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Health seeking behaviour of caregivers of children under five and its determinants in Ho West and Adaklu districts, Volta Region, Ghana: a community-based cross-sectional study

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Abstract

Background Despite gains made in child survival, morbidity and mortality remain high in sub-Saharan Africa. Seeking healthcare at health facilities for sick children under-five within 24 h of onset of symptoms is key to mitigating severe morbidity and mortality. However, literature on this outcome is limited and poses challenges for monitoring caregivers' adherence to prompt health seeking behaviour. This study assessed the prevalence and determinants of prompt caregiver health seeking behaviour (HSB) for sick under-fives in two districts in the Volta Region of Ghana.

Methods The study was conducted among 770 caregivers/children in the Ho West and Adaklu districts of the Volta Region. Data on caregiver and child characteristics and knowledge of childhood illness symptoms/ signs among others were obtained. Summary statistics were presented as frequencies and percentages. Logistic regression was used to assess for association between prompt HSB and independent variables including caregiver and child socio-demographics. Odds ratios were presented with 95% confidence intervals at a statistical significance of $p < 0.05$ in the final model.

Results Almost 93% (714/770) of the caregivers were females while about three-quarters (559/767) were aged 20–39 years. The mean age of the study children was 24.1 months. Of caregivers who sought formal health care the last time their children fell ill, only about 59% (337/573) did so within 24 h of symptoms onset. Less than 10% (52/770) of caregivers had adequate knowledge of childhood danger signs while about 64% (492/770) had decision-making capacity regarding sending a sick child to a health facility. Male children had twice the odds of caregivers' prompt HSB compared to females [AOR 2.02 95% CI: 1.24, 3.27; $p = 0.004$]. Fourth-born or higher birth order children had 56% reduced odds of prompt HSB [AOR 0.44 95% CI: 0.26, 0.75; $p = 0.003$].

Conclusion About 60% of those who sought formal care for their sick children did so promptly and this was influenced by the sex and birth order of the child. Public health managers in the study area must promote

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interventions to improve prompt caregiver HSB, especially for children of higher birth orders. Community education is needed to minimize 'discrimination' against the girl child as far as prompt HSB is concerned.

Keywords Prompt health seeking behaviour, Children under-five, Determinants, Knowledge of childhood danger signs, Volta Region, Ghana

Background

Though global under-five mortality reduced by 53% between 1990 and 2015, 56 million under-five deaths are projected by 2030 assuming all countries can achieve an under-five mortality rate of <25/1000 livebirths [1]. The projections are expected to be higher in low and middle income countries (LMICs) especially sub-Saharan Africa as many countries here are likely to have under-five mortality rates much higher than the set target [1]. Pneumonia, malaria, diarrhoea and preterm births account for up to 48% of under-five deaths mostly in developing countries [2, 3]. Preventive strategies such as immunization, sleeping under treated bednets in malaria-endemic areas and prompt treatment of illnesses remain major pillars in curbing childhood morbidity and mortality. About 21,000 deaths were prevented in 2016 following the introduction of rotavirus vaccine in 29 African countries [4].

Prompt treatment of illnesses depend largely on health-seeking behaviour (HSB) which summarizes actions taken to remedy illness. Prompt HSB for sick children means seeking care for them at a formal health facility within 24 h of the onset of fever [5] or other recognizable illness presentations and this has been known to optimize treatment outcomes [5, 6]. Across sub-Saharan Africa, about 10–86% of children were taken to a health facility for treatment for fever, diarrhoea, acute respiratory infections and other illnesses [6–9]. The differences between countries may be attributed to variations in health care access and prevailing socio-cultural dynamics. However, it is not clear how many received medical care within 24 h of the onset of illness but it is likely to be much lower than the reported observations. For instance, only 15–53% of sick children for whom formal health care was sought did so within 24 h of onset of their symptoms in Nigeria and Malawi [10, 11].

Caregivers' HSB for sick children is influenced by factors including perceptions of the cause and severity of the child's illness, knowledge of childhood illness danger signs, distance to the health facility, health care staff behaviour and attitude, socioeconomic status, health care decision-making capacity, child's age, child's gender and birth order [7, 9, 11–16] although some earlier studies did not show any association between socioeconomic status or child's gender and caregiver HSB [6, 17]. Maternal age also influences HSB for children and appears to have variable effects [8, 14].

Recent studies in Ghana have reported the prevalence of seeking care at the health facility for sick children and

the factors influencing this behaviour [8, 13, 18–21] with some prevalence measures as low as 38.4% [19] and others up to 92% [20]. However, data on the proportion of sick children who had medical treatment sought for them within 24 h of the onset of presenting symptoms is scanty. The current under-five mortality rate for Ghana, 44/1000 livebirths [22], is close to twice the sustainable development goal (SDG) target of 25/1000 livebirths and adequate or prompt caregiver HSB is needed to optimize treatment outcomes in this population.

Literature review showed only one study which reported 36.3% of children under five who were taken to a primary health care facility in the Volta Region of Ghana for malaria, pneumonia or diarrhoea in the first 24 h of illness onset [23]. This appears to be the trend even among older populations (≥ 15 years) in the region for whom the prevalence of seeking care at a health facility within 24 h of onset of malaria symptoms was 24% [24]. The scarcity of data on adequate HSB for sick children under five presents a challenge for monitoring caregivers' adherence to prompt health care seeking for their sick children and for evaluating health promotion interventions aimed at helping caregivers to see the need for seeking medical care promptly within 24 h of the onset of childhood illnesses and ultimately reducing childhood mortality. A study seeking to determine the prevalence of prompt caregiver HSB and factors influencing it was conducted in the Ho West and Adaklu districts of the Volta Region of Ghana. The study was guided by the Theory of Planned Behaviour (TPB) [25] which entails the inter-related elements of attitudes and beliefs about outcomes of an intended behaviour, subjective norms or perceptions of what significant others think of the intended behaviour and perceived behaviour control that borders on an individual's perceptions of the ease of performance of a behaviour task and how they influence intention towards seeking prompt HSB [25, 26]. For this study, attitudes relate to caregivers' beliefs of the benefits of seeking prompt HSB. Subjective norms border on issues such as caregivers' decision-making capacity and other socio-cultural dispensations that impact on prompt HSB. Perceived behaviour control borders on the extent to which an individual thinks he/she can control a given behaviour and reflects both external factors such as but not limited to caregivers' financial capacity, general socioeconomic status, availability of social support systems which may be extended to include geographic/financial accessibility to health care services and internal factors including

having skill or information/knowledge related to childhood illness. The inter-relatedness characterizing the elements of TPB is exemplified in the observation that caregivers of low financial capacity may struggle to afford transport to a health facility if it is located far from them. Subsequently, such caregivers will not be able to exhibit prompt HSB. The usefulness of TPB lies in the observation that it caters for behaviour intentions over which individuals may lack complete control [27]. The study findings are expected to benefit public health managers and inform health promotion interventions for child survival in the two districts primarily.

Methods

Study design

Data used for this present study were extracted over 1st June, 2024 to 30th June, 2024 from an earlier community-based survey conducted from 5th November 2021 to 14th November 2021 by Level 400 medical students in the University of Health and Allied Sciences (UHAS), Ghana as part of their junior clerkship training in Community Health in a flagship programme dubbed the Students' Community Engagement Programme (SCEP) [28].

Study site description and study population

The primary survey from which data were extracted and analysed for this present study was conducted in 11 communities in the Ho West and Adaklu districts of the Volta Region that made accommodation available to host the students for SCEP in 2021. These two districts are contiguous and their population characteristics are described in an earlier study [28]. Briefly, both districts are agrarian with most people engaged in subsistence farming and health care is accessed from public health facilities. Ho West district is a mix of both rural and urban communities while Adaklu district is solely rural. The communities included in the survey were Amedzope, Anfoeta, Tsito, and Akome in the Ho West district and Kodzobi, Abuadi, Tsriefe, Have, Sofa, Amuzudeve and Torda in Adaklu district. They are surrounding communities that have agreed to partner UHAS for training of students in Community Health. Neither of the two districts has a hospital but Amedzope, Tsito, Akome and Sofa have health centres while the other communities have Community-based Health and Planning Services (CHPS) facilities where the community members access health care. In Ghana's health system, public primary health care is delivered through CHPS facilities, health centres and district hospitals with the latter serving as referral centres for both CHPS facilities and health centres. Health centres and CHPS facilities are manned by physician assistants, nurses and midwives mainly.

Ho West district has an estimated under-five population of about 24,000 as documented in the Ho West

District Annual Health Report for 2020. Similarly, the 2021 Adaklu District Annual Health Report documents an under-five population of about 7,800 and an outpatient department per capita of 1.1. Malaria, upper respiratory tract infections and diarrhoeal diseases were first, second and sixth respectively among the commonly reported disease conditions in Adaklu.

The study population in the primary survey comprised caregivers of children under five years and the children themselves in the 11 communities where the survey was conducted.

Sample size determination

No formal sample size calculation was done for the primary survey. As part of the SCEP, the Level 400 medical students, 73 in number, were distributed across the enumerated communities in groups of 4–9. Each student administered 10–15 questionnaires depending on the size of the community. Ultimately, questionnaires were administered to 770 caregivers in all. This approach has been used in a previous study [28].

Sampling strategy and data collection procedures in the primary survey

The primary survey was conducted using households as sampling units. In each community, the students identified and proceeded from a central location along a randomly selected direction (done by a lottery of all plausible directions) and chose alternate houses to enter into for data collection. On exhausting the houses in a selected direction, a new direction was randomly chosen again from the initial central point and the process repeated. If there was no child under five in a house, the next house was selected and counting continued from it. Only one available caregiver (mother, father, elder sibling or other relative) of a child under five was interviewed and only two of such interviews were allowed in any selected house if there was more than one household in that house.

Caregivers of children under five were interviewed in the primary survey using a structured questionnaire with some open-ended options (see Additional File 1) developed for this particular survey. For this survey, a child under five was defined as the youngest child under five years of age (subsequently referred to as the index child) being taken care of in the household selected. Similarly, formal health care was defined as attending a formal health facility. Broadly, the questionnaire in the survey was used to gather data on caregiver and index child background characteristics, HSB, access to health facility, health care financing, knowledge of childhood illness symptoms and danger signs and religio-cultural beliefs / perceptions about childhood illness. The interviews were conducted in the local Ewe language predominantly and

in English for those who could communicate well in English.

Data extraction, management and analysis

Data on variables including the ages and sex of the caregiver and the index child, marital status, occupation, level of education, monthly income, birth order of index child, knowledge of childhood illness symptoms and danger signs, insecticide-treated net utilization (defined as sleeping under a treated net the night before the survey), health insurance card status, prompt HSB and other relevant data needed to answer the specific objectives were extracted from the primary survey's dataset using a data extraction tool and cleaned. The data were exported into Stata version 16 (Stata Corp, College Station, TX, USA) for analysis (see Additional File 2 for the dataset used).

The primary outcome in the assessment was the prevalence of prompt HSB for sick children under five. This was defined as the proportion of respondents/caregivers who sent their index child to a formal health facility for care within 24 h of the onset of symptoms the last time the child was ill. To obtain the level of knowledge of childhood danger signs among caregivers, the numbers able to identify 'vomiting everything after eating and drinking', 'convulsion', 'unable to breastfeed' and 'lethargy' were identified. To enable categorization into 'adequate' and 'inadequate' knowledge of the symptoms/danger signs of a severely ill child, each danger sign mentioned was assigned a score of 1 and 0 for each one not mentioned. This gave a maximum score of 4 for each respondent. An arbitrary categorization of ≤ 2 out of 4 as inadequate knowledge and ≥ 3 out of 4 as adequate knowledge was chosen to emphasize the importance of recognizing these signs/symptoms. Such arbitrary categorization has been used in previous studies [29, 30].

Descriptive and inferential statistics were conducted and the results presented in tables. Continuous variables were described using means, median, standard deviation and range while counts, proportions and percentages were used for categorical variables. To identify factors influencing prompt HSB, the caregiver and index child background characteristics and other independent variables including knowledge of childhood danger signs were used in bivariate and multivariate logistic regression analyses. The multivariate analyses included all independent variables in a backward stepwise elimination approach with p-value set at <0.1 . Crude and adjusted odds ratios with 95% confidence intervals were reported. The final multivariate model included only exposure variables with p-value <0.05 . Religio-cultural beliefs and perceptions of illness were presented as a narrative.

Results

Background characteristics of caregivers

Table 1 shows the background characteristics of the caregivers interviewed. Almost 93% (714/770) were females. Nearly 73% (559/767) were in the age group 20–39 years and the mean age (SD) was 32.9 (10.7) years. About seven in 10 caregivers (492/723) had basic level of education while 83% (592/713) were employed in the informal sector. Close to two-thirds (487/770) of the respondents were married and 31% (175/564) earned at least GHC 500 monthly (about US\$75 at the time of the primary survey). About 60% (364/608) reported having two to four ITNs in their household while 82% (484/590) indicated they slept under an ITN the night before the survey.

Background characteristics of index children

The mean age (SD) of the index children was 24.1 months (16.2) (see Table 2). There were nearly equal proportions of males and females and close to a third (193/609) were first-born children while 26.9% (164/609) were of a fourth birth order or higher. At least four-fifths of them (518/594) slept under an ITN the night before the survey (see Table 2).

Prevalence of prompt HSB for index children and other health-seeking behaviour assessments

Six hundred and seventy-two (672) caregivers provided responses regarding the last time their child fell ill and this sub-population was used for the health-seeking behaviour assessments. The median (range) time duration from when the index child fell ill to the time of the survey was one month (0.11–24 months). The determination of illness was made on the basis of the symptoms the child showed and which were recognised by the respondents (see Table 3). Of these 672 respondents, 659 (98.1%) indicated what they did *first* when they realized their child was ill. A little over 50% (333/659) reported they used home remedies (including tepid sponging, use of paracetamol syrup, use of oral rehydration salt, etc.) first while 38.7% (255/659) indicated they immediately took the child to a health facility. About 3.2% (21/659) of these respondents/caregivers noted that they first resorted to administering herbal potions and/or religious prayers.

Of the 672 respondents who provided responses regarding the last time their child fell ill, 573 (85.3%) eventually sought formal health care the last time the index child was ill and the primary study outcome measure was determined using this specified population. About 15% (99/672) never sought formal health care at all and resorted to buying medicines from drug shops and using herbal potions mainly. Of those who eventually sought formal health care, 58.8% (337/573) reported they presented to the health facility within 24 h of noticing

Table 1 Background characteristics of study caregivers

Variable	Fre- quency (n)	Per- cent- age (%)
Age (years) (N=767)		
< 20	36	4.7
20–29	293	38.2
30–39	266	34.7
≥ 40	172	22.4
Mean (Std. Dev)	32.9 (10.7)	
Sex (N=770)		
Female	714	92.7
Male	56	7.3
Marital status (770)		
Married	487	63.2
Single	246	32.0
Divorce/widowed/separated	37	4.8
District of residence (N=770)		
Ho West	360	46.8
Adaklu	410	53.2
Level of education (N=723)		
None	0	0.0
^a Basic	492	68.0
^b SHS /Vocational	166	23.0
Tertiary	65	9.0
Occupation (N=713)		
Formal	77	10.8
^c Informal	592	83.0
^d Others	44	6.2
Religion (N=770)		
Christian	745	96.7
Non-christian	25	3.3
Ethnicity (N=770)		
Ewe	730	94.9
Non-Ewe	40	5.1
Total household number (N=767)		
≤ 4	276	36.0
5 to 10	454	59.2
> 10	37	4.8
Number of ITNs in the household (N=608)		
1	202	33.2
2 to 4	364	59.9
5 to 10	42	6.9
Slept in ITN the night before the survey (N=590)		
No	106	18.0
Yes	484	82.0
Respondent's relation to index child (N=608)		
Father	39	6.4
Mother	506	83.2
Grandparents	51	8.4
^e Others	12	2.0
Respondent's monthly income (GHS) (N=564)		
< 500	389	69.0

Table 1 (continued)

Variable	Fre- quency (n)	Per- cent- age (%)
500–1000	122	21.6
> 1000	53	9.4

^a basic level of education combines primary and junior high school levels
^bshs means senior high school ^cInformal sector employees included artisans, farmers, traders, hairdressers, etc. ^d include the unemployed, retirees and housewives ^einclude siblings, aunts, cousins and non-family caretakers

that the child was ill and were thus said to have exhibited “prompt health seeking behaviour”.

Of the 41.2% (236/573) that had “poor health seeking behaviour”, the commonest reason given by about 80% (188/236) for not seeking formal health care within 24 h of illness onset was that they perceived the child's condition was not serious. About 18% (43/236) of respondents gave the lack of money as a reason for poor HSB while 7.6% (18/236) indicated that the child's father was not available and so they had to wait for him to return. About 15% (35/236) indicated they had started some medicines (orthodox or herbal) and they were waiting to see if these would work or that the local health facilities in their areas were closed with no health worker available over the weekends. It must be noted that this question allowed for multiple responses.

Using the 672 respondents who provided responses on the last time their child fell ill as a denominator, the percentage of sick children for whom prompt health care was sought was 50.1% (337) while for nearly an equal percentage (49.9%), formal health care was either sought outside the 24 h of symptoms onset or not at all.

Caregivers' knowledge of symptoms of a severely ill child (danger signs)

Table 4 below shows the childhood illness danger signs and the number of all respondents who knew these signs meant a child is severely ill. Of the respondents who answered this question, 93.3% (718/770) had inadequate knowledge of the danger signs of childhood illness. Specifically, only 13% (100/770) and about 30% (230/770) respectively knew convulsion and ‘vomiting everything’ meant a child was not only ill but severely ill. The most common symptom recognised for a severely sick child was lethargy.

Accessibility (geographic and financial) to formal health care

For 90.6% (698/770) of respondents, it took up to 30 min to access their community's health facility from their houses.

On the means of transportation to the health facilities, about 70% (537/770) of the respondents indicated that

Table 2 Background characteristics of the index children

Variable	Frequency (n)	Percentage (%)
Age (months) (N = 609)		
< 12	167	27.4
12 to 24	191	31.4
≥ 24	251	41.2
Mean (Std. Dev)	24.1 (16.2)	
Sex (N = 609)		
Female	299	49.1
Male	310	50.9
Birth order (N = 609)		
First	193	31.7
Second	142	23.3
Third	110	18.1
≥ Fourth	164	26.9
Child slept in ITN the night before the survey (N = 594)		
No	76	12.8
Yes	518	87.2
Type of health insurance cover (N = 768)		
NHIS	650	84.7
Private	1	0.1
None	117	15.2
Status of insurance card (N = 652)		
Active	603	92.5
Inactive	49	7.5

Table 3 Symptoms recognized by caregivers who indicated the last time the index child fell ill

Symptoms that child showed	^a Number of respondents recognizing symptom (N = 672)	Percentage (%)
Fever	514	76.5
Cough	217	32.3
Vomit	145	21.6
Excessive crying	89	13.2
Diarrhoea	59	8.8
Refusing food	151	22.5
Rashes	23	3.4
Convulsion	3	0.4
Weakness	123	18.3
Difficult breathing	45	6.7
^b Others	74	11.0

^apercentages exceed 100% as multiple options were allowed ^binclude headaches, cold, abdominal pains, sleeplessness and chills

they walked while 14.2% (109/770) and 24.8% (191/770) reported traveling by car and motorcycles/tricycles respectively. The question on means of transportation to the health facility allowed for multiple responses.

Similarly, when asked for what they consider before sending the index child to a specific health facility

Table 4 Respondent's knowledge of symptoms of a severely ill child

Danger signs	Number of respondents who know symptom characterizes a severely ill child	^a Percentage (%)
Vomiting everything	230	29.9
convulsion	100	13.0
Unable to breastfeed	209	27.1
lethargy	444	57.7

^atotal percentages exceeded 100% as multiple choices were allowed for this question

(multiple responses allowed), distance/closeness to the health facility was the main reason for sending a child to a specific health facility among 52.3% (403/770) of respondents. Other reasons reflected the quality of health service delivery as 49.4% (380/770) of respondents chose 'good staff attitude' while 22.5% (173/770) chose 'availability of equipment'. The type of facility, be it a CHPS compound, health center or hospital, did not appear to be a prominent consideration as only 7.9% (61/770) of respondents chose the option "type of facility". Lastly, 11.8% (91/770) selected "good environment at the health facility" as what they consider.

There were some multiple responses to the question of who decides that the child should be taken to a health facility when sick. However, an exclusive 64% (492/770) of caregivers reported that they make that decision themselves. Another exclusive 20% (154/770) indicated that the decision rests solely with their spouses (mainly male partners). For 37 respondents, that call was by the child's grandparents.

The study did not assess the health insurance status of respondents and their children at the time the children fell ill but at the time of the survey, 72.1% (527/731) of respondents on national / private health insurance schemes had an active status while 92.6% (603/651) of the index children also had an active health insurance status.

Four hundred and two (402), out of the 573 respondents who eventually sought formal health care, reported making out-of-pocket payments at the health facility when they accessed care for their sick index children. The median amount of money paid was GHC 20.00 (US\$3.00) with a range of GHC1-GHC915 (US\$0.15-US\$136). The money for such payments often came from the respondents themselves and/or their spouses and as support from other family members.

Religious and cultural beliefs and perceptions about illness

About a fifth (161/770) of all respondents believed illness, including that in children, was a spiritual phenomenon and thus needed some intervention from the Christian God or other lesser gods to deal comprehensively with it. Common illness states that were perceived to be "not

for the hospital” included convulsion/epilepsy, mental illness, presentations suggestive of cerebral palsy, asthma, illnesses that appear difficult to diagnose in the hospital and any protracted illness conditions that do not appear to respond to treatment. Such conditions were thought to be best handled through visits to prayer camps, fetish outfits or other sages.

Factors influencing prompt HSB among caregivers who indicated the last time their index child fell ill

In the univariate analysis, a male child had a 54% increased odds of being taken to the health facility for care within 24 h of showing illness symptoms that are recognized by the respondents/caregivers compared to a female child [COR 1.54 95% CI: 1.04, 2.30; $p=0.032$] (see Table 5). Respondents in informal employment [COR 0.65 95% CI: 0.43, 0.98; $p=0.041$] and those who reported taking more than 30 min to access a health facility from their house [COR 0.46 95% CI: 0.21, 0.98; $p=0.044$] had reduced odds of prompt HSB. The caregivers' age, level of education, monthly income and the child's age were not statistically associated with prompt health seeking behaviour (see Table 5).

In the final multivariate model (see Table 5), the sex of the child remained key as male children had twice the odds of benefitting from caregivers' prompt HSB compared to female children [AOR 2.02 95% CI: 1.24, 3.27; $p=0.004$]. Fourth-born children or those of higher birth orders had 56% reduced odds of being taken to the health facility within 24 h of being recognized as ill [AOR 0.44 95% CI: 0.26, 0.75; $p=0.003$]. Respondents for whom it took more than 30 min to reach a health facility from their house (72/770) showed a reduced adjusted odds ratio and a smaller p -value [AOR 0.34 95% CI: 0.14, 0.86; $p=0.023$] suggesting a more statistically significant association with the outcome variable than what was observed in the univariate analysis [COR 0.46 95% CI: 0.21, 0.98; $p=0.044$]. Respondents who were at least 40 years old had about twice the odds of exhibiting prompt health seeking behaviour the last time the index child fell ill [AOR 1.95 95% CI: 1.16, 3.26; $p=0.011$] compared to respondents less than 20 years of age though no such observation was made in the univariate analysis (see Table 5).

Though only 4th born and higher birth order children had a reduced odds of prompt HSB from respondents/caregivers compared to first born children, there appears to be some interaction, though statistically insignificant, between the sex of the index child and the birth order that suggests that female 2nd and 3rd birth order children may also be having reduced odds of being taken to the health facility for care within 24 h of falling ill (Additional File 3). This could mean the effect of birth order on prompt HSB potentially differs according to the

different categories of sex of the index child in the study. Additional File 3 shows appreciably reduced odds ratios for the interaction term across the 2nd [OR 0.45 95% CI: 0.18, 1.09; $p=0.075$] and 3rd [OR 0.37 95% CI: 0.13, 1.07; $p=0.067$] born categories of the 'birth order' variable compared to those observed in the univariate analysis for those respective birth orders. There were no interactions between the sex or birth order of the child and the respondents' age.

Discussion

In light of limited literature on the subject, especially in the Volta Region of Ghana, this study reported on prompt caregiver HSB for sick children under five years of age at health facilities and the factors influencing this behaviour. Only half of all reported sick children had prompt formal health care sought for them. Of all the caregivers who eventually sought formal health care for their children the last time they were ill, about 59% did so within 24 h of onset of symptoms. The commonest reason given for not taking a sick child to a health facility within 24 h of illness onset was that the caregiver did not perceive the child's condition to be serious. Over nine in 10 caregivers were determined to have inadequate knowledge of childhood danger signs. Male children and caregivers aged ≥ 40 years had twice the odds of prompt HSB. Using more than 30 min to reach a health facility and the index child being a fourth born or of higher birth order reduced the odds of prompt HSB.

About six out of 10 sick children who eventually had formal health care sought for them benefitted from prompt caregiver HSB. The finding compares favourably with the 53% reported among Malawian caregivers [11] and reinforces the observed relatively low proportions of caregivers who exhibit prompt HSB in sub-Saharan Africa [10, 11]. The present study's finding represents a marked improvement over the previously reported 15% [10] and 36.3% [23] in Nigeria and the Volta Region in Ghana respectively. Failure to seek prompt and appropriate health care for sick children underscores the disproportionately high child morbidity and mortality in LMICs where up to 80% of global childhood deaths occur [3, 5, 6, 31, 32]. Uncomplicated malaria in children under five, for instance, can progress to severe malaria in 24 h with increased risk of mortality if appropriate treatment is not initiated promptly [33].

The reasons underlying poor/inadequate HSB in the current study included perceptions that the child's condition was not severe, unavailability of the child's father at the time of illness and that health facilities in their areas were closed with no health worker available during the weekends. Perceived non-severity of illness episodes in children with subsequent delays in seeking appropriate care and the consequent increased risks of severe

Table 5 Factors influencing prompt health-seeking behaviour

Variable	Crude Odds Ratio (OR)		^a Adjusted Odds Ratio (AOR)	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Sex of child				
Female	1			
Male	1.54 (1.04–2.30)	0.032	2.02 (1.24–3.27)	0.004
Age of child (months)				
< 12	1			
12 to 24	0.68 (0.38–1.21)	0.188		
> 24	0.66 (0.38–1.13)	0.131		
Birth order of child				
First born	1			
Second born	0.86 (0.50–1.46)	0.568		
Third born	1.34 (0.72–2.50)	0.352		
≥ Fourth born	0.64 (0.38–1.08)	0.099	0.44 (0.26–0.75)	0.003
Child slept in ITN the night before the survey				
No	1			
Yes	0.77 (0.40–1.50)	0.445		
Knowledge of symptoms of severely ill children				
Inadequate	1			
Adequate	0.79 (0.35–1.82)	0.583		
Time to reach health facility				
up to 30 min	1			
> 30 min	0.46 (0.21–0.98)	0.044	0.34 (0.14–0.86)	0.023
Respondent slept in ITN the night before the survey				
No	1			
Yes	0.78 (0.44–1.38)	0.399		
Number of ITNs in the household				
1	1			
2 to 4	0.88 (0.57–1.37)	0.570		
5 to 10	1.35 (0.56–3.23)	0.499		
Total number of household members				
≤ 4	1			
5 to 10	0.99 (0.65–1.50)	0.955		
> 10	1.19 (0.47–3.02)	0.709		
Respondent's level of Education				
Basic	1			
SHS / Vocational	0.68 (0.41–1.13)	0.137		
Tertiary	2.15 (0.98–4.72)	0.055		
Occupation				
Formal	1			
Informal	0.65 (0.43–0.98)	0.041		
Others	**			
Marital status				
Married	1			
Single	0.91 (0.57–1.44)	0.693		
Divorced/separated/widowed	0.98 (0.36–2.88)	0.996		
Sex of respondent				
Female	1			
Male	1.66 (0.82–3.37)	0.158		
District				
Ho West	1			
Adaklu	0.92 (0.61–1.39)	0.689		
Respondent's age (years)				
< 20	1		1	

Table 5 (continued)

Variable	Crude Odds Ratio (OR)		^a Adjusted Odds Ratio (AOR)	
	OR (95% CI)	p-value	OR (95% CI)	p-value
20–29	0.66 (0.19–2.31)	0.519	1.95 (1.16–3.26)	0.011
30–39	0.94 (0.27–3.28)	0.924		
≥ 40	0.59 (0.17–2.08)	0.411		
Monthly income (GHS)				
< 500	1			
500–1000	1.07 (0.66–1.72)	0.781		
> 1000	1.58 (0.79–3.17)	0.198		

morbidity and mortality have been reported in previous studies [9, 34, 35]. Though their studies did not have prompt HSB as the study outcome, Yeheyis et al. [36] and Tiwari et al. [37] reported increased likelihood of seeking care among caregivers who perceived their child's illness to be severe compared to those who perceived otherwise in Ethiopia and Nepal respectively.

Unavailability of the child's father, as a reason for not sending the child to a health facility within 24 h of illness onset suggests those caregivers in the present study have limited decision-making capacities regarding health care seeking in their households. They thus needed their husbands/partners' permission to seek prompt care for their children and probably even for themselves as previously reported [38, 39]. Budu et al. [14] reported women from Northern and Upper West Regions in Ghana showed reduced decision-making capacity for seeking health care for childhood illnesses and suggested individual as well as socioeconomic factors to explain the variation from other regions. This phenomenon may be rooted in culture and not necessarily derived from the narrative of men controlling household finances in South-East Asia [12].

In contrast, an earlier study in the Volta Region [40] put the practice down to a complex mix entailing a cultural ideology that husbands / male partners 'owned' the children, had access and control over resources and had an apparently cultural responsibility for any kind of payment relating to the child. The depth of relations between mothers, fathers and elders also influenced the decision-making power of women regarding treatment seeking for children [40]. In support of this stance, at least 20% of caregivers in the current study indicated the decision to send a sick child to the health facility is taken by the child's father or grandparents. In sharp contrast to this observation, 64% of caregivers, still in the current study, said they make this decision themselves. It is instructive to note that the bulk of caregivers were females and mothers. Thus, some mothers in the study had decision-making capacity regarding health seeking for their children while others did not. Qualitative methods are needed to investigate the nuances and dynamics underlying this variation among these women of similar socio-demographic characteristics. Ho West and Adaklu

districts being peri-urban and typically rural respectively do not explain the contrast in decision-making capacity observed.

The reported closure of some health facilities, presumably CHPS facilities, with no health workers around during weekends is a worrisome observation that compromises the primary health care concept behind CHPS facilities and poses a challenge for equitable health access. The district and regional health administrations must tackle this situation aggressively and not allow it to fester. The number of health workers in these facilities may need to be increased and a strict schedule followed so that one or two can be available when the others have to travel over the weekend.

Knowing prompt HSB is preceded by early recognition of illness presentation, especially of severe illness, the finding that only about 7% of caregivers in the present study had adequate knowledge of the standard four childhood illness danger signs should raise concern for health managers in the study districts. The finding is less than the 26.4% reported among caregivers of under-five children in Malawi [11]. The wide variation most likely results from differences in the measurement of good/adequate knowledge of childhood danger signs. While the Malawian study based its scores on ≥ 3 out of 6 danger signs, the present study had a more restrictive approach and used ≥ 3 out of 4 danger signs. Nevertheless, this finding reinforces caregivers' low knowledge of childhood danger signs in sub-Saharan Africa [11, 34, 41, 42, 43] and calls for dedicated actions targeted at increasing such knowledge among caregivers. To ensure efficient use of resources, these actions can piggy-back on routine immunisation activities. The current study did not observe a relation between knowledge of danger signs and prompt HSB but Lungu et al. [11] reported that caregivers with good knowledge of childhood illness danger signs in Malawi were less likely to seek timely care and this is somewhat of a paradox.

Male children had increased odds of receiving prompt HSB in the current study and this is similar to findings from previous studies [7, 15] though their outcomes did not focus on prompt HSB. Male children were 11% more likely to have care sought for them than females across

sub-Saharan Africa [7]. In South Asia, parents were willing to pay more for care for male children in a systematic review [15]. A cultural preference for male children, with reasons such as being seen as better security for old age, having more economic and social value and more likely to have property and land rights, underscore this observation in West Africa and South Asia [15, 44, 45]. Among the Anlos in the coastal parts of the Volta Region, both male and female siblings qualify for inheritance of their father's property but there are clear discriminations against women even in this regard [46]. It is important to investigate the specific contexts driving this observation in the study area to enable tailored interventions at improving prompt HSB. Furthermore, it appears years of public education on gender equality, balance and empowerment have yielded little results in the context of prompt HSB and this calls for renewed efforts at achieving equity in all aspects of life including health for the female child.

Sick fourth-born or higher birth order children had 56% reduced odds of being sent to the health facility within 24 h of symptoms onset in the present study. Limited studies focusing on prompt HSB limit appropriate comparison but this finding is corroborated by an Ethiopian study [36] and a review of data from 29 sub-Saharan African countries [8]. A similar review of data from 31 African countries, however, showed high birth orders including second and third-born children were more likely to have health care sought for them [7]. The finding was not explored qualitatively but it may possibly derive from perceptions of 'experience' amassed over time from caring for the earlier children. For higher birth order children, caregivers may resort to buying medicines from drug stores or even herbal potions first instead of sending the children straight to the health facility. While the finding in reference pertained to ≥ 4 th born children, 2nd and 3rd born female children also showed reduced odds of receiving prompt HSB from analysis for interaction between the child's birth order and sex. The interaction terms were minimally removed from statistical significance but they reinforce the disadvantaged position of the female child as far as prompt health seeking behaviour is concerned in the study area.

Caregivers who were ≥ 40 years old had twice the odds of giving prompt HSB in the present study. The relation between maternal age and HSB for children, regardless of being within 24 h of symptoms onset or not, is variable. Some studies have reported they are less likely to seek care for sick children [7, 9, 14] similar to mothers of 4th born and higher birth order children in the current study who may be relying on experience from probably seeing similar illness episodes over time and building some knowledge base about initial medicines to give the child. Contrasting observations have been recorded in a multi-country study [8]. It is possible the older caregivers

in the present study have previous experiences of child mortality or near-miss cases of child mortality which may be informing their prompt HSB currently.

The results showed 402 respondents who indicated they made out-of-pocket payments for services at the health facilities they sent their index children to the last time they were ill. This in spite of the fact that these respondents were likely eligible for free services under Ghana's National Health Insurance Scheme (NHIS). The reason(s) for these payments were not investigated but a previous survey in Ghana showed that despite being insured under the NHIS, nearly 50% of participants (1,027 in 3 regions) made out-of-pocket payments for medical consultations, laboratory services and medicines that were either not available at the facility or not covered by the health insurance scheme [47]. This was observed across primary health care facilities, regional and teaching hospitals [47]. For sub-district facilities such as CHPS and health centres, all medicines are covered under the scheme though. Out-of-pocket payments raise concerns for equitable health care access, especially if one has an active NHIS membership status and threaten the third sustainable development goal of universal health coverage. Health managers in the study districts need to take this up for further investigation and appropriate action.

Close to 20% of caregivers in the present study believed that illnesses, including childhood illness, were of a spiritual origin and that some illnesses were not meant to be treated at health facilities. Cultural/community perceptions of the aetiology of many childhood illnesses differ from known biomedical causes and determine if health-care will be sought at a health facility or whether the caregiver will resort to traditional/religious remedies [48, 49]. Some childhood illnesses and presentations such as measles and convulsions are believed to be passed to the child by perceived enemies or when the mother breaches a taboo in the community [48, 49]. This narrative may underscore the current study's finding that about 3% of respondents who indicated what they did first when their child was last ill resorted to religious prayers and/or herbal potions. Using herbal potions may relate to cleansing from taboos. The notion that some childhood illnesses are of a spiritual aetiology can be so deeply rooted in the community that even some healthcare workers have been reported to identify with it and advice caregivers of children under five to seek traditional remedies for some ailments [48]. Even when formal health care is sought, some caregivers give traditional remedies in addition because they believe the conventional medicines are too slow in achieving the desired healing [49, 50]. Such combinations could be detrimental to the child with potential long term kidney damage and caregivers must be educated on these issues.

The community-based approach is a strength for the study as it minimizes the selection bias associated with doing such studies among participants attending health facilities. The absence of a qualitative component to the current study is a limitation as specific contexts surrounding particular response choices could not be explored for a comprehensive understanding of the relevant issues. The lack of a formal sample size determination for the study is also a study limitation. Though the number of respondents was large, it may possibly lack the power to detect some associations. Nevertheless, the study highlights the poverty of prompt HSB and the apparent discrimination against the girl child in the study districts which must be targeted for action. Furthermore, a number of the study variables had appreciable missing data but the available data analysed were deemed sufficiently large and validates the study findings.

Conclusion

Less than 10% of the study respondents had adequate knowledge of childhood illness danger signs. Only about 59% promptly sought care at health facilities for their under-five children the last time they were ill and this was well influenced by the sex and birth order of the child. Healthcare workers and public health managers in the Ho West and Adaklu Districts and the Volta Regional Health Directorate must be at the forefront of interventions to improve prompt health seeking behaviour among caregivers. Child welfare service provision sessions and traditional durbars, for instance, can be a platform to repeatedly emphasize prompt HSB over self-medication in children. Drug shop owners in rural areas can be trained to promptly refer to the CHPS clinics/health centers women who seek to indulge in self-medication for their under-five children. Working with gender organizations, traditional leadership and the social welfare unit, the ultimate aim must be to promote child survival and development with an eye to reducing what appears to be some discrimination against the girl child as far as prompt HSB is concerned. Qualitative methods, involving key informant interviews and focus group discussions, are needed to further interrogate a number of observations made in the current study. These include why male children have increased odds of receiving formal health care within 24 h of onset of illness compared to females and the contextual factors around mothers' decision-making power in seeking health care for their children.

Abbreviations

HSB	Health seeking behaviour
SCEP	Student Community Engagement Programme
NHIS	National Health Insurance Scheme
CHPS	Community-based Health and Planning Services
LMICs	Low and middle income countries

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12889-025-22393-0>.

Supplementary Material 1: Questionnaire used in the primary survey.

Supplementary Material 2: Dataset upon which the conclusions of the study are based.

Supplementary Material 3: Interaction between sex and birth order of index child.

Supplementary Material 4: Members of UHAS School of Medicine Class of 2023.

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Author contributions

All authors conceptualized the study. JO, GDA and Class of 2023 collected and analysed the data. JO interpreted the results and wrote the initial manuscript draft. GDA and HKT reviewed the manuscript for critical intellectual content. All authors read and approved the final manuscript.

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Data availability

Data is provided within the manuscript or supplementary information files.

Declarations

Ethics approval and consent to participate

In accordance with the Declaration of Helsinki, ethical approval for the data extraction and analysis performed for this study was granted by the University of Health and Allied Sciences Research Ethics Committee (UHAS-REC A.7 [40] 23–24) following prior permission from the Dean of the Medical School to extract the data for reanalysis and publication. The primary survey itself conducted three years prior did not require ethical approval as it was part of curriculum implementation and training for 4th year medical students. The curriculum has long been approved by the Ghana Tertiary Education Commission which oversees higher education in the country. Nonetheless, as part of the community entry processes, permission was obtained from the District Directors of Health Services for the two districts and the traditional leadership of each community involved. Verbal informed consent was obtained from all respondents prior to their participation in the primary survey. There was no health risk to participants during the conduct of the survey and neither was there any form of payment or inducement.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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