



## ASSESSMENT OF HEALTH INFORMATION SEEKING BEHAVIOUR AND ITS DEMOGRAPHIC DETERMINANTS AMONG RESIDENTS OF COMMUNITIES LIVING AROUND TERTIARY INSTITUTIONS IN MAIDUGURI, NORTH EAST NIGERIA

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### ABSTRACT

Access to health information have witnessed phenomenal growth in developing countries over the last few decades. There is however limited information on health information seeking behaviour and utilization in poor resource communities in the country. It is important that individuals seek proper health information in order to make decisions on disease prevention, personal health promotion and participation in clinical decisions. This study aims to assess health information seeking behaviour (HISB) in communities around selected tertiary institutions in Maiduguri. This was a cross-sectional survey using a 56-item validated health information questionnaire (*Cronbach alpha* = 0.861). The questionnaire consists of items on six domains of health information (sources, uses, trust, reliability/quality, need, application, preference for sources). The responses were on four points (and three-point scale range from strongly agree to strongly disagree with neutral in the middle. A total of 1,513 respondents selected by convenience sampling completed the survey and their data used for the analysis. The data was entered into SPSS version 21 for analysis. Descriptive statistics and Chi square tests were performed to summarize the data and for association between demographic variables and health information seeking behaviour (HISB). *P* values < 0.05 was considered statistically significant. The sociodemographic characteristics of respondents showed that about half of them were males (51.3%) and females (48.7%) of which majority of had post-secondary education (77.9%). While non-health professional sources were most utilized (56.9%), health professionals were the most preferred (57.2%) and trusted (53.8%). Most of the information was used for self-care (17.9%), detect medicine side effects (13.8%) and maternal/child care (11.6%). There was statistically significant association between socio-demographic factors and health information seeking behaviour (*p* < 0.001). Health professionals remain the most preferred, trusted and utilized, however public health information sources were considered most reliable and of high quality. Most of the information was needed for self-care and basic healthcare before undertaking medical consultation.

**Keywords:** Health information seeking behaviour, health professionals, demographic factors, radio/television

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### INTRODUCTION

Public health information gained prominence over the past few decades following rapid advances in medical science and technology. The growth of internet and other electronic platforms as well as the rise in population literacy rate have increased diversity of health information sources. In recent decades there have been increased outbreaks of infectious disease pandemics, rise in non-communicable diseases and mental health issues of which

massive public health information campaigns have been instrumental in enhancing community awareness and control (Epizitone *et al.*, 2023, Aziz, 2017, Tulchinsky & Varavikova, 2014).

Health information is traditionally provided by healthcare professionals, family/friends and government print/electronic sources (Anyaku & Nwosu, 2017). In spite of the phenomenal growth in diversity, traditional sources remain important either for referencing or validation of

already acquired information (Kington *et al.*, 2021). This is particularly important in poor resource settings where a combination of illiteracy and limited access to print and electronic media make adoption of newer information sources rather difficult (Bujnowska-Fedak *et al.*, 2019, Byaro *et al.*, 2023). The non-traditional sources of health information are increasingly popular among the young and well-educated population as internet and social media penetration rise within the population (Almuammar *et al.*, 2021).

Health information seeking behaviour (HISB) have witnessed rapid changes in recent decades partly because of the need to mobilize community participation in the control and prevention of infectious diseases. In addition, public health policy has placed greater emphasis on controlling non-communicable diseases arising from ongoing epidemiological transition, demographic changes, rising prevalence of obesity, unhealthy diets, physical inactivity, misuse of alcohol, cigarette smoking and other risk factors.

In the last few decades the world was faced with epidemics of HIV/AIDS, SARS, COVID 19, swine flu and outbreak of Ebola virus all of which remain potent public health threats (Uddin & Acter, 2021, Al-Osail & Al-Wazzah, 2017, Acter *et al.*, 2020). There has also been a resurgence of old foes like tuberculosis, whooping cough, diphtheria, small pox and other vaccine preventable diseases (McGrath, 2022, Frenkel, 2021). All these are occurring in the presence of rapid rise in diabetes, hypertension, asthma/COPD and cancers (Bigna & Noubiap, 2019, Bai *et al.*, 2023) which are projected to be among the major causes of preventable premature deaths in developing countries (Reddy, 2020). The role of information driven mobilization of individual and community participation in prevention and control of diseases has been

demonstrated (Questa *et al.*, 2020, Igbal *et al.*, 2021).

Health information is required for the promotion of personal and family wellbeing as it assist in making correct decisions on sexual/reproductive health, exercise, dieting (Onwe & Okocha, 2019), maternal/child care (Ogunmodede *et al.*, 2013) and lifestyle adjustment to reduce disease risk. Literature has reported conflicting results from studies on health information seeking behaviour (HISB) which have been reported to be influenced by socio-demographic variables and other setting- specific factors (Jia *et al.*, 2021, Zimmerman and Shaw Jr, 2020). For instance, HISB among the elderly is frequently associated with dieting, medication use, recognition of disease symptoms and long-term prognosis (Agyemang-Duah *et al.*, 2020). Among those with chronic diseases, HISB mostly align with clinical needs of patients some of which include reduction in adverse drug reactions (Astyer *et al.*, 2020, Ruddin *et al.*, 2020), reduction in medical errors (Wood *et al.*, 2021) and safety (Kouri *et al.*, 2021).

Several studies have reported that HISB is influenced by the nature of information being sought (Obasola *et al.*, 2016), delivery system (Lu *et al.*, 2020), personal needs (Gholami *et al.*, 2014), gender and age (Lee, 2020), educational status (Raidoo *et al.*, 2021, Demirci, *et al.*, 2021), socio-cultural factors (Sultan *et al.*, 2017) and perceived health status (Shneyderman *et al.*, 2016). Other factors that have been reported in literature include accuracy and currency of information (Maon *et al.*, 2017, Osei *et al.*, 2017), level of health literacy (Ozhane *et al.*, 2021, Lee *et al.*, 2020) and socioeconomic status (Ghahramani, Wang, 2020) to mention but a few.

Literature evidences suggest that HISB is linked to the desire of individuals to participate in clinical decisions, better self-care, adoption of healthy lifestyles, proper use of medications and improvement in health literacy rates (Ekoko, 2020, Roddis *et al.*, 2019, Yu *et al.*, 2021). The country's public health strategy is predicated on the expectation that individuals would possess adequate health information and use it for

decisions on health promotion, healthy lifestyle and protection measures against infectious diseases. In spite of numerous public health information campaigns in the country, HISB within community setting studies have been rather scanty. This study therefore aims to investigate the HISB among residents of selected urban communities as it relates to sources, uses, trust, reliability/quality, application and preference for sources.

## METHODS

### Study Setting

The capital of Borno State (Maiduguri) is a major cosmopolitan city in Nigeria's North east region. This city currently hosts two public and one private universities in addition to other tertiary institutions. The survey was carried out among residents of communities around University of Maiduguri, School of Nursing and Midwifery, Ramat polytechnic all located in Maiduguri.

### Study Design

This was a cross-sectional questionnaire-based survey among adult residents of communities around three major tertiary educational institutions in Maiduguri.

### Sample Size/Sampling

The sample size was determined using Fisher's formula at 95% confidence interval, Z score (1.96), margin of error (5%), proportion (50%) and effect size of 1.5. A non-response rate of 10% was assumed and final sample size was calculated to be 632 respondents. In order to increase community coverage 1800 questionnaires were eventually used and were equally divided between the three communities and administered using convenience sampling method.

### Questionnaire/Administration

This HISB instrument was designed after a review of previous studies (Alduraywish *et al.*, 2020, Guite, 2019, Yilma, *et al.*, 2017,

Simou, 2016). A pre-study survey was carried out using 30 adult respondents and data used for testing internal validity of the instrument (*Cronbach alpha = 0.861*). The final instrument consists of six domains and 56-items which include D<sub>1</sub> = sources (11 items), D<sub>2</sub> = health information needs (11 items), D<sub>3</sub> = reliability/quality (9 items), D<sub>4</sub> = preference for sources (9 items), D<sub>5</sub> = application of information (7 items), D<sub>6</sub> = trust in sources (9 items). While response to D<sub>1</sub>, D<sub>2</sub>, D<sub>3</sub> and D<sub>5</sub> were on a four-point (1-very important, 2-important, 3-slightly important and 4-not important), D<sub>4</sub> and D<sub>6</sub> were on three-point (1-Yes, 2- No, 3-don't know) and four-point scales (1-a lot, 2-some, 3-a little, 4-not at all) respectively. The questionnaire was self-administered by a team of trained data collectors at home and places of work after obtaining informed consent. Those eligible to participate in the survey include individuals who are ≥18 years of age and able read and write in English language. A total of 1,513 completed questionnaire were found usable representing 84% return rate.

### Ethical Issues

Approval for this study was obtained from human research ethics committee of Borno State Ministry of Health (MOH/GEN/6679/1).

## DATA ANALYSIS

Data was cleaned, coded and entered into Microsoft Excel before being loaded into SPSS version 21 and analysed using descriptive statistics. Chi square test was used to test for association between demographic variables and HISB. *P* value of < 0.05 was considered statistically significant.

## RESULTS

Majority of respondents were males (51.3%) and marital status showed that a third of

**Table 1: Demographic Data**

Variable	Number (%)
<b>Gender</b>	
Male	776 (51.3)
Female	737 (48.7)
<b>Marital status</b>	
Single	566 (37.4)
Married	522 (34.5)
Divorced	361 (23.9)
Widowed	64 (4.2)
<b>Educational status</b>	
Secondary	334 (22.1)
Undergraduate	660 (43.6)
Post-graduate	519 (34.3)
<b>Occupation</b>	
Civil servant	660 (43.6)
Students	436 (28.8)
Business	272 (17.2)
Housewife	157 (10.4)
<b>Reported morbidity</b>	
Asthma	112 (7.4)
Chronic kidney disease	30 (1.9)
Diabetes mellitus	106 (7.0)
Hypertension	289 (19.1)
Peptic ulcer disease	201 (13.3)
None	775 (51.2)
<b>Duration of morbidity (yrs.) (N = 738)</b>	
≤ 1	178 (24.1)
1 – 2	298 (40.4)
3 – 4	167 (22.6)
≥ 5	95 (12.9)
<b>Mean (SD)</b>	<b>2.2 ± 1.7</b>
<b>Age (yrs.)</b>	
≤ 20	126 (8.3)
21 – 30	278 (18.4)
31 – 40	469 (30.9)
41 – 50	345 (22.8)
51 – 60	295 (19.5)
<b>Mean (SD)</b>	<b>38.2 ± 11.9</b>
<b>Income Level (\$)</b>	
≤ 50	180 (11.9)
51 – 100	321 (21.2)
101 – 150	450 (29.7)
151 – 200	309 (20.4)
201 – 250	253 (16.7)
<b>Mean (SD)</b>	<b>129.9 ± 62.4</b>

**Key:** Calculations was based on ₦750 to \$1

respondents were single (37.4%) while the married and divorced constituted 34.5% and 23.9% respectively. Educational status showed that most respondents were undergraduates (43.6%) or had postgraduate qualification (34.3%). The major occupation of respondents was civil service (43.6%) and 48.8% of them were living with one or more chronic disease for an average of 2.2 years.

The average age of respondents was 38.2 years (Table 1).

The percentage of respondents who sourced information from health professionals (43.1%) is lower than those from non-health professional sources (56.9%). The most utilized individual sources include radio/television (22.1%), internet (17.7%) and

physicians (14.9%). This is followed by family/friends (11.5%) and pharmacists (11.3%) (Figure 1).

The respondents expressed need for health information in relation to self-care (17.9%), medicine side effects (13.8%), maternal/child

health (11.6%) as well as sexual/reproductive health (11.4%). There was less need for information on nutrition/diet (6.9%), medical prognosis (8.6%) and lifestyle adjustment following medical diagnosis (8.2%) (Figure 2).

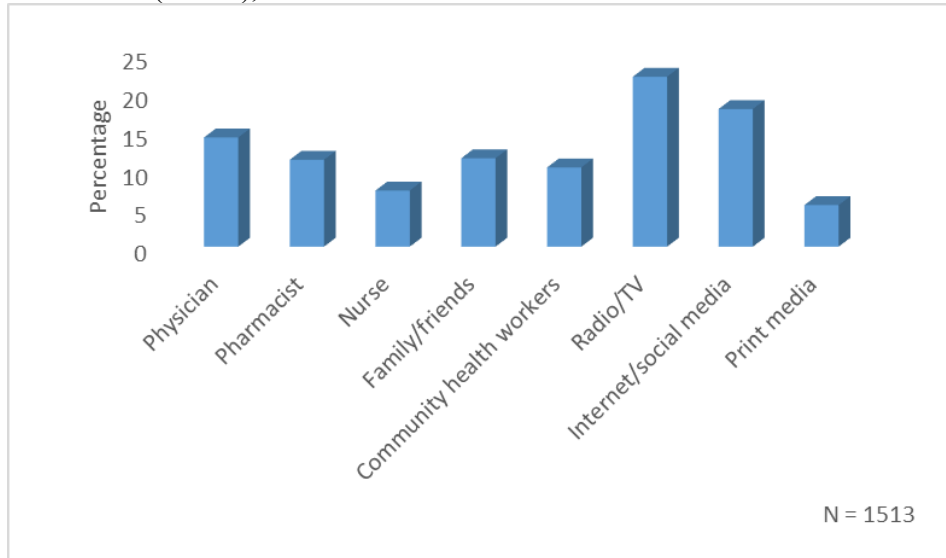


Figure 1: Sources of health information

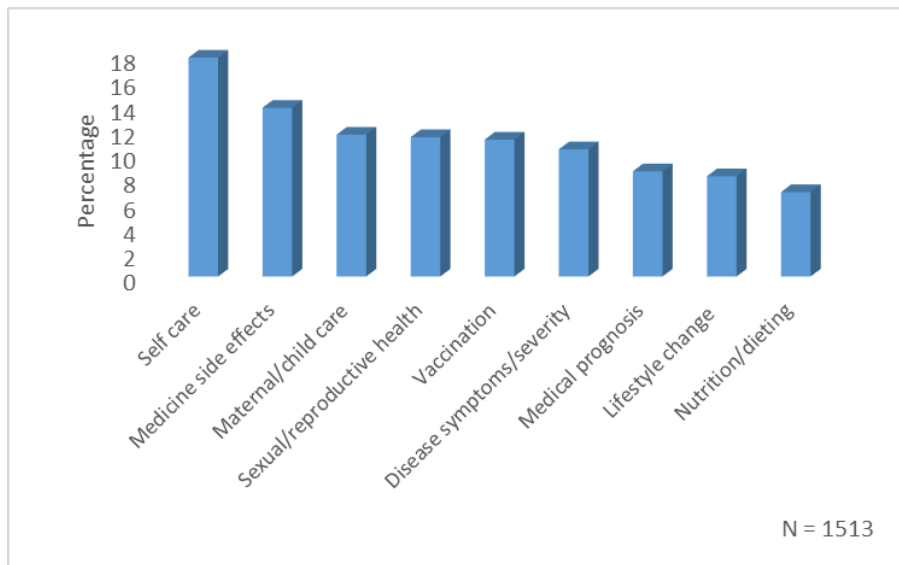


Figure 2: Health information needs

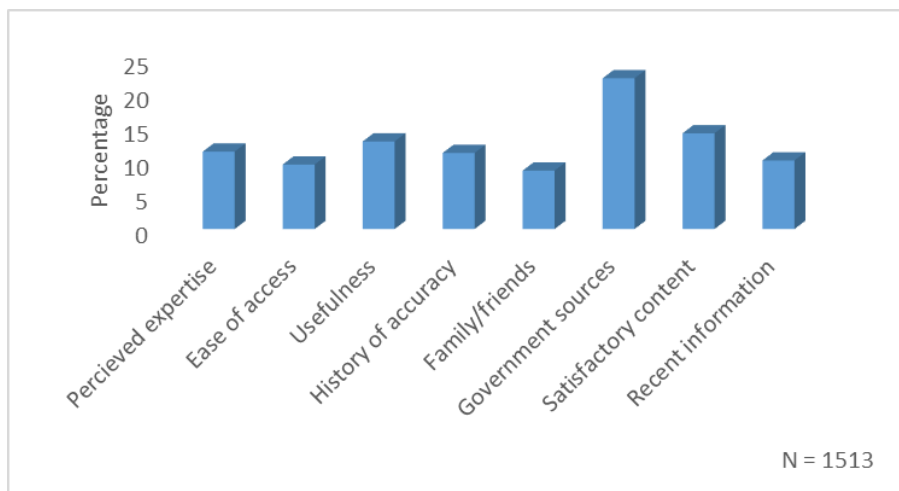
The reliability/quality of health information was based on whether it came from government sources (22.2%), satisfactory content (14.1%), usefulness of information (12.9%) and history of accuracy (11.2%). A

small percentage of respondents considered it reliable if it came from family/friends (8.6%) and easy to access (9.5%) (Figure 3).

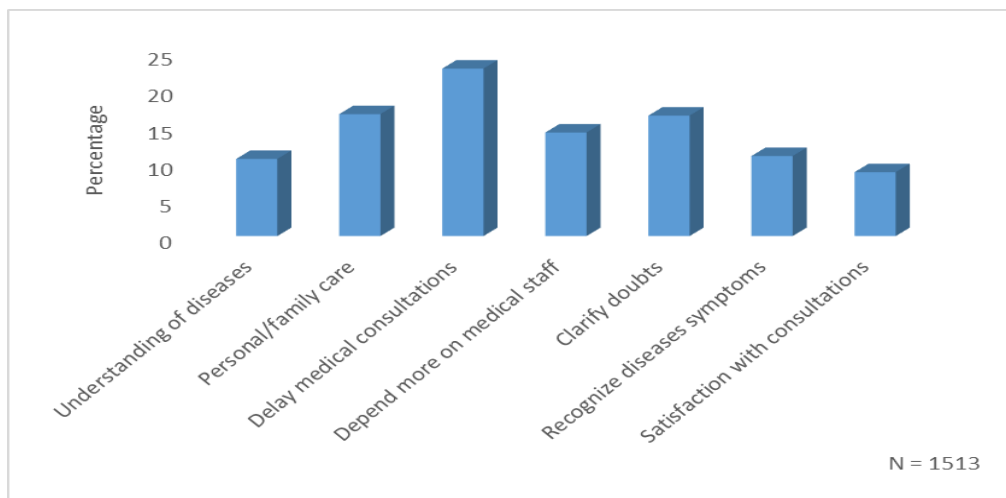
Health information acquired was largely applied in “delaying medical consultations”

(22.8%), personal/family care (16.6%) and clarification of doubts (16.4%). It also improved satisfaction with medical

consultations (8.7%), improved understanding of disease(s) (10.5%) and recognition of disease symptoms (10.9%) (**Figure 4**).



**Figure 3:** Reliability/quality of health information

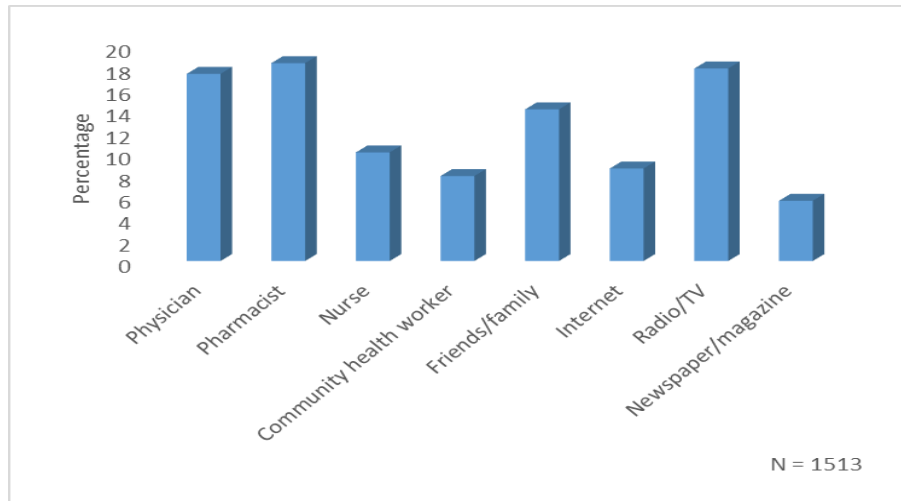


**Figure 4:** Application of health information

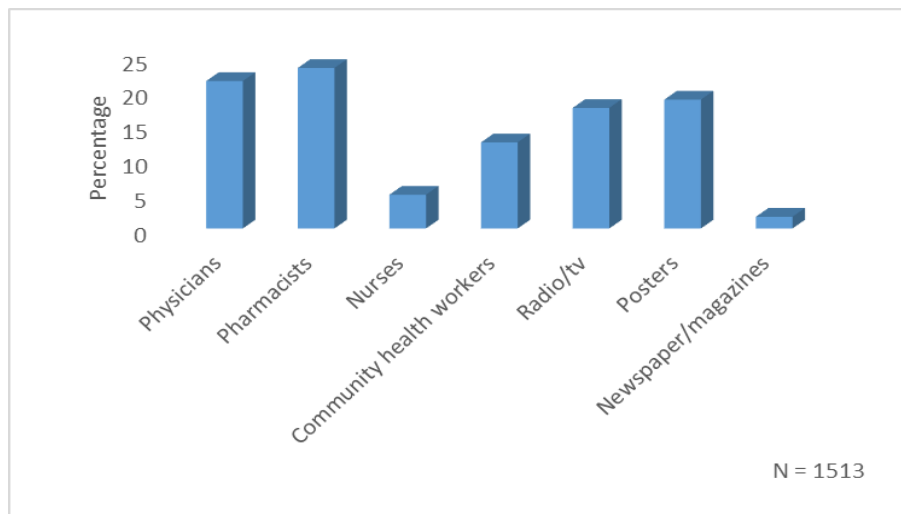
Overall, health professionals remain the most trusted source of health information (53.8%) compared to print/electronic media (46.2%). Among the most trusted health workers were pharmacists (18.4%) and physicians (17.4%), while radio/television (17.9%) and family/friends (14.1%) were most trusted among non-health professional sources. (**Figure 5**).

Preference for health information sources showed that majority of respondents prefer

health professionals (57.2%) compared to print/electronic media platforms (42.8%). Among health professionals, pharmacists (23.3%), physicians (21.4%) and community health workers (12.5%) were the most preferred. The most preferred among print/electronic sources included posters (18.7%) and radio/television (17.5%) (**Figure 6**).



**Figure 5:** Trust in health information sources



**Figure 6:** Preference for source of health information

There was significant association between demographic factors and HISB. These factors including gender ( $P < 0.001$ ), marital status ( $P < 0.001$ ), educational status ( $P < 0.001$ ), occupation ( $P < 0.001$ ), presence of chronic diseases ( $P < 0.001$ ) among other variables (**Table 2**).

## DISCUSSION

The availability of accurate, relevant and easily accessible health information is expected to empower individuals with knowledge needed to make healthcare decisions that will contribute to achieving high quality of personal and family life. This study clearly showed that people continue to access health information from multiple sources some of which may be of

doubtful quality comparable to previous studies (Chaudhuri *et al.*, 2013, Agyemang-Duah *et al.*, 2020). Overall, health professionals were slightly less utilized source of information compared to radio/television, internet and others which are becoming popular among educated people (Aldraywish *et al.*, 2020, Clarke *et al.*, 2016). This is comparable to findings from similar studies (Yilma *et al.*, 2015), where radio/television and internet were the most used sources (Sokey *et al.*, 2018, Iroeze & Bernard, 2023).

**Table 2: Association between demographic variables and sources of health information**

<b>Variable</b>	<b>Health professionals N (%)</b>	<b>Print/electronic media N (%)</b>	<b>Chi Square</b>	<b>P value</b>
<b>Gender</b>				
Male	378 (24.9)	398 (26.3)	40.112	<0.001
Female	478 (31.6)	259 (17.1)		
<b>Marital status</b>				
Single	355 (23.5)	211 (13.9)	42.115	<0.001
Married	341 (22.5)	181 (11.9)		
Divorced	275 (18.2)	86 (5.7)		
Widowed	61 (4.0)	3 (0.2)		
<b>Educational status</b>				
Secondary	263 (17.4)	71 (4.7)	54.642	<0.001
Undergraduate	372 (24.6)	288 (19.0)		
Postgraduate	362 (23.9)	157 (10.4)		
<b>Occupation</b>				
Civil servant	372 (24.6)	276 (18.2)	69.291	<0.001
Student	310 (20.5)	126 (8.3)		
Business	225 (14.9)	47 (3.1)		
Housewife	141 (9.3)	16 (1.1)		
<b>Self-reported Chronic diseases</b>				
Asthma	104 (14.1)	8 (1.1)	15.869	0.003
Chronic kidney disease	28 (3.8)	2 (0.3)		
Diabetes mellitus	99 (13.4)	7 (0.9)		
Hypertension	234 (31.7)	55 (7.5)		
Peptic ulcer disease	174 (23.6)	27 (3.6)		
<b>Duration of morbidity (yrs.)</b>				
≤ 1	135 (18.3)	43 (5.8)	36.062	<0.001
1 – 2	178 (24.1)	120 (16.3)		
3 – 4	129 (17.5)	38 (5.1)		
≥ 5	83 (11.2)	12 (1.6)		
<b>Age (yrs.)</b>				
≤ 20	115 (7.6)	11 (0.7)	37.023	<0.001
21 – 30	227 (15.0)	51 (3.4)		
31 – 40	324 (21.4)	145 (9.6)		
41 – 50	266 (17.6)	79 (5.2)		
51 – 60	238 (15.7)	57 (3.8)		
<b>Income (\$)</b>				
≤ 50	151 (9.9)	26 (1.7)	26.219	<0.001
51 – 100	253 (16.7)	68 (4.5)		
101 – 150	316 (20.9)	134 (8.9)		
151 – 200	247 (16.3)	63 (4.2)		
201 – 250	211 (13.9)	44 (2.9)		



The sources of acquiring health information vary widely as some studies indicated that the use of internet (Jia *et al.*, 2021), social media (Marar *et al.*, 2019, Chen & Wang, 2021), family/friends (Ho, *et al.*, 2022) have been on the rise in recent years. The reasons for this high variability are due to differences study population, settings, health status, morbidity pattern and sociodemographic factors. For instance, people living with chronic diseases tend to depend more on health professionals who routinely provide specific information relevant to clinical situations (Musa *et al.*, 2019, Park *et al.*, 2020). However, with increasing access to internet, social media and other electronic platforms there is increasing diversification that is enabling individuals and communities expand their sources of health information.

Generally, HISB tend to align with the specific needs of individuals and communities either to prevent disease(s), promote health, self-care, sexual/reproductive health, understand disease prognosis and desire for participation in treatment decisions among other reasons (Rajaa *et al.*, 2019, Choi & Powers, 2023). While it is commonly observed that people with chronic diseases tend to exhibit HISB related to the specific needs of their medical condition(s) (Park *et al.*, 2020), those with no major health problems appear to show more interest in disease prevention and health promotion related information.

The increasing diversity of health information sources comes with concerns of reliability and quality, because of major differences in content and conflicting recommendations which makes accurate appraisal rather difficult and complicated for most people (Bagherian & Sattari, 2022, Koumamba *et al.*, 2021). The right application of information is fundamental to achieving benefits of positive health outcomes as well as accurate perception of personal health status and

wellness. This was observed in studies which demonstrated that individuals with adequate health information tend to participate in health promotion activities, undertake lifestyle adjustment in response to disease(s) and also achieve satisfactory adherence to medication therapy (Asadi *et al.*, 2023).

There are other direct benefits of health information some of which include higher satisfaction with quality of medical consultations (Tan *et al.*, 2017) and outcomes of interactions with healthcare providers (Lim *et al.*, 2022, Al Jeraisy *et al.*, 2023). Furthermore, correct application of health information is reported to enhance recognition of disease symptom(s) and encourage sharing of information with family and friends (Kierkegaard *et al.*, 2014).

The high level of trust in health professionals found in this study is consistent with previous studies (Kalichman *et al.*, 2021). The higher level of trust of pharmacists (Esmalipour *et al.*, 2021, Dimassi *et al.*, 2020) and physicians (Kalichman *et al.*, 2021) have been consistently reported. However, the low trust of nurses is inconsistent with similar studies (Kwame & Petrucka, 2021, Birkhauer *et al.*, 2017). Several studies have also reported contrasting findings with trust of family/friends (Lu *et al.*, 2018, Moore *et al.*, 2020, Nowak *et al.*, 2021), internet (Daraz *et al.*, 2019), newspapers/magazines (Almaazmi *et al.*, 2023; Wu *et al.*, 2021) and traditional herbal practitioners (Gietaneh *et al.*, 2023, Boum *et al.*, 2021) as the most trusted sources of health information. However, over the last decade, trust in internet as source of accurate health information is rising among educated people (Raghupathi *et al.*, 2020), although the findings also noted the importance of health professionals as fundamental to health information dissemination within the community (Obasola, 2016).

The choice of health professionals as the most preferred source of information in this study have also been previously reported (Oedekoven *et al.*, 2019, Guite *et al.*, 2019). This may be partly driven by the fact that individuals traditionally rely on them for information during medical consultations, positive experience with them and their presence in community healthcare services. The skills, competence, trust and long-term experience somehow build enough confidence to accept whatever information provided on its face value as accurate and reliable. In addition, individuals with poor health literacy and those with little experience with the healthcare system generally rely on information from health professionals. Even people who accessed information from print/electronic media tend to rely on health professionals for validation before acceptance as accurate and reliable.

The influence of sociodemographic factors on HISB have often produced conflicting findings in literature (Mirzaei *et al.*, 2020). However, the findings of this study showed significant association between demographic factors such as age (Li *et al.*, 2016, Baumann *et al.*, 2017), gender (Lee, 2020), educational status (Demirci *et al.*, 2021), income and marital status (Schmidt *et al.*, 2021). So HISB is generally reflective of the outcomes of a complex interplay between individual characteristics, access, health literacy, population setting, information delivery and demographic factors (Schmidt *et al.*, 2021). While these determinants are by no means exhaustive, they are pointers to factors that should be considered in understanding how individuals and communities acquire and utilize health information.

## CONCLUSION

Health professionals remain the most preferred, trusted and utilized source of health information, however most people consider

public health mass media information sources to be reliable and of high quality and can be depended upon for self-care and health care decisions. The observed use of the internet for health information and its rising penetration within the population makes the case for considering emerging electronic platforms in public health information service delivery.

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## Conflict of interest

The authors declare no conflict of interests

## References

- Agyemang-Duah, W., Arthur-Holmes, F., Peprah, C., Adei, D. and Peprah, P. (2020). Dynamics of health information-seeking behaviour among older adults with very low incomes in Ghana: a qualitative study. *BMC Public Health*. 20, 928
- Al Jeraisy, M., Alshammari, H., Albassam, M., Al Aamer, K. and Abolfotouh, M.A. (2023). Utility of patient information leaflet and perceived impact of its use on medication adherence. *BMC Public Health*. 23, 488.
- Alduraywish, S.A., Altamimi, L.A., Aldhuwayhi, R.A., AlZamil, L.R., Alzeghayer, L.Y., Alsaleh, F.S., Aldakheel, F.M. and Tharkar, S. (2020). Sources of health information and their impacts on medical knowledge perception among the Saudi Arabian population: Cross-sectional study. *J. Med. Internet Res*. 22(3), e14414.
- Almaazmi, M.A., Samara, K.A., Jarai, M., Majeed, H. and Barqawi, H.J. (2023). The usage and trustworthiness of various health information sources in the United Arab Emirates: An online national cross-sectional survey. *Healthcare*. 11(5), 663.
- Asadi, F., Rahimi, F., Ghaderkhany, S. and Almasi, S. (2023). Self-care for Coronavirus disease through electronic health technologies: A scoping review. *Health Sci. Rep.* 6(2): e1122
- Acter T., Uddin, N., Das, J., Akhter, A., Choudhury, T.R. and Kim, S. (2020). Evolution of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) as coronavirus disease 2019 (COVID-19) pandemic: a global health emergency. *Sci. Total. Environ.* 730: 138996.

- Al-Osail, A.M. and Al-Wazzah, M.J. (2017). The history and epidemiology of Middle East respiratory syndrome corona virus. *Multidiscip. Respir. Med.* 12: 20.
- Astier, A., Carlet, J., Hoppe-Tichy, T., Jacklin, A., Jeans, A., McManus, S., Pletz, M.W., Seifert, H. and Fitzpatrick, R. (2020). What is the role of technology in improving patient safety? A French, German and UK healthcare professional perspective. *J. Patient Saf. Risk Mgt.* 25: 219 – 224.
- Aziz, H.A. (2017). A review of the role of public health informatics in healthcare. *J. Taibah University Med. Serv.* 12(1): 78 – 81.
- Almuammar, S.A., Noorsaeed, A.S., Alafif, R.A., Kamal, Y.F. and Daghistani, G.M. (2021). The use of internet and social media for health information and its consequences among the population in Saudi Arabia. *Cureus.* 13(9): e18338.
- Anyaoku, E.N. and Nwosu, O.C. (2017). Extent of access to health information and sources for chronic disease patients in tertiary health institutions in South East Nigeria: Implications for libraries role. *Lib. Philos. Pract.* (e-journal).1504.
- Bagherian, H. and Sattari, M. (2022). Health information system in developing countries: A review on challenges and causes of success and failure. *Med. J. Islam. Repub. Iran.* 36: 111.
- Baumann, E., Czerwinski, F. and Reifegerste, D. (2017). Gender-specific determinants and patterns of online health information seeking: results from a representative German health survey. *J. Med. Internet Res.* 19(4): e92.
- Beck, F., Richard, J., Nguyen-Thanh, V., Montagni, I., Parizot, I.R. and Renahy, E. (2014). Use of the internet as a health information resource among French young adults: results from a nationally representative survey. *J. Med. Internet Res.* 16(5): e128.
- Birkhauer, J., Gaab, J., Kossowsky, J., Hasler, S., Krummenacher, P., Werner, C. and Gerger, H. (2017). Trust in healthcare professional and health outcome: A meta-analysis. *Plos One.* 12(2): e0170988.
- Boum, Y., Kwedi-Noina, S., Haberer, J.E. and Leke, R.R.G. (2021). Traditional healers to improve access to quality health care in Africa. *The Lancet Glob. Health.* 9(11): E1487 – E1488
- Bai, J., Cui, J., Shi, F. and Yu, C. (2023). Global epidemiological pattern in the burden of main non-communicable diseases, 1990 – 2019: Relationship with sociodemographic index. *Int. J. Public Health.* 68: 1605502.
- Bigna, J.J. and Noubiap, J.J. (2019). The rising burden of non-communicable diseases in sub-Saharan Africa. *The Lancet Global Health.* 7(10): E1295 – E1296.
- Bujnowska-Fedak, M.M., Waligora, J. and Mastalerz-Migas, A. (2019). The internet as a source of health information and services. *Adv. Exp. Med. Biol.* 1211: 1 – 16.
- Byaro, M., Rwuezaula, A. and Ngowi, N. (2023). Does internet use and adoption matter for better health outcomes in sub-Saharan African countries? New evidence from panel quantile regression. *Tech. Forecast. Soc. Change.* 191: 122445.
- Clarke, M.A., Moore, J.L., Steege, L., Koopman, R.J., Belden, J.L., Canfield, S.M., Meadows, S.E., Elliot, S.G. and Kim, M.S. (2016). Health information needs, sources, and barriers of primary care patients to achieve patient-centred care: A literature review. *Health informatics J.* 22(4) 992–1016.
- Chen, J. and Wang, Y. (2021). Social Media Use for Health Purposes: Systematic Review. *J. Med. Internet Res.* 23(5): e17917
- Choi, S. and Powers, T. (2023). Engaging and informing patients: Health information technology use in community health centers. *Int. J. Med. Informatics.* 177: 105158.
- Daraz, L., Morrow, A.S., Ponce, O.J., Beuschel, B., Farah, M.H., Katabi, A., Alsawas, M., Majzoub, A.M., Benkhadra, R., Seisa, M.O., Ding, J.F., Prokop, L. and Murad, M.H. (2019). Can patients trust online health information? A meta-narrative systematic review addressing the quality of health information on the internet. *J. Gen. Internal Med.* 34: 1884 – 1891.
- Dimassi, H., Makhoul, M., Khabsa, J., Saadeh, M. and Saleh, S. (2020). Trusting the pharmacist in delivering medical information: A community pharmacy perspective. *Int. J. Pharm. Pharm. Sci.* 12(2): 26 – 31.
- Demirci, S., Uğurluoğlu, Ö., Konca, M. and Çakmak, C. (2021). Socio-demographic characteristics affect health information seeking on the Internet in Turkey. *Health Inf. Libr. J.* 1–9.

- Ekoko, O.N. (2020). An assessment of health information literacy among rural women in Delta State, Nigeria. *Lib. Philosophy Pract.* (E-journal). 3533.
- Raidoo, S., Stowers, P., Fontanilla, T., Anderson, C.M., Vallin, L. and Kaneshiro, B. (2021). 18. SOSHI-APE: Sources of sexual health information for adolescents and preferences for education. *J Pediatr. Adolesc. Gynecol.* 34(2): 246.
- Esmalipour, R., Salary, P. and Shojaei, A. (2021). Trust building in the pharmacist patient relationship: A qualitative study. *Iran J. Pharm. Res.* 20(3): 20 – 30.
- Epizitone, A., Moyane, S.P. and Agbehadji, I.E. (2023). A systematic literature review of health information system for health. *Healthcare (Basil).* 11(7): 959.
- Frenkel, L.D. (2021). The global burden of vaccine preventable infectious diseases in children less than 5 years of age; Implications for COVID-19 vaccination. How can we do better? *Allergy Asthma Proc.* 42(5): 378 – 385.
- Gholami, M., khoshnab, M.F., khankeh, H., Ahmadi, F., Bagher, S.S. and Arfaa, N.M. (2014). The motivations of Iranian patients with cardiovascular disease for health information seeking: A qualitative study. *J. Agric. Environ. Sci.* 14:303-13.
- Gietaneh, W., Simieneh, M.M., Endalew, B., Tarekegn, S., Petrucka, P. and Eyayu, D. (2023). Traditional healer's roles, and the challenges they face in the prevention and control of local disease outbreaks and pandemics: The case of the East Gojjam Zone in North-western Ethiopia. *Front. Trop. Dis.* 4: 978528.
- Guite, F. and Hangsing, P. (2019). Identifying the trusted and preferred health information sources of rural women of Kangpokpi area, Manipur. *Lib. Philosophy Pract.* (E-journal). 2240.
- Ghahramani, F. and Wang, J. (2020). Impact of smartphones on quality of life: A health information behavior perspective. *Inf. Syst. Front.* 22: 1275–1290.
- Ho, Y.C.L., Mahirah, D., Ho, C.Z.H. and Thumboo, J. (2022). The role of the family in health promotion: a scoping review of models and mechanisms. *Health Promot. Int.* 37(6): daac119.
- Iroeze, P. and Bernard, I. (2023). Health information provision and utilization as predictors of safe health practices of nursing mothers in Imo State, Nigeria. *Lib. Philosophy Pract.* (E-journal). 7781.
- Jia, X., Pang, Y. and Liu, L.S. (2021). Online health information seeking behaviour: A systematic review. *Healthcare.* 9: 1740.
- Kalichman, S.C., Shkembi, B., Kalichman, M.O. and Eaton, L.A. (2021). Trust in health information sources and its associations with COVID-19 disruptions to social relationships and health services among people living with HIV. *BMC Public Health.* 21: 817.
- Kierkegaard, P., Kaushal, R. and Vest, J.R. (2014). Applications of health information to public health practice. *AMIA Annual Symposium Proceed. Arch.* 2014: 795 – 804.
- Koumamba, A.P., Bisvigou, U.J., Ngougou, E.B. and Diallo, G. (2021). Health information systems in developing countries: Case of African countries. *BMC Med. Info. Decision Making.* 21(1): 232.
- Kwame, A. and Petrucka, P.M. (2021). A literature based survey of patient centred care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. *BMC Nurs.* 20: 158.
- Kouri, A., Yamada, J., Lam Shin Cheung, J., Van de Velde, S. and Gupta, S. (2022). Do providers use computerized clinical decision support systems? A systematic review and meta-regression of clinical decision support uptake. *Implementation Sci.* 17(1):21.
- Kington, R., Arnesen, S., W.Y.S., Chou, W.Y.S., Curry, S., Lazer, D. and Villarruel, A. (2021). Identifying Credible Sources of Health Information in Social Media: Principles and Attributes. NAM Perspectives. Discussion Paper, National Academy of Medicine, Washington, DC. <https://doi.org/10.31478/202107a>. Accessed on 25<sup>th</sup> April 2024.
- Lim, H.M., Dunn, A.G., Lim, J.R., Abdullah, A. and Ng, C.J. (2022). Association between online health information seeking and medication adherence: A systematic review and meta-analysis. *Digital Health.* 8: 1 – 13.
- Lee, H.S. (2020). Which individual characteristics influence mothers' health information-seeking behavior? *J. Korean Soc. Lib. Inf. Sci.* 54: 343–364.

Lee, J.L., Rawl, S.M., Dickinson, S., Teal, E., Baker, L.B., Lyu, C., Tarver, W.L. and Haggstrom, D.A. (2020). Communication about health information technology use between patients and providers. *J. Gen. Intern. Med.* 35: 2614–2620.

Lu, L., Liu, J. and Yuan, Y.C. (2020). Health information seeking behaviours and source preferences between Chinese and US Populations. *J. Health Commun.* 25: 490–500.

Mirzaei, A., Aslani, P., Luca, E.J. and Schneider, C.R. (2021). Predictors of Health Information–Seeking Behavior: Systematic Literature Review and Network Analysis. *J. Internet Res.* 23(7): e21680.

Moore, A.R., Hudson, C., Amey, F. and Chumbler, N. (2020). Trusting sources of information on quality of physician care. *J. Health Care Organ. Prov Financ.* 57: 1 – 10.

McGrath, E. (2022). Emergence of vaccine preventable diseases: The perfect storm of hesitancy, refusal, a pandemic and war. *Pediatr Ann.* 55(11): e426 – e430.

Maon, S.N., Hassan, N.M. and Seman, S.A.A. (2017). Online health information seeking behaviour pattern. *Adv. Sci. Lett.* 23: 10582–10585.

Marar, S.D., Al-Madanev, M.M. and Almousawi, F.H. (2019). Health information on social media: Perceptions, attitudes, and practices of patients and their companions. *Saudi Med. J.* 40(12): 1294 – 1298

Musa, I.S., Adamu, B.M., Nongo, C.J. and Sadiku, K.A.O. (2019). Extent of utilization of health information by medical doctors in Niger State, Nigeria. *J. Lib. Serv. Tech.* 1(2): 1 – 13.

Nowak, S.A., Gidengil, C., Parker, A.M. and Mathews, L.J. (2021). Association among trust in health care providers, friends, and family, and vaccine hesitancy. *Vaccine.* 39(40): 5737 – 5740.

Obasola, O.I. and Agunbiade, O.M. (2016). Online health information seeking pattern among undergraduates in a Nigerian University. *SAGE Open J.* 1–9.

Ogunmodede, T.A., Ebijuwa, A.S. and Oyetola, S.O. (2013). Health information need and information sources of pregnant women in Ogbomoso metropolis, Oyo State, Nigeria. *Lib. Philosophy Pract.* (E-journal) 981.

Onwe, C. and Okocha, F. (2019). Health Information Seeking Behaviour of University Students in Nigeria. *Lib. Philosophy Pract.* (E-journal). 2498.

Oedekoven, M., Herrmann, W.J., Ernsting, C., Schnitzer, S., Kanzler, M., Kuhlmeier, A. and Gellert, P. (2019). Patients' health literacy in relation to the preference for a general practitioner as the source of health information. *BMC Fam. Pract.* 20: 94

Osei Asibey, B., Agyemang, S. and Dankwah, A.B (2017). The Internet use for health information seeking among Ghanaian university students: A cross-sectional study. *Int. J. Telemed. Appl.* 2017: 1–9.

Özkan, S., Tüzün, H., Dikmen, A.U., Aksakal, N.B., Çalışkan, D., Taşçı, Ö. and Günes, S.C. (2021). The relationship between health literacy level and media used as a source of health-related information. *Health Lit. Res. Pract.* 5: e109–e117.

Park, M.S., Oh, H. and You, S. (2020). Health information seeking among people with multiple chronic conditions: Contextual factors and their associations mined from questions in social media. *Lib. Info. Sci. Res.* 42(3): 101030

Questa, K., Das, M., King, R., Everitt, M., Rassi, C., Cartwright, C., Ferdous, T., Barua, D., Putnis, N., Snell, A.C., Huque, R., Newell, J. and Else, H. (2020). Community engagement intervention for non-communicable disease control in low and lower-middle income countries: evidence from a review of systematic reviews. *Int. J. Equity Health.* 19: 51.

Roddis, J.K., Holloway, I., Bond, C. and Galvin, K.T. (2019). Acquiring knowledge prior to diagnosis: A grounded theory of patient's experiences. *Patient Experience J.* 6(1): 10 – 18.

Reddy, K.S. (2020). Measuring mortality from non-communicable diseases: broadening the band. *The Lancet Global Health.* 8(4): E456 – E457

Ruddin, R.S., Friedberg, M.W., Shekelle, P., Shah, N. and Bates, D.W. (2020). Getting value from electronic health records: Research need to improve practice: *Ann. Intern. Med.* 172: S130 – S136.

Rajaa, S., Priyan, S., Lakshminarayanan, S. and Kumar, G. (2019). Health information needs assessment among self-help groups and willingness for involvement in health promotion in a rural setting in Puducherry: A mixed-method study. *J. Educ. Health Promot.* 8: 186.

Raghupathi, V. and Raghupathi, W. (2020). The influence of education on health: an empirical assessment of OECD countries for the period 1995–2015. *Arch. Public Health.* 78: 20.

Shneyderman, Y., Rutten, L.J.F., Arheart, K.L., Byrne, M.M., Kornfeld, J. and Schwartz, S.J. (2016). Health information seeking and cancer screening adherence rates. *J. Cancer Educ.* 31: 75 – 83.

Sultan, K., Joshua, V.R. and Misra, U. (2017). Health information seeking behaviour of college students in the Sultanate of Oman. *Khyber Med. Univ. J.* 9: 8–14.

Sokey, P.P., Adjei, E. and Ankrah, E. (2018). Media use for health information dissemination to rural communities by the Ghana health service. *J. Info. Sci. Syst.* 2(1):1–18.

Simou, E. (2016). Health information sources: trust and satisfaction. *Int. J. Healthcare.* 2(1): 38 - 43

Tan, S.S.L. and Goonawardene, N. (2017). Internet health information seeking and patient-physician relationship: A systematic review. *J. Med. Internet Res.* 19(1): e9.

Talchinsky, T.H. and Varavikova, E.A. (2014). A history of public health. *The New Public Health.* 1 – 42.

Uddin, N. and Acter, T. (2021). An overview of global epidemics and the challenge faced: *Leveraging Intel. Glob. Epidemics.* 1 – 21.

Wu, Y. and Shen, F. (2021). Exploring the impact of media use and media trust during the COVID-19 pandemic in China. *J. Health Psychol.* 27(6): 1445 – 1461.

Wood, A., Denholm, R., Hollings, S., et al. (2021). Linked electronic health records for research on a nationwide cohort of more than 54 million people in England: Data resource. *BMJ.* 373: n826.

Yilma, T.M., Inthiran, A., Reidpath, D. and Orimaye, S.O. (2017). Health information seeking and its associated factors among university students: A case in a middle-income setting. *PACIS 2017 Proceedings.* 265.

Yu, H.Q. and Reiff-Marganec, S. (2022). Learning disease causality knowledge from the web of health data. *Int. J. Semantic Web Info. Syst.* 18(1): 1 – 19.

Zimmerman, M.S. and Shaw Jr, G. (2020). Health information seeking behaviour; a concept analysis. *Health Info. Lib. J.* 37(3): 173 – 191.