

# Health Care Seeking Behaviour among Caregivers of Children with Pneumonia in a Rural Area

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## ABSTRACT

**Objective:** The aim of this study is to evaluate caregiver's health seeking behaviour for children with pneumonia and to determine the associated factors.

**Design:** This cross-sectional study was conducted at Hospital Semporna, East Malaysia from September 2009 to January 2010.

**Materials and Methods:** Children diagnosed with pneumonia between ages 2 months to 5 years and their caregivers were selected. Pneumonia is classified using the modified IMCI and WHO classification used locally while health seeking behaviour was assessed using Health Care Utilization Model by Weller et al.

**Results:** A total of 160 children with pneumonia and their caregivers participated in this study. Mean age of children with pneumonia is  $21.8 \pm 16.3$  months. Males and females were equally affected (1.3:1). Majority had mild pneumonia (78.1%; n = 125). Mean duration of illness presentation is  $3.47 \pm 2.63$  days. Caregivers are mostly females (88.8%, n = 142), received primary or secondary level of education (78.1%, n = 125) and belong to poor socioeconomic background (80.0%, n = 128). Most caregivers (87.5%, n = 140) practice self care or consult Health Care Provide (HCP) at government health clinics before seeking hospital treatment. Antipyretic is the most common self medication used. This study found that severe pneumonia was more common among children with Very Low Weight for Age (VLWA) ( $p = 0.008$ ) and those who received antibiotic preceding hospital visit (OR 3.93; 1.44; 9.67,  $p = 0.012$ ).

**Conclusion:** In general, caregivers attending to children with pneumonia in this study demonstrate reasonably good health seeking behaviour although they are from poor socioeconomic and variable cultural backgrounds in a rural area.

## KEY WORDS

health seeking behaviour, pneumonia, caregiver, rural

## INTRODUCTION

Pneumonia is the single leading cause of death among children, accounting for 21% of death for all children less than five years of age in East Asia and the Western Pacific (WHO, 2006). In Malaysia, mortality due to pneumonia among both adults and children is high, and it is the third principal cause of death (4%) among children below 5 years of age. (Shahrudin, Zainal, Che Wan Aminuddin, 2011) and (MOH, 2006). Hence the management of childhood respiratory illnesses at primary or first level contact is pertinent to reduce childhood morbidity and mortality. Understanding the caregiver's health care seeking behaviour promotes communication and cooperation between health care providers and caregivers for better health outcome. Health care seeking behaviour describes the act of seeking or utilizing health care system or the sequence of remedial actions taken to rectify an illness. It illustrates the health care measures and resources frequently used, and categorize the types of barriers or determinants (e.g. geographical, social, economic, cultural and organisational factors) which lie between patients and services (Susanna, Joan, Isaac, 2003).

Semporna is a rural district, located at the east coast of Sabah and has a unique population due its large mixture of population comprising of local indigenous ethnic groups and immigrants from the Philippines with different culture and language. Hence a mixture of health seeking behaviour and self care practices is anticipated. Inappropriate health care seeking behaviours such as consulting traditional healers, delay seeking treatment and giving inappropriate self treatment are some of the community health care practices need to be identified and corrected. The aim

of this study is to describe the health seeking behaviour of the caregivers in Semporna for children with pneumonia and to determine the factors associated with the disease severity.

## MATERIALS AND METHOD

All children with clinical diagnosis of pneumonia between age 2 months to 5 years and their caregivers were included. Participants were selected from the outpatient and Emergency Department of Hospital Semporna from September 2009 to January 2010. This age group is selected based on definition of pneumonia by Integrated Management of Childhood Illnesses (IMCI) and WHO among different age groups. Pneumonia is classified as mild, severe and very severe based on symptoms and respiratory rates as described in the Paediatric Protocols for Malaysian Hospitals (Imam, Phak, Thomas, 2008). Mild pneumonia defined as symptoms of cough or difficult breathing associated with tachypnoea (more than 50 per minute for those aged between 2 to 12 months and more than 40 per minute for those between ages 1 to 5 years). Severe pneumonia defined as symptoms of cough or difficult breathing associated with in-drawing of chest or definite and persistent sub-costal retraction. Very Severe pneumonia includes those with cough or breathing difficulty along with any of the danger signs such as unable to tolerate orally, convulsion, lethargy or unconsciousness. Cases with uncertain diagnosis or other respiratory disease e.g. bronchiolitis, croup, acute exacerbation of bronchial asthma were excluded. Data on pneumonia was recorded in the IMCI child recording form. Information on caregiver's health

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**Table 1. Baseline characteristic of children with pneumonia**

CHARACTERISTIC	N (160)	100%
<b>GENDER</b>		
Male	90	56.2
Female	70	43.8
<b>WEIGHT FOR AGE (WFA)</b>		
Normal	98	61.3
Low Weight for Age	44	27.5
Very Low WFA	18	11.2
<b>IMMUNIZATION STATUS</b>		
Completed up to age	140	87.5
Not completed up to age	20	12.5
<b>SEVERITY OF PNEUMONIA</b>		
Mild	125	78.1
Severe	29	18.1
Very severe	6	3.8

**Table 2. Baseline characteristics of caregivers**

CHARACTERISTIC	N (160)	100%
<b>GENDER</b>		
Female	142	88.8
Male	18	11.2
<b>RELATIONSHIP WITH CHILD</b>		
Mother	127	79.3
Father	18	11.3
Aunt	7	4.4
Grandparent	6	3.8
Sibling	1	0.6
Cousin	1	0.6
<b>NATIONALITY</b>		
Malaysian	117	73.1
Non-Malaysian	43	26.9
<b>ETHNICITY</b>		
Bajau	138	86.3
Suluk	17	10.7
Bugis	2	1.2
Brunei	2	1.2
Chinese	1	0.6
<b>EDUCATION LEVEL</b>		
Secondary and above	67	41.9
Primary	58	36.2
Nil	35	21.9
<b>HOUSEHOLD INCOME</b>		
Extreme poverty	103	64.4
Poverty	25	15.6
Above poverty	32	20.0

seeking behaviour was collected by using data collection form based on the Health Care Utilization Model by Weller et al which includes these items (Weller, Ruebush, Klein, 1997):

- Predisposing factors: age, gender, ethnicity, care giver's education level
- Enabling factors: service availability
- Need factors: duration, severity of illness
- Treatment actions sought Health Care Providers (HCP), self care/treatment

Data was analyzed using the Statistical Package for Social Science (SPSS version 13.0). Chi-square test was used to test the association between two categorical data groups while Mann-Whitney U Test was used for non-parametric variable. Logistic regression analysis was used to measure the degree of association. Ethical approval for this study was obtained from Semporna Hospital and the Ethical Committee

**Table 3. Health seeking behaviour of caregivers**

HEALTH SEEKING BEHAVIOUR	n	100%
<b>CAREGIVER'S TREATMENT ACTION (n = 160)</b>		
Self care	60	37.5
Self care & HCP	42	26.2
HCP	38	23.8
No pre-hospital care	20	12.5
<b>NUMBER OF VISITS TO HCP (n = 80)</b>		
1 Visit	64	80.0
2 Visits	10	12.5
3 visits	6	7.5
<b>TYPE OF PRE-HOSPITAL CARE (n = 80)</b>		
Government health centers	63	78.8
Private practitioner	17	21.2
<b>TYPES OF SELF CARE* (n = 80)</b>		
Antipyretics	80	77.7
Cough & cold medicines	22	21.4
Blessed holy water	22	21.4
Herbal/ Natural medicine <sup>#</sup>	13	12.3
Vitamins	6	5.8
Incantation by traditional healers or elders	4	3.9
Antibiotics	3	2.9
Medicated drinks <sup>+</sup>	3	2.9
<b>SOURCE OF TREATMENT (n = 113)</b>		
Leftover medication from previous consultation	44	38.9
Over the counter/street vendors	29	25.8
Grandparents	24	21.2
Other relatives	7	6.2
Neighbours	5	4.4
Traditional healer	4	3.5

\*participants were allowed to state more than one treatment

<sup>#</sup> e.g malva nut seed or roots of plants, <sup>+</sup>Drinks containing gypsum extract

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## RESULTS

A total of 160 children diagnosed with pneumonia and their caregivers agreed to participate in this study. The mean age of children with pneumonia is  $21.8 \pm 16.3$  months. Male to female ratio is 1.3:1. About 78.1% (n = 125) children were diagnosed to have mild, 18.1% (n = 29) severe and 3.8% (n = 6) with very severe pneumonia. The mean duration of illness presentation is  $3.47 \pm 2.63$  days. More than half (61.3%, n = 98) of the children have normal weight for age. Majority (87.5%, n = 140) children received the immunization according to the local scheduled (Table 1).

The mean age of caregivers is  $29.6 \pm 8.2$  years and most of them are females (88.8%, n = 142). Caregivers are mainly Malaysian citizens (73.1%, n = 117) and have received either primary or secondary level of education (78.1%, n = 125). Majority of the caregiver's income is below the poverty level (80.0%, n = 128) (Table 2).

The assessment of caregivers health seeking behaviour shows that most of them (87.5%, n = 140) had practiced some form of treatment action either self care or seek HCP before seeking hospital treatment. The preferred pre-hospital consultation is at government health care facilities. Among the different types of self treatment, antipyretic is most frequently used and most medications are from (Table 3).

Severe Pneumonia was more common in children with Very Low Weight for Age (VLWA) (p = 0.008). (Table 4). Children who had received antibiotic preceding hospital visit had more severe pneumonia compared to those who did not receive antibiotic. (OR 3.93; 1.44;9.67, p = 0.012). However, there was no difference in terms of pneumonia severity between those who had received self care and those who did not (Table 5).

**Table 4. Association between children with pneumonia and caregiver demographics with severity of pneumonia**

CHARACTERISTIC	NON-SEVERE PNEUMONIA n (%)	SEVERE PNEUMONIA n (%)	TEST	p VALUE
<b>GENDER</b>				
Male	51 (72.9)	19 (27.1)	$\chi^2 = 2.021$	0.155
Female	74 (82.2)	16 (17.8)		
<b>IMMUNIZATION STATUS</b>				
Completed up to age	111 (79.3)	29 (20.7)	$\chi^2 = 0.883$	0.347
Incomplete	14 (70.0)	6 (30.0)		
<b>WEIGHT FOR AGE (WFA)</b>				
Normal	79 (80.6)	19 (19.4)	$\chi^2 = 9.603$	0.008
Low WFA	37 (84.1)	7 (15.9)		
Very low WFA	9 (50.0)	9 (50.0)		
<b>CAREGIVER CHARACTERISTICS</b>				
<b>NATIONALITY</b>				
Malaysian	90 (76.9)	27 (23.1)	0.368	0.544
Non-Malaysian	35 (81.4)	8 (18.6)		
<b>ETHNICITY</b>				
Bajau	109 (79.0)	29 (21.0)	0.435	0.510
Others	16 (72.7)	6 (27.3)		
<b>EDUCATION LEVEL</b>				
Nil	29 (82.9)	6 (17.1)	0.968	0.611
Primary	46 (79.3)	12 (20.7)		
Secondary & above	50 (74.6)	17 (25.4)		
<b>HOUSEHOLD INCOME</b>				
Above poverty	24 (75.0)	8 (25.0)	0.382	0.826
Poverty	19 (76.0)	6 (24.0)		
Extreme poverty	82 (79.6)	21 (20.4)		

**Table 5. Association between caregiver's health seeking behavior and severity of pneumonia**

VARIABLE	NON-SEVERE PNEUMONIA n (%)	SEVERE PNEUMONIA n (%)	TEST	ADJUSTED OR	p VALUE
<b>HCP SOUGHT?</b>					
Yes	54 (66.7)	27 (33.3)	$\chi^2 = 14.67$	3.73 (1.44;9.67)	0.051
No	71 (89.7)	8 (10.3)			
<b>ANTIBIOTIC RECEIVED?</b>					
Yes	9 (45.0)	11 (55.0)	$\chi^2 = 14.67$	3.93 (1.32;11.65)	0.012
No	116 (82.9)	24 (17.1)			
<b>SELF-CARE DONE?</b>					
Yes	79 (76.7)	24 (23.3)	$\chi^2 = 0.344$	2.22 (0.89;5.53)	0.076
No	46 (80.7)	11 (19.3)			

## DISCUSSION

### Disease severity

This study shows majority (61.3%) of the child diagnosed with pneumonia in Semporna are under 2 years old. This is consistent with NHMS III in 2006 which reported that the highest incidence of Acute Respiratory Infection (ARI) was in group 1-4 year old (29.7%) followed by those under 1 year of age (24.9%) (NHMS III, 2006). There was no difference in gender distribution suggesting the lack of gender susceptibility for pneumonia.

The present study also identified high prevalence of VLWFA (11.2%) among the children with pneumonia. Severe pneumonia was also more common in children with VL WFA. This is consistent with the fact that low weight for age is a risk factor for children to develop pneumonia (Imam *et al.*, 2008; Nascimento, Marcitelli, Agostinho,

Gimenes, 2004). It is postulated that children with VLWFA develop malnutrition; decreased immune responses hence succumb to infections. In this study, the vaccination status of children did not influence the disease severity. However, earlier studies identified incomplete vaccination as a risk factor for developing severe pneumonia (Jones, Steketee, Black, Bhutta, Morris, 2003).

### Health seeking behaviour of caregivers

#### Predisposing factors

The caregivers involved in this study were mostly young mothers, from the Bajau decent belonging to the lower socioeconomic class. In the local perspective, mothers assume the role of guardian to their children while fathers are the breadwinners of the family and are mostly away from home. An earlier study in Malaysia on factors influencing parental decision to seek medical consultation for children with URTI

showed that the female caregiver influenced the decision to seek early medical advice (Ng, Chia, Teng, Nik-Sherina, 2008).

Other caregiver's characteristics did not influence the severity of pneumonia among children. However, some studies identified young maternal age, lower socioeconomic status, and low parental education is associated with severe pneumonia (Nascimento *et al.*, 2004). Therefore, it can be postulated that in Semporna, age, gender, ethnicity, nationality, education level and socio economic status of the caregivers are not the determinant factors for health care seeking behaviour and the severity of childhood pneumonia.

#### Enabling factors

In this study, all the caregivers had sought appropriate health care provider as they eventually took their children to the Hospital. Nevertheless, only half of them had sought care from other HCP before the hospital visit. Government clinics managed by community nurses were the most frequented health facility. This finding is in contrast with the National Health Morbidity Survey (NHMS III) finding which shows that among general Malaysian population, majority (45.8%) who sought treatment for acute respiratory illness preferred private hospital or clinic (NHMS III, 2006). This could be due to the fact that poverty is common in Semporna district. Parental economic status has been identified as the determining factor for selection of healthcare services and the number of visits for respiratory illness in children (Neumark, Palti, Donchin, Elleneweig, 1992). Lower income group has also been recognized as a predictor of using the public health services and the traditional practices more than private services (Ng, 2008; Nichter, 1994). Cost and logistics may be the limiting factors as most private clinics are found in towns while government clinics are widespread and affordable as these clinics are subsidized by the government. Community nurses and medical assistants form the backbone of the government clinics in rural areas due to shortage of doctors. Regular training of these health personnel using IMCI guideline can improve child health-care practices at the first contact level.

#### Need factors

The mean duration of illness at presentation in this study was about 3.47 days. This indicates that majority of caregiver didn't wait long to bring their children to the hospital. Duration of illness of more than seven days has been shown to increase the risk of developing severe disease and death from childhood pneumonia (Spooner, Barker, Tulloch, Lehmann, Marshall, Kajoi, Alpers, 1989). The present study demonstrates that the children who have been given antibiotic preceding hospital visit have four times the odds of developing severe pneumonia compared to those who did not. An earlier study also reported increased mortality among children who received antibiotics prior to hospital admission (Shann, Germer, 1979). This can be explained by the fact that parents of children with symptoms of severe pneumonia are more likely to seek treatment compared to those who don't. The caregivers of children with mild symptoms may choose to monitor their children at home. This finding postulates that caregivers are able to identify signs of severe pneumonia prompting them to seek medical help. Other possible explanations include incorrect administration of antibiotic in term of dosage or frequency, prescription of inappropriate group of antibiotics or underlying diarrhoea and malnutrition which affects absorption.

#### Treatment action

Majority of the caregivers in this study had provided self-care for their children before they sought care from HCP. An extensive use of prescription, over-the-counter, traditional and herbal/natural medicines were used and this finding is similar to other studies (Denno, Bentsi-Enchill, Mock, Adelson, 1994). Antipyretics was the most common medication used in self care. Most of the medications used in self care are sourced from left over drugs from previous consultations. This may expose children to the risk of using medications beyond their expiry dates. Small percentages (2.9%) of children were given antibiotics prior to hospital visit. Although antibiotic is the mainstay therapy for pneumonia, its abuse may lead to resistance and waste of resources.

The majority of inhabitants in Semporna are Bajau Muslims. Religion and culture play a vital role in treating illnesses. However, in contrast to the popular believe, seeking treatment from the traditional healer was not a popular health seeking behaviour in this community. It would be interesting to explore the reasons that compel

caregivers to resort to self care before seeking formal medical care. This information would be helpful to develop health education plan on safe self care which will cater for both parents and alternative health care providers.

The limitation of this study includes recall and socially acceptable bias in reporting self-care practices by the caregivers as their answers may not reflect their true behaviour.

## CONCLUSION

This study found that most children affected by pneumonia in Semporna have milder form of the disease. Caregivers are mainly females, have basic level of education and belong to lower socioeconomic background. The severity of pneumonia among these children was not influenced by the socio demography of caregivers. Most of the caregivers practiced self care or seek health advice from HCPs before opting for hospital care. Popular self care medications include modern medication, traditional and herbal medicines. The fact that caregivers resort to using left over medication from previous consultations causes concern especially pertaining to issues regarding indication, storage and pharmacological stability. Caregivers did not delay remedial measures and seem to be able to identify the appropriate time to seek hospital care hence have reasonable health care seeking behaviour in attending to children with pneumonia. Health personnel need to have a high index of suspicion for severe pneumonia among children with low weight for age and those who received antibiotics prior to hospital visit. Opportunistic health promotion on practices such safe self treatment and seeking appropriate health care should be emphasized to all caregivers to provide effective health care delivery. Further studies using interviews would help identify factors influencing self treatment. Understanding caregiver's health seeking behaviour, identifying children at risk for severe pneumonia and early treatment can improve childhood morbidity and prevent mortality.

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