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RESEARCH ARTICLE

INFLUENCE OF SOCIO DETERMINANTS ON HEALTHCARE DELIVERY IN RURAL NIGERIA

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ABSTRACT

This study aims to establish a strategic approach for enhancing quality of life in rural settings through effective healthcare delivery. Society constantly strives to improve the social determinants that impact quality of life. This article identifies and examines key social determinants that influence the lifestyle and quality of life of people in the rural settings of Bayelsa State, Nigeria, and their access to health services. It also presents approaches for enhancing healthcare delivery. The methods used to achieve these objectives were literature review, questionnaire survey, interviews and direct observation. A questionnaire survey was distributed between August 2016 and July 2017 within seven selected states in the Niger Delta region of Nigeria. Out of the 1500 questionnaires distributed, 1300 were completed and returned. Informal interviews were also conducted across respondents from the public and health sector within Bayelsa State. To establish a satisfactory guide, socio determinants (e.g. essential amenities, job opportunities, security and level of literacy) in rural settings, which differ from those in urban areas, were observed and measured. Most of the respondents acknowledged that the identified determinants significantly influence quality of life and wellbeing of people due to their impact on the economic growth of the communities and healthcare delivery, as observed from further analysis. These findings form the basis for the developed guide. However, the actual results from the execution of these strategies remain a function of government action.

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INTRODUCTION

In the contemporary era, good quality of life and healthy living are continuously sought by society (Reading and Wien, 2009; Hazel and Fenton, 2010). This anticipation, therefore, drives and addresses the social and economic aspects that improve the lives of individuals and families in rural locations via economic development. Nevertheless, more relevant needs of the people such as security, transport systems, awareness and quality health services have been observed to emerge from uncontrolled factors such as geographical patterns of the region and life style (Mackenbach et al., 2008; Celik and Hotchkiss, 2000; Maryland Rural Health Association, 2016; Braveman and Gottlieb, 2014). Shortcomings in the provision of these needs negatively impact health conditions, lifestyle and environment (Braveman and Gottlieb, 2014; Shipley et al., 2010; Beard et al., 2009). To evaluate the influence of these factors on healthcare delivery, research was carried out in Bayelsa State, situated in the Niger Delta region of Nigeria. This research considered employability, education, security, literacy levels and amenities.

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The responses gathered from interviews and questionnaires represent prevailing condtions in the communities accessed. Bassey et al. (2003) and Ushie (2012) stated that 25% of Bayelsa State is urban, 70% water based and comprises several communities and rural settlements isolated from each other by creeks and rivers. The primary means of access in the rural settings is motor boats and canoes. Although the region is endowed with natural and valuable resources such as crude oil, the state still falls into the category of least developed states in Nigeria. Much of this is due to the geographical terrain (which poses difficulties in movement and infrastructural provision) and environmental degradation which has limited inter-ethnic migration in the state (Duong, Colin and Lee, 2004). Residents of communities in such settings are hard to reach and tend to be neglected, thus immensely impacting access to effective healthcare delivery and quality of life. The objectives of this article are to identify and examine the social determinants that influence access to health services in these rural settings and to develop a guide for managing the identified socio determinants for effective healthcare delivery. Both are aimed at establishing a strategic approach for enhancing quality of life in the rural settings. A synopsis of the study area is provided to demonstrate the concept of this article. The methodological approach presents an evaluation of the effect of socio determinants on access to healthcare in the study region. The results of the survey and interviews were analysed using the

statistical package for social sciences (SPSS) and NVIVO software tools. Finally, the article presents a guide for the effective management of social determinants and rural healthcare based on the analysis and findings of this study.

Study limitation: The main data used in the study were from the views of people from the public and health sectors from selected communities in all districts of Bayelsa State and some districts of the other selected Niger Delta States. This limits this study's outputs and recommendation to these locations and other regions with similar concerns. Some of the limitations posed by key stakeholders, for instance, government action on the implementation of the proposed guide are beyond the scope of this article.

MATERIALS AND METHODS

Synopsis of the study area: The study was in Bayelsa State, situated in the South-South region of Nigeria. Nigeria is endowed with abundant human and natural resources ranging from the massive potential workforce within its population of about 186 million people, of which 49% are female and 51% male (Irinoye et al., 2014; Worldometers, 2016). Bayelsa State is one of the states situated in the Niger Delta region. Its capital is Yenagoa, created on October 1, 1996, out of Rivers State. The state is a lowland state characterised by numerous streams of varying volumes and velocities (e.g. Rivers Nun, Ekoli, Brass, Koluama), tidal flats and coastal beaches, beach ridge barriers and floodplains. It lies between the high and lower Delta plain of the Niger Delta which suggests a low-lying relief (Oviasuyi and Uwadiae, 2010). The Southern Ijaw district (one of eight districts) has the highest population (23.8%) and has the most challenging topography. The population concentration of others are: Ogbia - 14.2%; Ekeremor - 11.1%; and Yenagoa – 9.3%; and Kolokuma/Opukuma district – 6.0% (Oviasuyi and Uwadiae, 2010).

A significant part of the Bayelsa State is covered by water, and 80% of the local population engage in fishing, farming on a subsistence and commercial level in the coastal communities of the state (Bassey et al., 2003; Ushie, 2012). Other sources of revenue generation include canoe construction, production of natural salt, palm wine, and secondary trading which reveal typical resources and development in the study region (Yacouby, Khamidi and Farhan, 2012; Nworisara, 2016). The state has one of the largest crude oil and natural gas deposits in Nigeria and contributes about 43% of Petroleum which is more than 80% of federal government revenue (Yacouby, Khamidi and Farhan, 2012). The data sets were collected through the mixed method approach from all districts in the state (Table 1).

Methodology

Quantitative method: This research used a methodical, quantitative empirical approach to collect numerical data from the remote locations and districts of Bayelsa State. This involved a structured questionnaire based on the research objectives with closed-ended questions grouped under different terms and Likert scale to access the desired information. Data retrieved from 1300 copies of completed questionnaires were analysed using SPSS (Pearson's chi-square) and Microsoft office excel 2016 to achieve study objectives.

Qualitative method: This approach is a systematic and subjective method used to describe life experiences and give them meaning, as stated by (Burns and Grooves, 2003). It involves exceeding beyond the existing theories that cover the occurrence. New theories can emerge from the abstract thinking process during personal field experiences of qualitative processes (Bryman, 2004). It is a process that investigates opinions, perspectives and motivations generated from respondents (Rajasekar et al., 2013). Semi-structured interviews were used in this research due to their flexibility and the fact that different categories of participants (the public, health personnel and government) were involved in the research. The interviews also enabled lay issues to be addressed in more detail. Thirteen participants covering the categories such as health personnel and the public were interviewed with the guidance of semi-structured questions and coding to detach the names of the respondents. Coding has been identified as a useful method of converting data obtained from participants into values storable and useable for management and analysis (Maina-bukar, Boso, 2018) as in Table 2. NVivo10 (software tool) was also used to analyse all data gathered, including the open-ended questions captured in the questionnaire, to achieve research objectives.

RESULTS AND DISCUSSION

The interviews and questionnaire survey helped in exploring the concerns of the communities relating to employability, education, level of literacy, security, essential amenities (source of water supply) and their impact on healthcare effectiveness. The findings were assessed and analysed in Sections 3.1 to 3.5.

Table 1. Districts and capitals of Bayelsa State

Districts	Capitals
Brass	Twon-Brass
Ekeremor	Ekeremor
Kolokuma/Opokuma	Kiama
Nembe	Nembe
Ogbia	Ogbia
Sagbama	Sagbama
Southern Ijaw	Oporoma
Yenagoa	Yenagoa

Employment factor: Employability is one of the factors examined as presented in Figure 1 and Table 3 which provide an overview of employment status based on survey responses. In the districts within Bayelsa State, employment is grouped into three categories: the employed; unemployed; and self-employed. The self-employed have a more even distribution across all the districts with an average of over 30% per district (Figure 1). The chart also shows that there are higher percentages of employed people in Ogbia, Southern Ijaw and Yenagoa districts as compared to the others. Only Sagbama district has employment rates less than 20%. Consequently, the highest unemployment rate compared to the sister districts with average unemployment rates of 20%. Analysis of the survey results from the Niger Delta showed that Bayelsa State has one of the lowest employment rates (33.74%). Edo and Delta States have the highest employment rates while Abia State has the lowest employment rate (20.76%) and tops the group on self-employment. Ondo State closely follows Bayelsa State as one of the states with the highest self-employment rate. The findings so far acknowledge that there is a massive unemployment rate in the Niger Delta despite endowment with valuable resources.

Table 2. Qualitative procedure: Coding strategies

Interviewee ID	Code prefix	Sector	Main Issues of Interview
DRA	DRA-00-O	Health	•Critical barriers to effective healthcare delivery.
NA1.	NA1-01-O	Health	•Measures to better health delivery.
DRW	DRW-00-Y	Health	•Flexible healthcare services.
PA3	PA3-03-N	Public	•Types of prevalent health issues.
CA2	CA2-02-S	Public	•Available health insurance scheme.
NB1	NB1-01-N	Health	
CB2	CB2-02-S	Public	
NC1	NC1-01-Y	Health	
PC3	PC3-03-N	Public	
PA4	PA4-04-N	Health	
PB4	PB4-04-N	Health	
CC2	CC2-02-O	Public	
DRD	DRD-00-Y	Health	

Table 3. Employment status and Gender relationship

Districts	Value (X^2)	df	Asymptotic Significance (2-sided) (P-values)	Number of Valid Cases (N)	Minimum expected count
Ogbia	2.99	4	0.559	104	2.45
Sagbama	19.88	4	0.001	116	0.46
Southern Ijaw	9.405	4	0.052	346	2.65
Opokuma	7.729	5	0.172	102	0.48
Nembe	4.171	5	0.525	137	0.93
Yenagoa	9.29	5	0.098	108	0.46

**df – degree of freedom*

Table 4. Employment status – Mode of payment

Districts	Value (X^2)	df	Asymptotic Significance (2-sided) (P-values)	Number of valid cases (N)	Minimum expected count
Ogbia	11.101	12	0.520	21	-
Southern Ijaw	18.110	15	0.257	106	0.01
Opokuma	19.893	10	0.030	99	0.01
Nembe	19.697	12	0.073	42	1.00
Yenagoa	4.668	8	0.792	250	0.04

**df – degree of freedom*

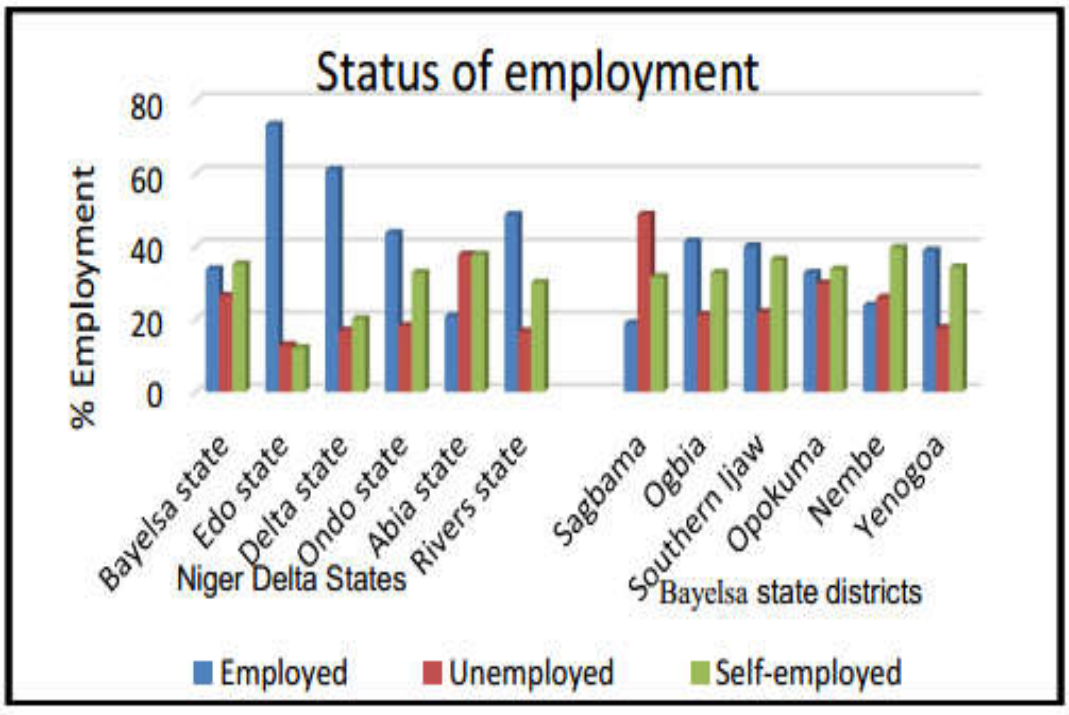

Figure 1. Employment status

Table 5. Guide for effective management of socio determinants and rural care

Factors	Overview	Objective	Challenges	Details of procedures and strategies	Expected outcome
Access routes and transport systems	To determine the community environment with regards to access routes and transport means	To determine the appropriate routes and travel means	Long travel distance, inadequate transport means, high travel cost, nature of the terrain.	•Creating structured road networks •Available and organized public transport means •Subsidized travel cost •Skilled drivers	•Reduced risk and insecurity •Reduced travel time to health centres and social service points. •Emergency hassles and delayed appointments are reduced. •Safe operations and accidents reduction. •Influence of travel cost on earnings is reduced
Employment needs	To evaluate community's monthly income earnings through nature of jobs	To determine the employment status within communities	Low-income rates, poverty.	•Exploring large-scale production to generate more resources and create employment for the rural poor •Skill enhancement programs	•More jobs creation for the rural poor. •Competency improvement and better income
Health conduct	To ascertain living conditions within communities	To evaluate the level of knowledge of healthy living	Low literacy level, influence of cultural beliefs.	•Educative programs on hygiene and personal care •Provision of amenities such as water supply systems (covered source)	•Reduced occurrence of health issues. •Emergency and preventable death issues are reduced greatly.
Community awareness	To determine the level of consciousness in healthcare	To determine the better approach for healthier living conditions	Lack of insight on vital resources to be used within the communities to achieve rural care.	•Health training programs to recruit health workers •Awareness programs and engagement on their environment about healthcare services	•More employment and involvement of the people as health workers •Traditional health workers can be trained and employed to carry out health care services
Literacy enhancement	To evaluate their level of education and impact of culture with the community	To determine the impact of education on average living condition	Low earnings, ignorance - no awareness of the value of education.	•Providing free education programs for children between 3 to 17 years of age •Providing affordable education program for disadvantaged adults.	•Availability of varying job opportunities •Increase in earnings •Improved level of reasoning •Opportunity for adult education •Healthier living conditions
Health requirements	To ascertain the health needs of the people within the community	To identify better methods for easy access to health services	Difficult access due to distance, belief system, non-functional centres, and unavailable health workers.	•Decentralization of health services at social service points based on the perceived need of the people. •Mobile services for surgical, primary care and emergency services	•Improved access to health services. •Reduced of morbidity and mortality rates •Motivation to people and preference for visits to health centres. •Reduced long travel distance and time to health centres •Reduced reoccurring health issues.
Level of security	To ascertain the impact of security in rural communities	To identify security measures for easy access to healthcare services.	Threat to life, regretted visits to health centres and declined resumption to duty, Stalled stakeholders' involvement and medical supply.	•Review of existing local security systems in place – naval security •Creating more job opportunities •Creating skill enhancement programs.	•Improved availability of health personnel in the riverine communities' health centres. •Frequent visits to health centres. •Improved frequent medical supplies and stakeholder intervention

This is true for the focus region of research (Bayelsa State) and affects the quality of life and healthy living. Respondents acknowledged that unemployment negatively affects the socioeconomic status of the Bayelsa people leading to inactive lifestyles which have often resulted in premature and preventable mortality cases. The Chi-square test was used to examine the relationship between employment status and gender in each district of Bayelsa State with the null hypothesis that employment status and gender are independent in these locations. Using the data gathered from the survey, P-values > 0.05 (Asymptotic Significance) were derived for all districts except Sagbama district (Table 3) implying that "no relationship" exists between the variables in all districts except Sagbama. The result from Sagbama [x^2 (4, N=116) = 19.880, P =.001] shows that the P-value is less than 0.05. This implies that the null hypothesis cannot be accepted, implying that a relationship exists between employment status and gender in Sagbama district only. In all, the creation of jobs opportunities can influence the employment status in communities and thus impact on living standards. On further analysis, more variables such as "employment status" and "mode of payment" were analysed using the Chi-square test to establish independence. Table 4 shows the results across the two districts on employment status and the mode of payment for healthcare services. Chi-square test on all districts of the state, except Opokuma, divulge null hypothesis (no relationship between variables) as all p- values > 0.05.

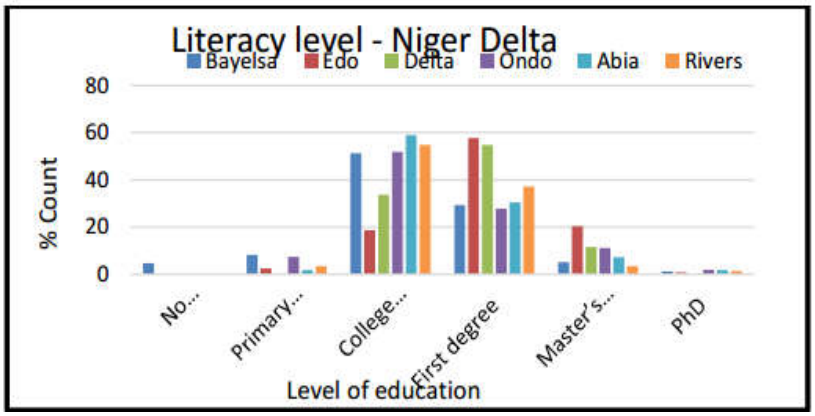

Figure 2. Level of education in the Niger Delta region

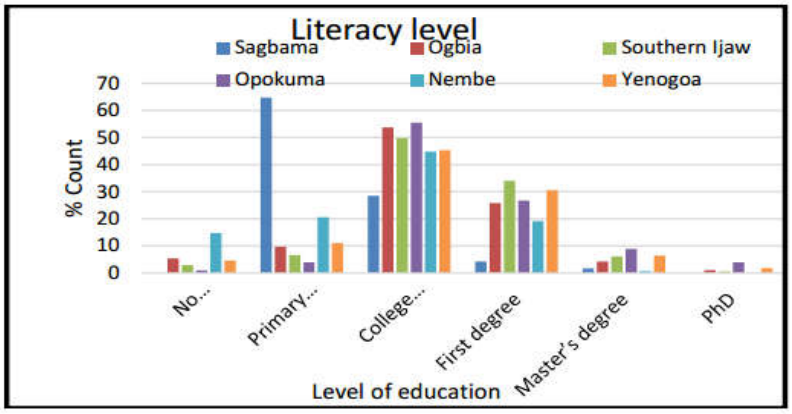

Figure 3. Level of education in Bayelsa State

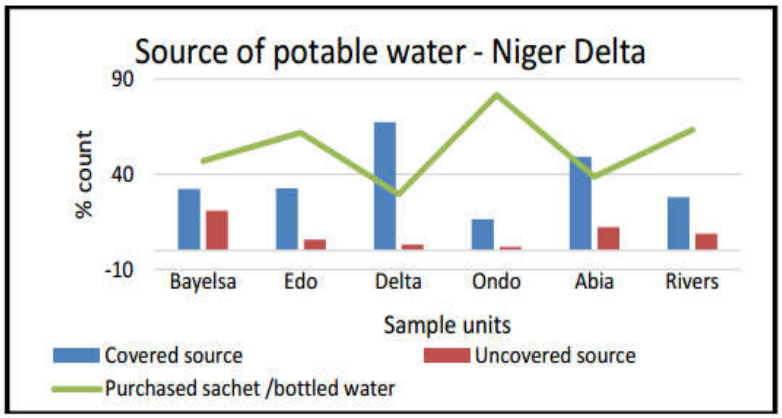

Figure 4. Primary source of drinking water in the Niger Delta

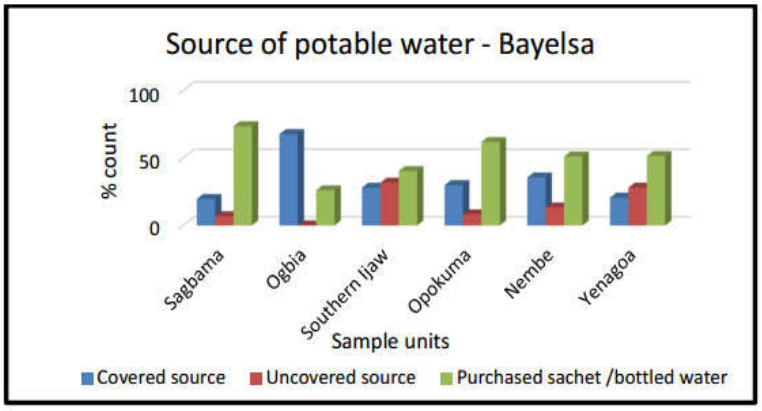

Figure 5. Primary source of drinking in Bayelsa State

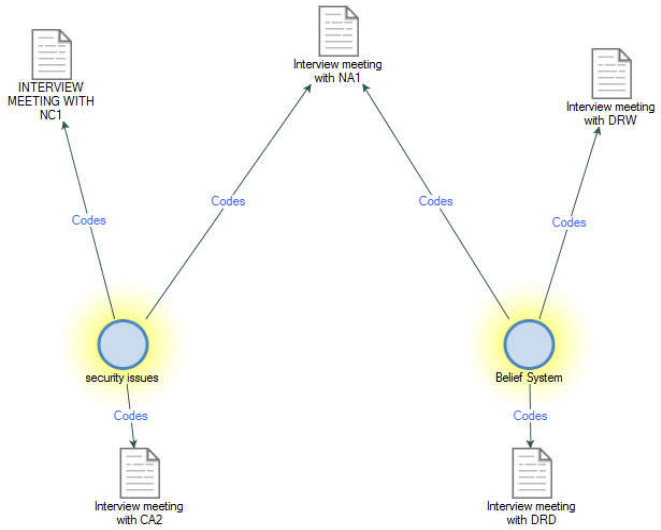

Figure 6. Constraints to effective health delivery

Figure 7. 5 Phase approach for the guide development

The test remains valid for Opokuma district based on data gathered where P = 0.03(P<0.05). The creation of job opportunities can promote better earnings for rural people, and the provision of a health scheme can influence regular access to health services**.**

Assessment of education: Education is one of the socioeconomic determinants of healthy living. Figure 2 shows that more of the population within the selected Niger Delta States have college certificates, and this is followed closely by the first-degree category. More awareness of the need for education reflects in the percentage of individuals who have master's certificates in Edo State having the highest percentage in that category. The "PhD" and the "no educational background" categories have the lowest percentages with more of the respondents under the "no educational background" from Bayelsa State. Within Bayelsa State, the highest level of education is PhD as with the other states in Niger Delta (Figures 4 and 5). However, this category has the lowest number of respondents across all districts in the state. College or secondary school education has the highest average record in the state with Opokuma district having the highest percentage (55.45%), closely followed by Ogbia district (53.76%). There is a similar range of those having first degree certificates across the districts (Figure 3) except Sagbama district where percentage fall far below the average percentage value of 27.32%. There is an uneven distribution in the categories of "primary school education" and "no educational background" in the districts and Sagbama district shows the highest percentage of those with primary school certificates. The gathered data show that Bayelsa State ranks low on educational background when compared to the other selected Niger Delta States. This is of concern as education is vital and so calls for improvement, especially in the rural riverine communities of the state.

Influence of essential amenities: Evaluating the needs of the rural poor for essential amenities such as "source of drinking water" was achieved during this study. From data gathered, Delta State ranks highest on the usage of covered sources of water such as pipe-borne water and is closely followed by Abia State (Figures 6). Ondo State has the lowest percentage under this category but much higher than the use of uncovered sources (rivers, streams and rainwater). Bayelsa State ranks highest (20.84%) on the use of uncovered sources when compared to other states. Figure 4 shows that the states with the highest percentage use of covered sources have the lowest percentage use of purchased sachet or bottled water. In Bayelsa State, the use of purchased sachet or bottled water is common across all districts and on the high side except for Ogbia district, (Figure 5). Sagbama district ranks highest under this category and lowest under the "covered sources" category. Yenagoa and Southern Ijaw have much higher percentage counts on the use of "uncovered sources" when compared to the use of "covered sources". All other districts show a reverse trend in this category with Ogbia district ranking highest. In general, the high body mass of water in Bayelsa State has, over time, become a readily available source of water to many rural communities and has also affected their lifestyles. Drinking water is directly sourced from the river in most communities and serves as source water for domestic use (kitchen, laundry, bathroom and toilet). Recurring waterborne disease conditions in the rural communities existed where the use of these uncovered water sources is common. More awareness programs, provision of potable water sources and campaign in these areas are required for healthier living.

Security concerns: Security issues are significant and require attention considering the impact on the delivery of healthcare services in Bayelsa State. Figure 6 shows security as a common concern for individuals from different communities

during the interview sessions. Security challenges were identified as a major barrier to healthcare delivery in many rural locations. NA1, a rural health worker, confirmed this with reports of kidnaps, theft, and rape cases involving health workers and individuals in the communities. The lack of security impacts on timely resumption of health workers assigned to the remote locations. NA1 described being attacked by sea-pirates while on assignment with representatives of WHO during a campaign program in the rural riverine communities of the state. Major fears dealing with pirates are theft, rape and murder of those who do not have valuable items or someone to pay for their ransom. NA1 further confirmed that although similar security concerns exists on land locations where access is by land transport, the risk level is highest in the riverine areas and discourages many health workers. Security concerns in some of these regions deter the provision of services by health personnel and even patients' involvement. Resolving these issues is a major concern, especially in the riverine communities and require government's intervention for better rural healthcare delivery. If there are job opportunities, essential amenities and good security systems in place then security concerns driven by absence of basic social and health needs would potentially be reduced.

Assessment of literacy level: Low literacy level is one of the challenges identified in remote riverine communities. NA1, a rural health worker, confirmed this during an interview session held in the community during the field study and said, "Patients prefer going to the chemist to buy drugs which do not suit the treatment for their ailments only because it would be cheaper for them". Also, NA1 mentioned that pregnant women preferred visiting the Traditional Birth Attendants (TBAs) which are local traditional health personnel at the start of labour but find their way to the health centres whenever there are complications in the process. Analysis of the issues around literacy was previously done by DRW, a health worker, who looked closely into how culture and traditions affect healthcare delivery due to low literacy levels and lack of knowledge. According to DRW, "in taking the message on healthy living to the rural people, I believe their belief system plays a huge impact on them". DRW said that some of them are still tied to old traditions hence embracing modern medicine remains a huge challenge. DRD, a health worker, also highlighted the high level of maternal and child problems saying, "maternal mortality is a lot more challenging, nowadays, people die due to trust in their faith or belief system and lack of good knowledge owing to their level of literacy". DRD further cited examples, particularly cases of preventable deaths in pregnant women during delivery through local traditional means. Making changes to the low levels of literacy in the communities will positively impact on healthcare delivery in the state. It will enhance large-scale dissemination of health messages through health workers and various media sources promoting science-based medicine following the improvements in ability to acquire and utilise the right information.

Conclusion

The survey in the districts of Bayelsa State showed some socio-economic concerns across the state and further reveals that most people, especially in the remote regions, were much more impacted. The state maintains a low level in tertiary education when compared to other states within the Niger Delta region following the data gathered. The outcome of the analysis suggests that many constraints exist in affording necessities such as education, which in turn affects income generation. Records of regular or prevalent health issues caused by these socio determinants have been gathered during this study and could serve as areas for investigation by the concerned stakeholders to ascertain required attention. Having reviewed challenges associated with social factors in the rural settings, a guide (see Table 5) using all information gathered during this study have been created. Figure 7 shows the process of guide creation from survey and interview meetings

The Process commenced with identification of concerns, development of objectives, gathering of the challenges associated with the identified concerns from field study, design and development of procedures to manage challenges with expected outcomes and, testing procedures through a validation exercise. The guide incorporates better implementation processes towards healthier lifestyle approach and rural healthcare utilisation. Recommdendations from the guide on multiple factors such as educational system, access to health care, access routes and transport systems, employment, health conduct and community awareness can be implemented for effective delivery of healthcare services. Hence, if performance gaps are treated with the proposed strategies, a better consciousness of healthy lifestyle and better living conditions are the most likely outcome.

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