level of vulnerability to such illness and the direction of care seeking behaviour (Hadi, *et al.*, 2010). Also, the result confirmed Oyekale's (2011) findings, who reiterated that the more tenacious the caregiver/parent is to recognize, know, inform and seek suitable and better care for their child(ren) on common illnesses such as Pneumonia the reduced their child mortality that is due to their high susceptibility of the illness.

Additionally, perceived susceptibility is significantly and positively connected with the mothers' care seeking behaviour. In the study, mothers' who perceived their children to be susceptible and vulnerable to pneumonia consequently linked with their behaviour to seek care. Their perceived predisposition to pneumonia influenced their quest to seek care from the professionals or approach available health facilities. Mother's early and prompt search for treatment from available health facility for their pneumonic children was significantly related to their perceived susceptibility. The outcome maintained Do's *et al.*, (2018) research outcomes, as the authors documented consistent associations between perceived susceptibility and possible quality of treatment and health seeking behaviour. In addition, Basavanthappa, (2008) found out that various factors like perceived susceptibility, severity, barriers, and benefits have been found to be related with treatment-seeking behaviour; even with, caregiver's perceived susceptibility of child (ren) illness were possibly likely to search for better and suitable treatment than caregivers' or mothers' who had poor orientation or perception about her child (ren) susceptibility (Dida, *et al.*, 2015). In the same vein, the result seconded findings from Mitiku, and Assefa, (2017). The authors discovered that participants of their study perceived that the most common symptoms for illness for their child(ren), and that among the determinants of treatment-seeking, caregiver's age, knowledge of illness, perceived susceptibility and perceived barrier to seek treatment are included.

However, knowledge of pneumonia did not significantly associate with care seeking behaviour. The knowledge of the mothers regarding pneumonia did not significantly connote positive care

seeking behaviour or search for available health care facility. More so, among the mothers, the levels of their knowledge have no significant influence on their care seeking behaviour. This result disconfirmed findings from Tanner and Vlassoff, (1998). In their study, the authors revealed that the prompt and equipped knowledge of the symptoms and signs of illness during childhood pneumonia depends upon mothers' perception and general knowledge about pneumonia influences and determines their health seeking behaviour. Also, the result contradicted Leonard and MC, (2007); who stated that delays in seeking appropriate and better medical care due to poor knowledge of the illness forms the main factor contributing and responsible for severe disease in child(ren) presenting to the hospitals with severe/dreaded forms of pneumonia. More so, poor parental knowledge about the child (ren) illness results to poor practice of health seeking behaviour (Central Statistical Agency, 2012; Pérez-Cuevas, *et al.*, 1996). This discord in findings is not unconnected with the fact that there methodological differences which include differences in instrumentation and sampling procedure. As the former were from qualitative data the present is a quantitative study. Interestingly, the result buttressed findings from Agbokey, *et al.*, (2019). Their study reported that knowledge of symptoms and signs of illness after their professional's diagnosis was greatly high among the participants of study and this influences patients' first point of care seeking. Also, the result upheld Kuire's *et al.*, (2015), Sisay, *et al.*'s (2017) and Cassy's *et al.*, (2019) studies, where it was discovered that the level of individual's knowledge including their educational level is likely to impact their behaviour to seek better and suitable treatment in a health care facility especially during their illness.

Meanwhile, knowledge level of pneumonia significantly differs on perceived susceptibility to pneumonia, as participants with high knowledge of pneumonia significantly reported more perceived susceptibility to pneumonia than participants with low knowledge of pneumonia. Mothers' who are highly equipped about the illness children pneumonia are more likely to be more susceptible to the pneumonia illness. The result confirmed Do's *et al.*, (2018) discoveries, which showed that there exist a wide disparity in treatment and care seeking practices for under-five child(ren) with pneumonia, and among those factors influencing perceived susceptibility include the mothers'/caregivers' perceived social norms, and mothers'/caregiver's knowledge level of the source of illness. Similar to Cody's (1993) findings, where the facts that an increase in delay between beginning of signs or symptoms and child (ren)'s hospital admission, was linked with mothers' who once had experience caring for a child with pneumonia and significantly differs from those without experiences. Likewise the result sustained findings from Latunji, and Akinyemi, (2018); and Onyango, *et al.*, (2012). The authors established that among factors influencing susceptibility to illness is the knowledge level about that illness. And that participant's knowledge level and economic status differently affect their perceptions about their health seeking behaviour.

Conclusion and Recommendations

The study examined the perceived susceptibility, general knowledge and mothers' care seeking behaviour of child(ren) living with pneumonia in a selected LGA in Oyo-State, Southwest, Nigeria. Following the literature, five research question and hypothesis were formulated. The analysis showed that perceived susceptibility was positively and significantly connected with the mothers' knowledge of pneumonia and mothers' care seeking behaviour. Conversely, the knowledge among the mothers did not significantly associate with their care-seeking behaviour. Similarly, the knowledge level of pneumonia showed no significant difference on care seeking behaviour, while the knowledge level significantly differs on perceived susceptibility to

pneumonia; as participants with high knowledge of pneumonia significantly reported more perceived susceptibility to pneumonia than participants with low knowledge of pneumonia among mothers of children living with pneumonia. These findings are innovative as mothers whose child(ren) are susceptible to pneumonia needed to be trained by professionals such as medical sociologists, doctors, psychologist, and other concerned health personnel on the early signs and symptoms of pneumonia, so that they can quickly seek care for their children. Also, mothers whose knowledge of pneumonia is high are to be provided with necessary pneumonia preventive kits, medications, involved in pneumonia prevention oriented programs because these individuals have been found to be susceptible to pneumonia. Generally, efforts should be put in place by state government, non-governmental organization and other concerned bodies to better improve the mothers' care-seeking behaviour through provision of useful information, broad education campaign and communication programs that will drive behavioural change which will be channeled toward reducing the prevalence of pneumonia in Oyo State, Nigeria.

Conflict of Interest

Authors declare no conflict of interest

3. References

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