INFLUENCE OF KNOWLEDGE, ATTITUDE AND PRACTICE OF MENINGITIS PREVENTION AMONG THE RESIDENTS OF ZAMFARA STATE, NIGERIA

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Abstract

The study assessed the Knowledge, Attitude and Practice of Prevention of Meningitis among the Resident of Zamfara State, Nigeria. The purpose of this study was to assess the knowledge about meningitis; assess the attitude of Resident towards the prevention of meningitis and assess the practice towards the prevention of meningitis in Zamfara State. Relevant literature was reviewed. ex-post facto research design was used for the study. Four hundred and thirty (433) respondents were selected using simple random sampling out of the population of Resident living in Zamfara state. The data collected was analyzed using one sample t test. The finds of the study revealed that there is knowledge about meningitis among the Resident of Zamfara State; Attitude towards the prevention of meningitis in Zamfara State is positive, and Practice towards the prevention of meningitis among the Resident of Zamfara State is not good. The study recommends among others that information and awareness should be provided to Resident of Zamfara state on new strategies of prevention of meningitis in order for them to have in depth knowledge on strategies that can be used to prevent meningitis; Resident of Zamfara state should be encouraged by government and health personnel on how to maintain positive attitude towards meningitis prevention strategies through mass media, seminars/ workshop and community health related programs

Keywords: Knowledge, Attitude, Practice, Meningitis

Introduction

Meningitis is an inflammation of the three thin membranes covering the brain and the spinal cords which are collectively called the meninges. It is a serious and sometimes fatal infection affecting the central nervous system and is caused by different bacterial and viral etiologic agents. It is associated with autoimmune disease; the main symptoms are fever, headache, nausea, and neck stiffness, which are similar to those presenting in infectious, malignant, or other forms of meningitis and the clinical cause is also varied and can be acute, chronic, or recurrent, and thus is not helpful in differential diagnosis (World Health Organization, 2009). It is extremely difficult to prove that co-morbid autoimmune disease is a direct cause of meningitis, but the exclusion of other etiologies is essential for accurate diagnosis. Such diagnosis is made from a full set of physical and laboratory data and imaging findings. Furthermore, in patients with

autoimmune diseases treated with immune-suppressive or immune-modulating agents, it is often difficult to differentiate meningitis is associated with autoimmune disease from infectious or drug-induced meningitis. (Rosentain and Bilukha, 2011).

Mulholland (2007) contended that the strangely contradictory opinions concerning meningitis which have been held by physicians of more than ordinary intelligence and information, are clearly traceable to their having seen but few cases of the disease, to their limited acquaintance with its diversified forms, or to their superficial study of its recorded history. Lesions are essentially the same in all, although varying in degree as much as congestion does from exudation and in extent from what is invisible to the naked eye to a profuse accumulation of inflammatory products. Yet the degree and extent of these lesions, and the greater or less energy in the primary impression of the morbid cause of the disease are the two elements, out of which this great variety in its phenomena arises.

Just as in typhoid fever the blood disorder and the intestinal lesion combine to impress upon that disease a characteristic expression which Is compounded of those two elements in various proportions, so that in one case the attack may terminate in coma before intestinal symptoms arise, or marked intestinal lesions are developed; and in another prolonged diarrhea and moderate fever may be almost the only prominent phenomena; so in epidemic meningitis the blood disease may vary through every grade, from extreme hypnosis to extreme hyperemesis, from typhoid symptoms to inflammatory, and the nervous disorder present those infinite diversities in degree and kind which depend upon the existence of congestion or of exudation in the membranes of the nervous centers, on the participation of one part or another of the brain or spinal marrow in the change, its degree and extent, and on the relative proportion of the blood and tissue changes in the aggregate lesions. (King, 2004)

It will readily be anticipated that, like other fatal epidemic diseases, meningitis is sometimes sudden and sometimes gradual in its development. In the former case, the patient on awaking suddenly from a sound sleep, or, while pursuing his ordinary avocations, may be attacked with chilliness, prostration, vomiting and headache, of which symptoms the last is often intensely distressing. As in other epidemic diseases, also, such seizures are most common during the earlier periods of its prevalence; but, later in its course premonitory symptoms are more frequently observed. They may last for an hour or two, or may extend to several days; and, in general, it may be stated that the longer their duration the milder will be the subsequent attack. But the symptoms in either case are essentially the same; prostration, chilliness, feverishness, and sometimes vomiting and sharp pains in the head, back and limbs. The character of the vomiting, as well as the absence of all gastric lesions prove that it is produced by an irritation of the brain. All of these symptoms, their succession and degree of gravity, were as fully described.

However, attitude towards prevention of meningitis as a disease among residents is important in understanding their health seeking behavior and use of appropriate preventive methods. Some of the studies reviewed indicated that people now regard meningitis as a dangerous disease that can kill and affects both children and adult (W.H.O 2012). Most people also strongly felt that meningitis can be prevented. Such positive attitude is essential for behavior change

campaigns. In addition, the failure to consider residents' knowledge, attitude and practices about meningitis prevention has contributed to the inability of programmes against meningitis to achieve sustainable meningitis prevention. It is of paramount importance that the knowledge, attitude and practice towards meningitis is studied in Zamfara State in order to understand better which the disease strikes widely.

Unfortunately, despite much scientific advancement in diagnostics and therapeutics, there is still considerable morbidity and mortality. The World Health Organization (2006) estimates that at least 500,000 new symptomatic infections per year occur worldwide, leading to at least 50,000 deaths. Bacterial meningitis remains a significant cause of morbidity and mortality throughout the world, despite the progress of antimicrobial therapy, especially in developing countries because of lack of preventive medical services, such as vaccination programs. Mortality rates are up to 34% while more than 50% of the survivors suffer from long-term neurological sequelae.

WHO, (2015) observed that "corruption in the health system and uncertainty in the political programme have supported various types of patronage, in this case in the form of contracts for the purchase of medical supplies. There was a widespread belief that a lot of residents have become millionaires over the epidemic". In northern Nigeria, for various reason, the epidemic was poorly managed. It is clear that the spread and belief of the disease could have been taken when early reports became known to health officials (WHO, 2012). At least 813 persons have died in northern Nigeria due to the outbreak of meningitis in November 2016. The eruption of this killer disease and its speedy lethal effect had generated massive concern from across and outside of the country. But due to the general lack of adequate knowledge on the disease, many Nigerians, including public officials ascribed superstitious essence to epidemic. (Narrel and Gilles 2012)

In several occasions, individuals and organizations such as the Association of Medical Laboratory Scientists of Nigeria (AMLSN) have pleaded with the federal government to redirect its focus on local production of vaccines. But the government wouldn't do this given the many years it had been clamoring for erecting vaccines and drug production plants in the country (Adegbola, Secka, Lahai, Lloyd-Evans, Njie,Usen, 2012). In line with the above assertions, it is expected that people are at risk of meningitis because they are least likely to have the means to prevent and treat meningitis. This is one of the reasons why people suffer physically and intellectually and often cannot contribute to the betterment of the society. Based on the above problems stated so far, the researcher develops interest in undertaking a research on the knowledge, attitude, practices towards the prevention of meningitis among the people of Zamfara State as this may help to provide a basis through which the problem of meningitis could be drastically reduced if not totally eradicated.

1.3 Statement of Problem

Despite much scientific advancements in diagnostic and therapeutic, there is still morbidity and mortality. Bacteria miningitis remain a significant cause of morbidity and mortality throughout the world, despite the progress of

antimicrobial therapy, especially in developing countries because of lack of preventive medical services such as vacation programs.

This study is set to:

Assess the knowledge about meningitis among the residents of Zamfara State

Assess the attitude of residents towards the prevention of meningitis in Zamfara State

Assess the practice towards the prevention of meningitis among the residents of Zamfara State

Research Questions

The following research questions were raised for verifications

1.What is the knowledge about meningitis among the residents of Zamfara State?

2.What is the attitude of residents towards the prevention of meningitis in Zamfara State?

3.What is the practice of residents towards the prevention of meningitis in Zamfara State?

Major Hypotheses

The knowledge, attitude and practice towards the prevention of meningitis among the residents of Zamfara State is not significant

Sub Hypotheses

1.The knowledge acquired about meningitis among the residents of Zamfara State towards the prevention of meningitis is not significant.

2.The attitude of residents towards meningitis prevention in Zamfara State is not significant.

3.The practice of residents towards meningitis prevention in Zamfara State is not significant.

Methods and Materials

The ex-post facto research design was adopted for this study. The population of this study consisted of the general population of Zamfara State (both males and females). The total aggregate population was 3,284,412. 30% sample size was drawn from the population of teachers from two secondary schools and residences. The sampling covers two secondary schools and two residences from each of the fourteen Local Government Areas of the state. Simple random sampling technique was adopted for this study and this gave the researcher the opportunity to select respondents from the schools. The researcher developed questionnaire adopting the Likert five-point scale options for the collection of data. The content and face validity was determined by giving to the supervisors of this research work and five professionals in Faculty of Medicine Ahmadu Bello University, Zaria to check whether the instrument will be able to test what it is expected to measure. Frequency and percentage distribution were used to show the respondents' contributions on a given item on

the table. To test the hypotheses of this research work, one sample t test, was used to test hypotheses 1, 2 and 3at 0.05 level of significance.

Results and discussions

Demographic characteristics of the respondents

The demographic variables selected along their expressed responses on the variables were age, sex, status, location, and educational qualification. Table 4.1 shows the distribution of the respondents by the respective levels of the demographic characteristics in frequencies and percentages.

Table 1: Demographic characteristics of the respondents

Variable	Variable options	Frequency	Percent
Sex	Female	176	42.1
	Male	242	57.9
	Total	**418**	**100.0**
Location	Rural	201	48.1
	Urban	217	51.9
	Total	**418**	**100.0**
Age range	15-25	47	11.2
	26-35	131	31.3
	36-45	104	24.9
	46-55	67	16.1
	56 and above	69	16.5
	Total	**418**	**100**
Status	Teacher	302	72.2
	Student	116	27.8
	Total	**418**	**100**

Observation on table 1 above with regard to Sex shown that of the total respondents involved in the study, 176 (42.1%) were female while 242 (57.9%) were male. The table also shows that 201 (48.1%) of the respondents resides in the rural areas while 217 (51.9 %) are in the urban area. The age range of the respondents shown that 47 (11.2%) are within the ages of 15-25, 131 (31.3%) are within the age range of 26-35, 104 (24.9%) are within the age of 36-45, 67 (16.1%) are within the age range of 46-55 and 69 (16.5%) are 56 years and above. Also, the status of the respondents indicated that teachers are more represented with 302 (72.2) and students 116 (27.8%). Junior and Senior Secondary school in the state were represented in the study.

Response to Research Questions.

Research Question one: What is the knowledge about meningitis among the residents of Zamfara State?

Table 2: Mean score of responses on the Knowledge of Prevention of Meningitis among the Residents of Zamfara State

Sn	Statement	Mean	Std. Dev.
1	Sharing of items with the infected residents can contribute to the spread of meningitis	2.52	1.242
2	Skipping vaccinations can cause meningitis infection	2.72	.744
3	Working with domestic animals can cause the spread of meningitis	2.87	1.251
4	Living in congested and unventilated rooms can lead to meningitis epidemic	2.68	.744
5	Most cases of viral meningitis occur in children younger than age 5	2.61	1.216
6	Pregnancy increases the risk of meningitis in women	2.58	.677
7	Head injuries and brain surgery also put patients at risk for meningitis	2.65	.744
8	Alcoholism is another causative agent of meningitis	2.60	.880
9	Conditions like HIV/AIDS, cancer, or diabetes can lead to meningitis infection	2.76	1.251
10	Living and working with large groups of residents increases the risk for infectious meningitis.	2.56	.790
11	Vomiting is one of the signs of meningitis	2.51	.677
12	Increased crying and irritability in children indicate that they are infected with the meningitis infection	3.39	.744
13	Headache and frequent coughing cannot be considered as one of the symptoms of meningitis	2.61	1.151
14	Mental confusion and loss of consciousness are possible signs and symptoms of meningitis	2.69	1.917
15	Skin rash commonly near the armpits and on the hands and feet are symptoms of meningitis	2.61	.790
16	Runny nose, and congestion prior to developing other symptoms can be regarded as symptoms of meningitis infection	2.51	1.232
17	Excessive sleeping is another sign of meningitis	2.69	.744
18	Difficulty nursing or eating is not a sign of meningitis	2.64	1.156
19	Joint pain is another possible signs of meningitis Stiff neck also indicates the presence of meningitis	2.65	1.136
20	Stiff neck also indicates the presence of meningitis	2.51	1.125
21	When signs and symptoms of meningitis are noticed, people seek for immediate treatment	2.67	.704
22	Victims of meningitis are taken to hospital for proper treatment	2.52	.988
23	Home treatment is mostly applied to meningitis patients rather than taken them to hospital for proper medication	2.72	1.572
24	When meningitis infection is noticed, antifungal medication is prescribed to treat a fungal infection	2.87	.585
25	Non-Governmental organizations give out drugs as part of their contributions to the victims of meningitis infection	2.68	.817
26	Patients of meningitis are well taken care of by the government	2.61	.677
27	Treatment of meningitis is done by the victim's family only	2.58	.744
28	Mechanical ventilation is provided to the patients if the level of consciousness is very low, or if there is evidence of respiratory failure	2.65	1.136
29	Benzyl penicillin is administered to the patients before transfer to hospital	2.60	.847
30	The most effective way to prevent meningitis is to get vaccinated against the disease	2.76	.790
31	Efforts are been made by both local, state and federal government to address the menace of meningitis epidemic in the state	2.56	1.151
32	Voluntary agencies play a very important role on campaigns against meningitis epidemic	2.51	.868
33	Immunization is conducted at regular intervals to reduce the case of meningitis in the state	3.39	.717
34	Victims of meningitis are kept away from the normal people to reduce instant transmission	2.61	1.156
35	Meningitis can be prevented from spreading by washing hands before and after eating	2.69	1.136
36	Health agencies liaise with the traditional rulers in curbing the problem of meningitis in the state	2.61	1.125
37	World Health Organization contributed immensely on fight against meningitis in the state	2.51	.790
38	People abstain from sharing items where secretions can lurk, such as drinking glasses, water bottles, straws, silverware, toothbrushes, lipsticks or lip glosses, and cigarettes	2.69	1.015
39	Keeping distance from infected people can help to prevent the spread of meningitis	2.64	1.151
	TOTAL	**2.67**	**0.442**

(Decision mean =2.50)

Table 2 above shown the mean score of responses on the knowledge about meningitis among the people of Zamfara State, Nigeria. The aggregate mean score for the table shown that the residents of Zamfara state have knowledge about meningitis. The benchmark mean set to determine the level of such influence is 2.50 as indicated at the bottom of the table. The aggregate mean score for the Knowledge about meningitis is 2.67 which is higher than the midpoint on the four-point scale. This observation implies that people are aware that Victims of meningitis are to be taken to hospital for proper

treatment and also they are aware that it is necessary to abstain from sharing items where secretions can lurk, such as drinking glasses, water bottles, straws, silverware, toothbrushes, lipsticks or lip glosses, and cigarettes to avoid been infected with meningitis.

Research Question Two: What is the attitude of residents towards the prevention of meningitis in Zamfara State?

Table 3: Mean score of responses on the attitude of residents towards the prevention of meningitis in Zamfara State?

S/N	Statement	Mean	Std. Dev.
1	I belief that sleeping in a well-ventilated room can prevent the spread of meningitis	3.82	.835
2	I feel that meningitis is a life-threatening disease	2.91	.880
3	I think that it is not necessary to keep environment clean and tidy	3.30	.765
4	I belief that meningitis can be transmitted from one person to another	3.05	.942
5	I belief that health education can play a very significant role in reducing if not eradicating meningitis in the state	2.97	.850
6	I belief that children and people with old age are most likely to have meningitis infection	2.42	.657
7	I comply to the rules and regulations laid down by the health care providers with the regards to meningitis infection	2.49	.974
8	I believe that the campaigns about the dangers of meningitis attract the attention of many people in both rural and urban areas for the prevention of meningitis	3.33	.744
9	I believe that people who are attacked by the epidemic meningitis should be taken to hospital for prompt action	3.17	.834
10	I believe that home treatment is better that taking meningitis patients to hospitals	2.28	.675
		2.974	**0.815**

(Decision mean =2.50)

Table 3 above shown the mean score of responses on the attitude of people towards the prevention of meningitis in Zamfara State, Nigeria. The aggregate mean score for the table indicated the respondents have positive attitude towards the prevention of meningitis in Zamfara State. The benchmark mean set to determine the level of such influence is 2.50 as indicated at the bottom of the table. The aggregate mean score of the attitude towards the prevention of meningitis was 2.974 which is higher than the midpoint on the four-point scale. This observation implies that residents of Zamfara state belief that sleeping in a well-ventilated room can prevent the spread of meningitis also Many people think that it is not necessary to keep environment clean and tidy to avoid the spread of meningitis.

Research Question three: What is the practice of residents towards the prevention of meningitis in Zamfara State?

Table 4: Mean score of responses on the practice of residents towards the prevention of meningitis in Zamfara State?

S/N	Statement	Mean	Std. Dev.
1	When signs and symptoms of meningitis are noticed, I go for immediate treatment	2.18	1.090
2	I sleep in a well-ventilated room	2.29	1.108
3	I go for immunization against meningitis infection	2.35	1.110
4	I keep my environment clean and tidy to avoid the spread of meningitis	2.28	1.105
5	I keep away from patients of meningitis because it can be transmitted through coughing and sneezing	2.35	1.064
6	I engage in daily exercise to protect myself against the spread of disease	2.23	1.014
7	I don't share personal items with the meningitis patient	2.41	1.040
8	I wash my hands before and after eating because they are convinced that the viruses and bacteria responsible for spreading meningitis can get on to the people's hands and into the mouth	2.39	1.006
9	I volunteer to create awareness on the dangers of meningitis epidemic	2.27	1.007
10	I guide children and elderly persons on how to keep themselves free from epidemic meningitis	2.37	1.076
		2.312	**1.062**

(Decision mean =2.50)

Table 4 above shown the mean score of responses on practice of residents towards the prevention of meningitis in Zamfara State, Nigeria. The aggregate mean score for the table indicated that the respondents do not practice the prevention of meningitis in Zamfara. The benchmark mean set to determine the level of such influence is 2.50 as indicated at the bottom of the table. The aggregate mean score on practice of people towards the prevention of meningitis in Zamfara State is 2.26 which is lower than the midpoint on the four-point scale. This observation implies that people do not sleep in a well-ventilated room and they do no practice good health hygiene's. Also when signs and symptoms of meningitis are noticed, they do not go to the hospital for immediate treatment.

Hypotheses Testing

Hypothesis One: The knowledge about meningitis among the residents of Zamfara State towards the prevention of meningitis is not significant.

Table 5: **One Sample t test on Knowledge about Meningitis**

	Mean	Std. Deviation	t-value	Df	P-value	Verdict
Aggregate mean	2.67	0.442	2.291	416	0.00	Rejected
Constant mean	2.50					

t = 1.972, P < 0.05

Table 5 revealed that the knowledge towards the prevention of meningitis among the residents of Zamfara State is significant. This is because the one-sample t-test calculated value is 2.291 greater than the t-critical of 1.972 at degree of freedom 416 with probability value 0.00 which is less than 0.05 level of significance. Thus, this result shown that the sub-

hypothesis (null) which states that "knowledge acquired about meningitis among the residents of Zamfara State towards the prevention of meningitis is not significant" is therefore rejected.

Hypothesis Two: The attitude of residents towards meningitis prevention in Zamfara State is not significant.

Table 6: **One Sample t test on Attitude of Residents towards Meningitis Prevention**

	Mean	Std. Deviation	t-value	Df	P-value	Verdict
Aggregate mean	2.97	0.815	2.013	416	0.001	Rejected
Constant mean	2.50					

t = 1.972, P < 0.05

Table 6. revealed that the attitude towards the prevention of meningitis among the residents of Zamfara State is significant. This is because the one-sample t-test calculated value is 2.013 is greater than the t-critical of 1.972 at degree of freedom 416 with probability value 0.001 which is less than 0.05 level of significance. Thus, this result shown that the sub-hypothesis (null) which states that "the attitude of residents towards meningitis prevention in Zamfara State is not significant" is therefore rejected.

Hypothesis Three: The practice of residents towards meningitis prevention in Zamfara State is not significant

Table 7: **One Sample t test on Practice of Residents towards Meningitis Prevention**

	Mean	Std. Deviation	t-value	Df	P-value	Verdict
Aggregate mean	2.31	1.062	1.413	416	0.07	Retain
Constant mean	2.50					

t = 1.972, P < 0.05

Table 7 revealed that the practice of residents towards meningitis prevention in Zamfara State is not significant. This is because the one-sample t-test calculated value is 1.413 is less than the t-critical of 1.972 at degree of freedom 416 with probability value 0.07 which is greater than 0.05 level of significance. Thus, this result shown that the sub-hypothesis (null) which states that "The practice of people towards meningitis prevention in Zamfara State is not significant" was therefore retained.

Conclusion

On the basis of the results and in view of the limitation of the study, the following conclusions are drawn:

1. Residents of Zamfara State have knowledge about meningitis prevention strategies
2. Attitude towards the prevention of meningitis is positive among the residents of Zamfara State.
3. Residents of Zamfara State do not Practice the prevention of meningitis

Recommendations

On the basis of the conclusion drawn, the following recommendations were made:

1. Further information and awareness by Government of the State should be provided to people of Zamfara state on new strategies of prevention of meningitis in order for them to have in depth knowledge on strategies that can be used to prevent meningitis.
2. People of Zamfara state should be encouraged by government and health personnel on how to maintain positive attitude towards meningitis prevention strategies through mass media, seminars/ workshop and community health related programs.
3. There is need for a well packaged prevention of meningitis health education intervention by the state government through medias, schools, town hall meetings, community heads and outdoor campaigns which could address and promote a constant practice of prevention of meningitis strategies among people of Zamfara State.

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