

A cross-sectional study on factors associated with health seeking behaviour of Malawians aged 15+ years in 2016

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Abstract

Introduction

Health seeking behaviour (HSB) refers to actions taken by individuals who are ill in order to find appropriate remedy. Most studies on HSB have only examined one symptom or covered only a specific geographical location within a country. In this study, we used a representative sample of adults to explore the factors associated with HSB in response to 30 symptoms reported by adult Malawians in 2016.

Methods

We used the 2016 Malawi Integrated Household Survey dataset. We fitted a multilevel logistic regression model of likelihood of 'seeking care at a health facility' using a forward step-wise selection method, with age, sex and reported symptoms entered as a priori variables. We calculated the odds ratios (ORs) and their associated 95% confidence intervals (95% CI). We set the level of statistical significance at $P < 0.05$.

Results

Of 6909 adults included in the survey, 1907 (29%) reported symptoms during the 2 weeks preceding the survey. Of these, 937 (57%) sought care at a health facility. Adults in urban areas were more likely to seek health care at a health facility than those in rural areas (AOR = 1.65, 95% CI: 1.19–2.30, $P = 0.003$). Females had a higher likelihood of seeking care from health facilities than males (AOR = 1.26, 95% CI: 1.03–1.59, $P = 0.029$). Being of higher wealth status was associated with a higher likelihood of seeking care from a health facility (AOR = 1.58, 95% CI: 1.16–2.16, $P = 0.004$). Having fever and eye problems were associated with higher likelihood of seeking care at a health facility, while having headache, stomach ache and respiratory tract infections were associated with lower likelihood of seeking care at a health facility.

Conclusion

This study has shown that there is a need to understand and address individual, socioeconomic and geographical barriers to health seeking to increase access and appropriate use of health care and fast-track progress towards Universal Health Coverage among the adult population.

Key Words; Health inequality, Malawi, health seeking behaviour, integrated household survey

Introduction

Health seeking behaviour (HSB) refers to actions taken by individuals who are ill in order to find appropriate remedy^{1,2}. The HSB of a community determines utilisation of health services and this depends on education levels, economic factors, cultural beliefs and practices, socio-demographic factors, knowledge of the facilities, gender issues, and the health care system itself^{3,4}. HSB is preceded by a decision-making process that is further governed by individual or household behaviour, community norms, and expectations, as well as provider-related characteristics and behaviour². The desired HSB is responding to an illness by seeking help from trained medical personnel in a recognized health care facility⁵. It is well established that HSB is influenced by manifestation of symptoms⁵.

The barriers to HSB for adults in sub-Saharan Africa include socioeconomic status, masculinity, lack of awareness of the need for primary care, cultural beliefs, peer influences, distance and cost^{6,7}. In a study conducted in Ghana, the factors that affected the tendency to use services included socio-demographics and health and illness values, wealth status and social support as well as residence and access to health resources⁸. There is variation in HSB by age, sex, location and socio-economic position in the sub-Saharan region. Specifically, HSB has been higher in the urban population and those with a higher socio-economic position among other factors⁷. Studies conducted in Malawi and Uganda have identified HSB disparities between urban and rural areas and by geographical location, where certain communities have more access to health services than others^{3,9,10}. Most of the

studies on HSB have only examined one symptom or covered only a specific geographical location within a country. We explored factors associated with HSB among adult Malawians in 2016 using the 2016 Integrated Household Survey (IHS)¹¹. The aim of this analysis was to characterize the health care seeking behaviour and its determinants in adult Malawians in 2016. We specifically estimated the probability of seeking care given presence of specific symptoms, and determined the factors associated with HSB among adults from the interviewed households in 2016. This is the first study to incorporate data on 30 symptoms to study HSB among the adults of Malawi using nationally representative data.

Methods

Study design and introduction to integrated household survey

We conducted secondary analysis of the cross-sectional survey data collected in the 2016 Malawi IHS. The purpose of the IHS is to monitor and evaluate the changing conditions of Malawian households¹². IHSs have been implemented since 1997 in Malawi. IHSs are implemented under the umbrella of the World Bank Living Standards Measurement Study–Integrated Surveys on Agriculture (LSMS-ISA) initiative, whose primary objective is to provide financial and technical support to governments in sub-Saharan Africa in the design and implementation of nationally representative multi-topic panel household surveys with a strong focus on agriculture. More information about the LSMS-ISA is available from www.worldbank.org/lsmis¹².

For this analysis we mainly used data collected in the household questionnaire available from <https://microdata.worldbank.org/index.php/home>¹². We combined data from household roster, socio-economic status and health. The household roster contained demographic data on all the members of the interviewed households¹². The health section contained information on sickness during the 2 weeks preceding the survey and any resulting health care seeking behaviour, as well as expenditure relating to the symptoms reported. Although the pre-populated list had 30 symptoms included in the survey questionnaire, by design of the questionnaire only 2 symptoms were allowed to be reported for each household member.

Sampling procedure

The 2016 IHS used a two-stage sampling to obtain a nationally representative sample. The sampling frame was based on the 2008 Malawi Population and Housing Census¹³. The primary sampling units (PSUs) were the census enumerations areas (EAs) defined for the 2008 Malawi Population and Housing Census. The EA is the smallest operational area established for the census with well-defined boundaries, corresponding to the workload of one census enumerator. The EAs have an average of about 235 households each¹³.

Sampling weights

To analyse the data and produce accurate representativeness of the population, the sample variables must be weighted using the household sampling weights (HHWGTs). The sampling weight for each household is equal to the inverse of its probability of selection and is calculated by multiplying the probabilities at each sampling stage¹². We applied the sampling weight to all the analyses where we obtained the weighted proportions. A detailed description of calculation of weights in the Malawi IHS is described in ‘Basic

Information Document’ for IHS4¹².

Data management

We obtained the following variables from the 2016 IHS: age, sex (male/female), place of residence (rural/urban), region (northern /central/southern), level of education (none/primary/secondary/tertiary), marital status (unmarried/formerly married/married), sampling weights, whether the household member experienced any symptoms during the 2 weeks preceding the survey, name of symptom, HSB for each of the symptoms (visiting or not visiting a health facility). This analysis only included persons aged 15 years and above. Participants were categorized by age into young adults (age 15–34 years), middle-aged adults (age 35–59 years), and older adults (age 60 years and above)¹⁴. The data on symptoms were mapped as illustrated in Box 1.

Box 1. Mapping of 30 symptoms captured into 15 symptoms using the 2016 Malawi Integrated Household Survey

Symptom from survey	Mapped to the variable
Fever and malaria	Fever/malaria
Diarrhoea and vomiting	Vomiting/diarrhoea
Sore throat and ear/nose/throat	Stomach ache
Upper respiratory (sinuses), lower respiratory (chest, lungs) and flu	Sore throat
Headache	Respiratory infection
Headache	Headache
Skin problem	Skin problem
Dental problem	Dental problem
Eye problem	Eye problem
Backache	Backache
Burn, fracture and wound	Injuries
Fainting, pain when passing urine, mental disorder, tuberculosis, unspecified long-term illnesses, sexually transmitted infections and other illnesses	Other

We computed the wealth quintile—a proxy for wealth status—using factor analysis, computed using an algorithm outlined by Measure Demographic and Health Surveys¹⁵. Wealth quintile is an asset-based measure employed in locations where incomes are difficult to measure¹⁶. Assets including livestock and birds (goats, sheep, cattle, donkeys, pigs and chicken), utilities (electricity and running water), type of dwelling and other properties such as radio sets were used to construct our wealth quintiles¹⁶. In this study, we used the following to compute the wealth quintile: (a) floor material (sand, smoothed mud, smooth cement, tile, other); (b) cooking fuel (firewood, crop residue, paraffin, electricity, charcoal, other); (c) water supply (personal open unprotected well, communal open unprotected well, river, spring, lake, reservoir, piped into dwelling, piped outside dwelling, communal standpipe, personal hand-pump, communal hand-pump, protected spring, other); (d) toilet facility (no toilet facility, flush toilet, VIP (ventilated improved pit) latrine, traditional latrine with roof, latrine without roof, other); and (e) ownership of assets (bed, chair, table, radio, television, bicycle, motorcycle, and car or bus). We generated the tertiles and ranked them from the lowest to the highest in line with the Measure Demographic and Health Surveys¹⁵.

Table 1. Characteristics of adults reporting symptoms and health seeking behaviour of adults during the 2 weeks preceding the survey in Malawi in 2016.

Characteristics (n = 6909)	Total n (%) ^a	Illness reported in past 2 weeks n (%) ^b	Health care sought for illness reported n (%) ^c
Total	6909 (100.0)	1907 (28.9)	937 (47.1)
Region			
Northern	799 (12.0)	227 (31.4)	136 (52.2)
Central	3217 (42.6)	939 (32.1)	431 (44.7)
Southern	2893 (45.5)	741 (25.4)	370 (48.1)
Residence			
Rural	4963 (80.4)	1476 (30.8)	671 (44.6)
Urban	1946 (19.6)	431 (21.5)	266 (61.1)
Sex			
Male	3342 (47.9)	818 (25.6)	391 (44.6)
Female	3567 (52.1)	1089 (32.0)	546 (48.9)
Age group (years)			
15–34	4398 (63.1)	1072 (26.1)	534 (48.1)
35–59	1927 (27.9)	576 (30.1)	278 (45.4)
60+	584 (8.9)	259 (45.5)	125 (46.2)
Marital status			
Married	3952 (57.8)	1136 (30.4)	553 (45.6)
Divorced/ widowed	785 (11.8)	285 (37.0)	139 (49.9)
Never married	2172 (30.2)	486 (23.0)	245 (49.1)
Wealth index			
Low	2530 (40.3)	779 (31.7)	335 (42.6)
Middle	1398 (22.4)	437 (33.3)	208 (46.7)
High	2981 (37.3)	691 (23.3)	394 (53.9)
Relationship to household head			
Household head	2507 (37.0)	729 (30.2)	382 (55.6)
Spouse	1819 (26.4)	571 (33.8)	284 (51.7)
Child/niece/ nephew	2196 (31.6)	502 (23.2)	250 (51.0)
Brother/sister/ cousin	223 (2.8)	48 (25.1)	27 (52.0)
Parent	77 (1.2)	38 (44.7)	19 (53.3)
Other relatives	87 (1.0)	19 (24.0)	8 (39.6)
Education level			
None	6268 (93.3)	1722 (29.7)	899 (53.6)
Primary	270 (2.9)	80 (22.2)	37 (55.2)
Secondary	284 (3.0)	89 (21.7)	28 (35.4)
Tertiary	87 (0.8)	16 (22.3)	6 (46.0)

^aDenominator for column^b of those sick within the past 14 days.

^bDenominator for column^c of those who sought health care.

Data analysis

We analysed data using frequency, weighted proportions, odds ratios (ORs) and their associated 95% confidence

intervals (95% CI). All statistical analyses in this study were conducted using STATA 16.0 (StataCorp, College Station, TX, USA). We conducted both bivariate and multivariate analysis of the effect of age, sex, region, residence, marital status, level of education, socio-economic position, relationship to the household head and type of symptoms on the binary endpoint of HSB. We fitted a multilevel logistic regression model of HSB using a forward step-wise selection method. Age, sex and reported symptoms were entered as a priori variables in the multivariate model. For a factor to be included in the model, the likelihood ratio test (LRT) was used. We set the level of statistical significance at $P < 0.05$.

Ethical considerations

The individual consent was conducted by the National Statistical Office (NSO) of Malawi during the 2016 IHS. We requested access to use the data from the World Bank. The Malawi IHS datasets were downloaded from <https://microdata.worldbank.org/index.php/catalog/2939>. Furthermore, this study was approved by the College of Medicine Research Committee (COMREC) in Blantyre, Malawi (protocol number: P.10/19/2820). As this study used secondary anonymised data, the issue of individual informed consent did not apply.

Results

Characteristics of adults included in this study

The characteristics of the adults included in this study are shown in Table 1. A total of 6909 household members were interviewed in 2016. Of these, 799 (12%) were interviewed in the northern region while 2893 (46%) were interviewed in the southern region. There were slightly more females (52%) than males (48%). The majority of the respondents were from rural areas (80%) while the rest were from urban areas (20%). A total of 4398 (63%) of 6909 were aged between 15 and 34 years while 584 (9%) were aged 60 years and above. The median age was 29 years (interquartile range [IQR]: 21–41). There were more people from households of low wealth index (44%) than those from the households of high wealth index (30%). The majority of people were household heads (37%) while the smallest percentage were other relatives to the head of the household (1%). A total of 3952 (58%) of the 6909 adults were married while 785 (12%) were widowed or divorced.

Symptoms during the 2 weeks preceding the survey

A total of 1907 (29%) of the 6909 persons reported having symptoms during the 2 weeks preceding the survey. The characteristics of persons who had symptoms during the 2 weeks preceding the survey is shown in Table 1. The central region (32% of 3217) had a higher proportion of persons with symptoms than the southern region (25% of 2893). Among the rural population, 31% of 4963 had symptoms while the corresponding value for the urban population was 22% of 1946 ($P = 0.0004$). A total of 818 (26%) of the 3342 males and 1089 (32%) of the 3567 females reported symptoms ($P < 0.001$). There was an increasing trend in the proportion reporting symptoms by age (see Table 1). A significantly higher proportion of adults from households with low wealth index (32%) reported symptoms than those from high wealth index (23%). A total of 30% of the 6268 persons without formal education reported symptoms while 22% of 87 people with tertiary education reported illness ($P = 0.012$).

Among the 1907 adults with symptoms during the 2 weeks preceding the survey, the most common symptoms reported were fever (39% of 1907), followed by respiratory tract infections (14% of 1907) and then headache (14% of 1907) as shown in Table 2. The least common symptoms reported were dental problems (2% of 1907) and skin problems (2% of 1907), followed by eye problems (<1% of 1907). A total of 612 (9%) of the 6909 adults had chronic conditions. Of these, 290 (49%) were ill within 2 weeks.

Table 2. Symptoms and their associated health seeking behaviour for adults in Malawi in 2016

Symptoms (n = 1907)	Number of persons for each illness ^a	Number of persons who sought health care for each illness ^b
	n (%)	n (%)
Fever	740 (39.4)	443 (57.5)
Vomiting	49 (2.1)	20 (38.8)
Stomach ache	169 (8.6)	69 (39.2)
Sore throat	89 (4.5)	35 (41.1)
Respiratory tract	278 (14.3)	109 (36.6)
Headache	268 (14.0)	79 (27.5)
Skin	28 (1.6)	13 (51.7)
Dental problem	42 (2.3)	21 (42.7)
Backache	58 (3.1)	23 (38.7)
Injury	84 (4.5)	40 (42.2)
Eye	18 (0.8)	14 (83.7)
Other ^c	110 (5.7)	67 (57.8)

^aDenominator is adults with symptoms.

^bNumerator for 'number of adults that sought health care at health facility'.

^cFainting, pain when passing urine, mental disorder, tuberculosis, sexually transmitted infections, unspecified long-term illnesses and other illnesses.

Places where adults sought health care

The places where the persons obtained health care are shown in Table 3. A total of 1653 (87%) of the 1907 persons who had reported symptoms during the 2 weeks preceding the survey sought health care. Of the 1907, 937 (57%) sought care at a health facility. Of the 937 who sought care at a health facility, 721 (77%) sought care from a government health facility while 118 (13%) obtained care from a private clinic. A total of 254 (13%) of the 1907 persons did not seek any health care. Of those who did not seek treatment, 71% (180) believed that their symptoms were not serious while the remainder did not have funds. In total 970 (51%) of 1907 persons sought care in facilities other than government clinics or pharmacies. Of these, 52% bought their medicines from groceries while 14% used the medicines they had in stock.

Health seeking behaviour by socio-demographic factors and symptom type

HSB by socio-demographic factors is shown in Table 1. The overall HSB was 47% in the adult population of Malawi in 2016. HSB was the highest in the northern region (52%) and the lowest in the central region (45%). A total of 266

(61% of 431) of adults from the urban areas sought health care compared to 671 (45% of 1476) in the rural areas. The proportion of those aged 60 years and above was the highest among those seeking health care compared to the other age groups (see Table 1). There was an increasing trend in the proportion of adults seeking health care from 43% among those in the low-income category to 54% among those in the high-income category. The HSB by symptom type is presented in Table 2. The adults with dental problems had the highest HSB (84%) while those with headache had the least HSB (28%).

Table 3. Places where care was sought for adults with illnesses in Malawi in 2016.

Action taken (n = 1907)	n	%
Did not seek health care ^a	254	13.4
Did nothing, not serious illness	180	9.1
Did nothing, had no money	74	4.3
Sought health care	1653	87.0
(a) Care at health facility ^b	937	47.5
Government health facility	721	37.8
Private health facility	118	5.4
CHAM health facility	42	2.4
Local pharmacy	41	1.1
Village clinic	15	0.7
(b) Care not at health facility ^c	716	39.6
Grocery	505	27.7
Used medicine in stock at home ^d	133	7.6
Personally known remedies	34	1.9
Traditional healer	19	1.1
Other	15	0.9
Faith healer	10	0.5

^{a,c}These actions do not constitute healthcare seeking behaviour (HSB).

^bThese actions constitute HSB.

^dThis refers to the medicines that they had possibly because they may not have completed the previous dosage. These are the drugs the respondents had at home.

CHAM, Christian Health Association of Malawi.

Factors associated with health seeking behaviour for adult Malawians

The factors associated with HSB of the adult Malawians are shown in Table 4. HSB varied by sex, region, wealth level, rural/urban residence and type of symptoms. There were regional variations in HSB among the adult Malawians with those from both central and southern regions being less likely than their northern counterparts to seek health care from health facilities.

Table 4. Factors associated with health seeking behaviour for adults in Malawi for whom at least one symptom was reported in 2016.

Characteristics (n = 1907)	Crude		Adjusted	
	OR (95% CI)	P-value ^a	OR (95% CI)	P-value ^a
Region				
Northern	1.00		1.00	
Central	0.56 (0.38–0.82)	0.003	0.60 (0.40–0.89)	0.012
Southern	0.68 (0.45–1.00)	0.05	0.68 (0.45–1.01)	0.058
Residence				
Rural	1.00		1.00	
Urban	2.07 (1.58–2.73)	<0.001	1.65 (1.19–2.30)	0.003
Sex				
Male	1.00		1.00	
Female	1.16 (0.94–1.44)	0.17	1.28 (1.03–1.59)	0.029
Age group (years)				
15–34	1.00		1.00	
35–59	0.91 (0.71–1.15)	0.43	0.93 (0.72–1.18)	0.55
60+	0.95 (0.69–1.31)	0.75	0.93 (0.66–1.31)	0.69
Marital status				
Married	1.00		1.00	
Divorced/widowed	0.99 (0.73–1.35)	0.96		
Never married	1.03 (0.81–1.33)	0.80		
Wealth index				
Low	1.00		1.00	
Middle	1.22 (0.91–1.63)	0.19	1.20 (0.89–1.62)	0.24
High	1.91 (1.48–2.48)	<0.001	1.58 (1.16–2.16)	0.004
Relationship to household head				
Household head	1.00		1.00	
Spouse	1.15 (0.89–1.48)	0.27		
Child/niece/nephew	1.08 (0.83–1.41)	0.56		
Brother/sister/cousin	0.74 (0.37–1.47)	0.37		
Parent	1.04 (0.47–2.27)	0.92		

Table 4 Cont....

Other relatives	1.81 (0.60–5.43)	0.29		
Education level				
None	1.00			
Primary	1.30 (0.76–2.22)	0.34		
Secondary	2.47 (1.45–4.22)	0.001		
Tertiary	2.00 (0.60–6.64)	0.26		
Presence vs. absence of illness				
Fever	2.30 (1.83–2.90)	<0.001	1.52 (1.03–2.25)	0.034
Vomiting	0.61 (0.31–1.21)	0.16	0.55 (0.26–1.16)	0.12
Stomach ache	0.65 (0.44–0.95)	0.025	0.56 (0.34–0.93)	0.025
Sore throat	0.71 (0.41–1.22)	0.21	0.67 (0.36–1.23)	0.19
Respiratory infections	0.60 (0.44–0.81)	0.001	0.55 (0.36–0.84)	0.008
Headache	0.32 (0.23–0.45)	<0.001	0.32 (0.21–0.51)	<0.001
Skin diseases	0.89 (0.37–2.19)	0.81	0.88 (0.35–2.22)	0.79
Backache	0.64 (0.34–1.20)	0.16	0.64 (0.32–1.30)	0.22
Dental problem	1.14 (0.55–2.34)	0.73	1.07 (0.48–2.37)	0.86
Injury	0.85 (0.51–1.44)	0.55	0.80 (0.43–1.48)	0.47
Eye problem	4.60 (1.24–17.01)	0.02	3.94 (1.05–14.86)	0.043
Other symptoms ^b	1.81 (1.14–2.88)	0.012	1.54 (0.88–2.72)	0.13
Had chronic conditions				
No	1.00			
Yes	1.35 (1.00–1.81)	0.05		

^aP-values from multi-level logistic regression.

^bFainting, pain when passing urine, mental disorder, tuberculosis, sexually transmitted infections, unspecified long-term illnesses and other illnesses.

The constant term of the regression model is 1.08 (95% CI: 0.61–1.89, P = 0.79).

CI, confidence interval; OR, odds ratio.

On the other hand, the urban residents were almost twice as likely to seek health care at a health facility than their rural counterparts (adjusted odds ratio [AOR] = 1.65, 95% CI: 1.19–2.30, $P = 0.003$). It was also observed that females had a higher likelihood of seeking care from health facilities than males (AOR = 1.26, 95% CI: 1.03–1.59, $P = 0.029$). Being at a higher wealth level was also associated with almost twice the likelihood of seeking care from a health facility compared to those who were in the lowest wealth level (AOR = 1.58, 95% CI: 1.16–2.16, $P = 0.004$).

Having fever (AOR = 1.52, 95% CI: 1.03–2.25, $P = 0.034$) and eye problems (AOR = 3.94, 95% CI: 1.04–14.86, $P = 0.043$) was associated with a higher likelihood of seeking care at health facilities while having headache (AOR = 0.32, 95% CI: 0.21–0.51, $P < 0.001$), stomach ache (AOR = 0.56, 95% CI: 0.34–0.93, $P = 0.025$) and respiratory tract infections (AOR = 0.55, 95% CI: 0.36–0.85, $P = 0.008$) was associated with a lower likelihood of seeking care at health facilities. On average the AOR changed by an average of 10% when compared to the crude estimates. The effect of fever on HSB changed by 34% after adjustment for other variables while the effect of headache on HSB did not change after adjustment for other variables.

Discussion

We investigated the HSB of a representative sample of adults in Malawi using the 2016 Malawi IHS. This is the first study to incorporate data on 30 symptoms to study HSB among the adults of Malawi. In this study, the following were key findings: 29% of the adults had symptoms within 2 weeks prior to the survey and of these 87% sought health care; overall, 47% of the adults sought health care from health facilities; of these, 77% received health care from government health facilities, and the likelihood of seeking care at health facilities was higher among: those from households with high wealth status and urban areas; those with fever and eye problems; and female household members. In contrast, having a headache, stomach ache and/or respiratory tract infections was associated with a lower likelihood of seeking care at health facilities.

In this study we found a 6% lower proportion of persons who received health care from health facilities than in Nigeria¹⁷. The difference may be attributable to the fact that the study from Nigeria involved a working population with access to medical insurance while in Malawi we were investigating the HSB of the general adult population. However, we observed similar levels of HSB in Malawi and Ghana in the adult population¹⁶. In our context we focused on twelve mapped symptoms and spelt out the HSB for each of the symptoms while the other studies have not included the actual symptoms that the adults were being assessed on.

There are several policy implications of the study findings. First, HSB was lower in the rural areas compared with the urban areas. This may have been because people in rural areas are generally more dependent on public health care services than on private services compared with people living in urban areas, similar to a study in South Africa¹⁸. The low coverage of health services in rural areas of Malawi is often exacerbated by the high costs related to reaching health facilities or due to more health facilities being located in urban areas¹⁹. Some similar studies in settings like India and Kenya have cited distance from the facilities²⁰ or unavailability of health services to be associated with

a lower likelihood of HSB among the rural populations²¹. Among the rural populations, access to local health centres or hospitals is often constrained by a lack of transport and inability to meet the direct and indirect costs of a clinic visit²². The Government of Malawi should consider setting up more outreach health clinics in the rural areas to reduce the cost and distance faced by the rural population when accessing health care.

Second, this study has shown regional variations in HSB with the central region of Malawi having the least HSB. This is similar to what was observed in Nigeria where HSB also varied by geographical areas among the adult population²³. The differences in HSB by geographical location may be attributable to differences in levels of education, degree of traditional beliefs of the population and differences in health service coverage. Therefore, the government of Malawi needs to consider the regional variations in HSB as well as the context of HSB in order to tailor regional interventions aimed at increasing HSB especially in the central region of Malawi. One example of intervention is to increase HSB with campaigns that use television, drama, local press, local radio and places of worship.

Third, consistent with other studies which showed a lower likelihood of men seeking care at health facilities in Nigeria, Malawi and South Africa^{17,23–26}, we also found that men had a lower likelihood of seeking care at health facilities. The gender difference may be associated with reproductive biology and conditions specific to gender, higher rates of morbidity in women than in men, differences in health perceptions and the reporting of symptoms and illnesses, and a greater likelihood that women seek help for prevention and for illness²⁷. A gender perspective should be an integral part of monitoring, accountability and programming for the universal health coverage in Malawi and other similar settings.

Countries with gender differences for likelihood of seeking health care from health facilities should adopt gender-mainstreaming initiatives in health programmes and provide adequate resources to finance such initiatives to reduce the gender inequity in access to health care²⁸. For example, the Government of Malawi may consider implementation of mobile clinics in workplaces to ensure that men access health care. The gender difference in accessing care at health facilities in Malawi could also be attributable to more programmes targeting females than males. For example, women have more opportunities to interact with the health facilities than men through either antenatal care or postnatal care as well as when they are care givers of the sick relatives.

Fourth, similar to studies carried out in South Africa, Southwest Ethiopia, Ghana and Nigeria, we also found that the adults from households with higher wealth status have almost twice the likelihood of seeking health care from health facilities^{7,9,29,30}. Therefore, provision of some form of health insurance especially targeting the poor population may help improve HSB by ensuring that people access health care at certain facilities where patients pay user fees. A study in Ghana found that the people from low wealth status were less likely to utilise health facilities despite the implementation of health insurance because of the inequalities in the quality of health services accessed by those from low wealth status compared with high wealth status³⁰. Therefore, introduction of health insurance needs to be augmented with availability

of the essential health services in all the health care service delivery points from primary to tertiary levels to maximize service utilisation³⁰.

We also noted that HSB varied by type of symptoms. Persons with fever had a higher likelihood of HSB as shown in similar studies^{22,31}. In Malawi, there was a higher proportion of HSB among those with vomiting and diarrheal symptoms compared with Tanzania³². Similar to studies conducted in Uganda³³, HSB was associated with type of symptoms in Malawi. Therefore, the Malawi Ministry of Health and Population should consider conducting campaigns for sensitization and to promote HSB in response to symptoms. These campaigns could be conducted using several methods, such as radio or TV jingles and the use of traditional and faith leaders in disseminating HSB information in communities. It should also be appreciated that having symptoms does not guarantee seeking care at a health facility because the propensity to demand care at a health facility depends on the quality of medical care, quality and availability of doctors or nurses, drugs and the clinic environment³⁴. Furthermore, the perceived severity of the symptom has a significant bearing on the likelihood of seeking care³⁵. In this study, we did not have data on severity of symptoms or the quality of available health services from the places where the persons accessed health care; hence, we could not further qualify the HSB by service quality and severity of symptoms.

The major strengths of this study were the large sample size and representativeness of sample, which potentially allows the analysis to improve operational practice and inform policy change. A potential weakness was biases in self-reporting of symptoms or chronic conditions. For example, we observed that there was no person that reported having had a sexually transmitted infection (STI) during the 2 weeks prior to the survey and this is highly unlikely in a national survey. One of the reasons why respondents are less likely to report having had an STI is because it is a stigmatizing condition. In addition, some persons infected with an STI may also have been asymptomatic.

In conclusion, the proportion of adults reporting symptoms who accessed care from health facilities was low. Among those who sought health care at health facilities, the majority received care from public health facilities. Those of high wealth status, in urban areas, of female sex and with fever and eye problems had a higher likelihood of HSB, while being from a central or southern region and having a headache, stomach ache and respiratory tract infections was associated with a lower likelihood of seeking care at health facilities. To achieve universal health coverage, government policies and programmes should take these factors into health care programming to improve population health and reduce health inequalities among adults in Malawi.

Availability of data and materials

The data are available for download from: <https://microdata.worldbank.org/index.php/catalog/2939>.

Declarations

We declare that there is no conflict of interest in publishing this paper. The funder had no role in conception, data analysis or decision to publish this paper.

Authors' contributions

Writing of manuscript: WN

Conduct of data management and analysis: WN

Advice on data analysis: TM, AP, TBH

Policy insights on paper: DN, PR, JMB

All authors read and approved the final manuscript.

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