



ISSN: 0976-3031

Available Online at <http://www.recentscientific.com>

International Journal of Recent Scientific Research
Vol. 4, Issue, 4, pp.329 - 334, April, 2013

**International Journal
of Recent Scientific
Research**

RESEARCH ARTICLE

RELEVANCE AND IMPACT OF PROFESSIONAL COUNSELING ON FLOOD AND POST-FLOOD MANAGEMENT PROGRAMS IN THE NIGER DELTA REGION OF NIGERIA: STRUCTURED APPROACH FOR SIMILAR REGIONAL DELTAIC AND COASTAL TERRAINS

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ARTICLE INFO

Article History:

Received 10th, February, 2013
Received in revised form 14th, March, 2013
Accepted 27th, March, 2013
Published online 30th April, 2013

Key words:

relevance and impact, professional counseling, flood and post flood, management programs, structured approach, international treaty.

ABSTRACT

The relevance and impact of professional counseling on flood and post-flood management programs in the Niger Delta Region (NDR) of Nigeria has been studied using a structured questionnaire. It was administered on 600 urban and rural flood victims residing in the Niger Delta Region of Nigeria. The investigation was carried out under several range condition indices of age, educational level, settlement and mode of flood and post-flood management administered by relevant disaster management agencies. The analytical study reveals that 18% of urban and rural respondents believe in professional counseling before flood and post-flood management programs are administered on victims. The impact of professional counseling on flood and post-flood management programs is still not felt and is evidenced by indiscriminate coordination of flood and post-flood management programs. In addition, victims use their own initiatives to manage flood and post-flood disasters; rather than waiting on relevant agencies to develop and manage flood mitigation strategy. The desire for flood victims to return to their homes without proper structural evaluation and advice requires professional counseling to change the trend. These irregularities could be attributed to the fact that professional counselors are either not enough or they have not made themselves available to flood victims. Flood and post-flood management strategy should be proactive and preventive, aimed at a strategic framework that would address the health needs of victims. In addition, international treaty and memorandum of understanding among catchment nations to the River Niger are required for the formulation of an effective flood management strategy.

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INTRODUCTION

Flood is a large amount of water overflowing land not usually submerged. It arrives at and occupies the stream channel and its flood plain in a time too short to prevent damage to economic activities including homes. Flooding remains the most significant natural hazards that modern society is subject to, affecting several million people globally each year. The Niger Delta Region (NDR) of Nigeria (Figure 1) is naturally prone to flooding (Olajuyigbe *et al.*, 2012). It constitutes a body of sediment deposited at the mouth of River Niger where it enters the Atlantic Ocean (Brenden *et al.* 2012).

Therefore, all settlements and especially riverine settlements within the NDR are located on a deltaic plain being subjected to riverine and anthropogenic floods (Ologunorisa, 2007). With the post-flood management of urban centers, the communities in the NDR have experienced urban flooding in recent years. The MDGs of the year, 2000 contain cross-cutting themes in post-flood management and floods, fall in the disaster risk policy; and Nigeria as a signatory in collaboration with donor agencies are expected to provide sharply focused packages to support mitigation measures for

communities so affected by floods and related natural hazards (MDGs, 2000).

The last couple of decades have been very difficult for most communities in the NDR in close proximity to the Orashi River. It is the major natural recipient of large volume of water from the River Niger. There are no joys when reflecting on the NDR history of coastal settlement, culture and economy over the preceding 50 years. Serious incidents of floods in different parts of the NDR caused major disturbances, destroying properties, resulting in loss of lives and increase in social vices (Ologunorisa, 2007, Olajuyigbe *et al.*, 2012).

Thus, flooding can be attributed to anthropogenic and natural causes (O'Riordan & Nicholson-Cole, 2010, Cooper *et al.*, 2012). Given that 75% of the NDR is wetland with an annual rainfall of 2000-3000mm, flooding may occur due to excessive rainfall, human manipulation of wetland, flood plains in particular and excessive release of water from Rivers Niger and Benue (Ologunorisa, 2007, Olajuyigbe *et al.*, 2012). However, Coastal areas of the NDR are vital economic hubs in terms of settlement, industry, agriculture, trade, oil-gas recovery and tourism to mention some key sectors (Zanuttighm, 2011). Studies

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on flooding in the Niger Delta and similar terrains have been established. However, these studies were mostly on flood prediction and flood management using theoretical models, hard and soft data and non-structured approach (Smith *et al.*, 2012, Temmerman *et al.*, 2012). Also, technologies have been proposed for improved safety of the built environment in relation to flood events (van Ree *et al.*, 2011, Nicholls, 2007). Subsequently, the need for a structured approach has been identified and recommended (Bariweni *et al.*, 2012)



Figure 1 Map of Nigeria showing the Niger Delta Region differentiated at the bottom (Bariweni *et al.*, 2012)

In this paper the use of a structured questionnaire to evaluate the relevance and impact of professional counseling on flood and post flood management programs in the NDR are discussed. Using this approach, a holistic short-term and long-term regional flood mitigation strategy based on component mitigation framework involving community based and victim based participations have been presented.

Study methods

A structured questionnaire was administered on flood victims in the Niger Delta Region of Nigeria. Data collected included those of urban dwellers, rural dwellers, marital status, age and educational level. Flood and post-flood information considered included: a) flood and post-flood health programs and b) integrated flood and post flood management strategy. An attempt was made to discriminate between respondents in favor of professional counseling as against respondents not in favor of professional counseling. The data is provided (Tables 1-4).

Table 1 Number of urban and rural respondents

Respondents	X	Y	Z	W	Total
A _{urban dweller}	80	90	110	70	350
B _{rural dweller}	30	90	70	60	250
C _{total}	110	180	180	130	600

Table 2 Number of respondents using marital status index

Respondents	X	Y	Z	W	Total
A _{single}	50	100	125	70	345
B _{married}	50	85	65	55	255
C _{total}	100	185	190	125	600

Table 3 Number of respondents using age index (years)

Respondents/Age	X	Y	Z	W	Total
12-16	3	10	9	4	26
17-21	5	12	10	5	32
22-31	15	22	25	17	79
32-41	21	25	30	20	95
42-51	25	29	34	25	112
52-61	27	30	35	27	118
>61	31	35	37	32	134
C _{total}	127	163	180	130	600

Table 4 Number of respondents using educational level index

Respondents	X	Y	Z	W	Total
A _{secondary}	62	121	152	85	420
B _{tertiary}	36	59	46	39	180
C _{total}	98	180	198	124	600

Keys used are described as follows: A= urban respondents, B= rural respondents; C= total respondents; X= in favor of flood mitigation before professional counseling; Y= in favor of post-flood mitigation after professional counseling; Z= in favor of flood and post-flood mitigation after professional counseling; W= not in favour of professional counseling before flood and post-flood mitigation (Denga, 1989)

RESULTS AND DISCUSSIONS

Structured analysis using urban and rural dweller index

Available analysis as shown in figure 2 reveals that 18.33% (13.20 % urban and 5.18% rural) are in favor of professional counseling before flood management programs are administered on flood victims. These flood victims believe in community based structured management approach in managing the health needs of flood victims and the formulation of an effective integrated management strategy.

On the other hand, 30% of respondents (15% urban and 15% rural) favor professional counseling after the administration of post-flood management programs. These victims believe that flood information used in solving post-flood disaster problems are desktopped and do not reflect the problem on ground. Also, 30% of respondents (18.33% urban and 11.67% rural) favor professional counseling after flood and post-flood management programs are administered on flood victims. Victims are of the view that administration of existing management strategy remains the first critical action before the supportive action of professional counselors. In addition, the role of professional counselors is believed to be advisory and should not precede the implementation of existing health focused programs. Furthermore, 21.67% of respondents (11.67% urban and 10% rural) are not in favor of professional counseling before flood and post-flood management programs. They believe that government should be directly involved in the implementation of flood and post-flood management programs via government incentives in the form of good services, policy formulation; resulting in the funding of flood and post-flood management projects.

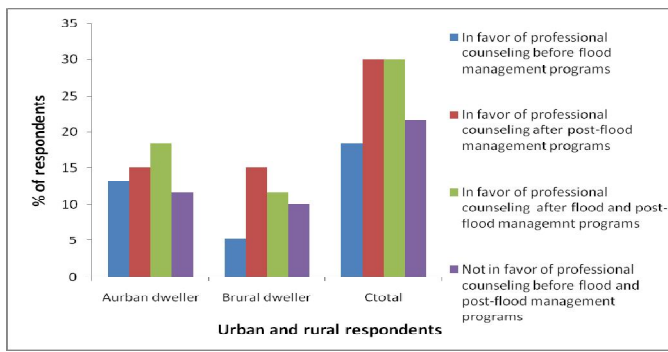


Figure 2 % of respondents vs. urban and rural dweller index

Structured analysis using marital status index

About 16% of respondents (8.33% singles and 8.33% married) as shown in figure 3 are in favor of professional counseling before administration of flood management programs on victims. They consider that victims may not take the administration of health related management programs seriously unless there is adequate information, education and communication campaign by professionals. In addition, the administration of flood management programs should respect the privacy of the family while in relief camps. Also, victims need counseling on the need to avoid interaction with victims with special health needs that are contagious.

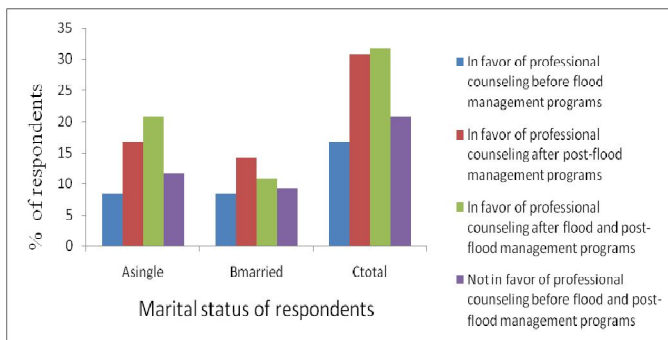


Figure 3 % of respondents vs. marital status index

Furthermore, 30.83% of respondents (16.67% singles and 14.16% married) are in favor of professional counseling after the administration of post-flood management programs. These flood victims believe that experience derived by agencies after post-flood management could help restructure the nature and level of professional counseling. Also, 31.67% of respondents (20.83% singles and 10.84% married) are in favor of professional counseling after the administration of flood and post-flood management programs. They believe that environmental and human health needs of victims are so obvious that agencies could tackle them headlong without further input from professional counselors. However, where and when the need arises, professional counselors could address them after the administration of flood and post flood management programs by relevant agencies. About 20.83% (11.66% singles and 9.17% married) are not in favor of professional counseling before administration of flood and post flood management programs. These victims believe that professional counseling has no place in the effective administration of health related mitigation measures and the effective implement of existing strategic framework on integrated flood management strategy.

Structured analysis using age index

About 2.36% of respondents between the ages of 12-16 years (averaging 14 years) as shown in figure 4, are in favor of professional counseling before the administration of flood management programs on victims. There is an increasing correlation between views of respondents and age. This may be attributed to the experience victims had on the management of previous flood disasters by relevant agencies. In addition, this highlights the relevance of age index in streamlining the views of victims in the administration of flood management programs. However, these victims believe that professional counseling has not really been regarded by government and its practice is not relevant and effective.

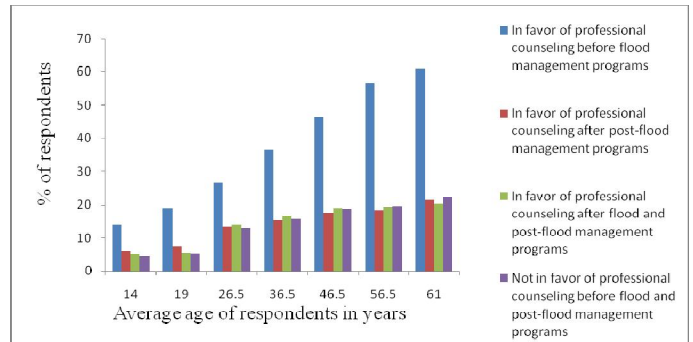


Figure 4 % of respondents vs. average age index in years

Structured analysis using educational level index

16.33% of respondents (10.33% secondary and 6.0% tertiary) as shown in figure 5, are in favor of professional counseling before the administration of flood management programs on flood victims. However, 33% of respondents (25.33% secondary and 7.63% tertiary) are in favor of professional counseling after administration of flood and post-flood management programs. Disparity among respondents may be attributed to differences in perception level on bureaucracy of professional counselors in this regard. In addition, 20.67% of respondents (14.17 secondary and 6.50 tertiary) are not in favor of professional counseling before the administration of flood and post-flood management programs. These victims do not believe that professional counseling enhances the implementation of flood and post-flood management programs. The claim that 90% of the respondents believe in professional counseling before implementation of flood and post-flood management programs; may not be statistically legitimate. This is because at 1% level of significance, the statistical value of $P \geq 5.0$ as against $P \geq 2.33$ is highly significant.

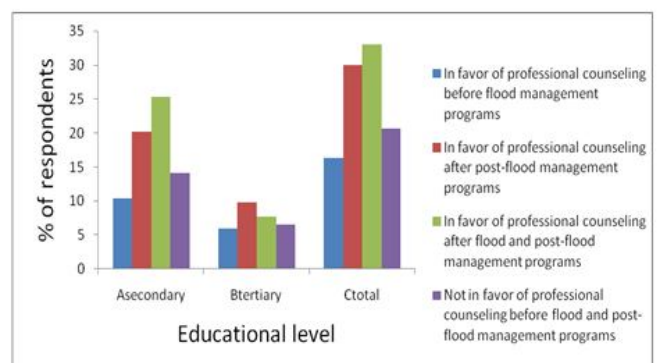


Figure 5 % of respondents vs. educational level index

Flood and post-flood health programs in the Niger Delta Region

In context, organizations involved in flood and post-flood management programs include environmental health practitioners, national emergency management agencies and non-governmental agencies. Flood victims are of the view that collection, collation, interpretation and dissemination of accurate, objective and timely information are important for the effective and efficient management of health responses to flood and other future disasters. They believe that health issues that need to be addressed in flood disaster should include: a) provision of safe and adequate water supplies; b) provision of shelter; c) food and food-related matters; d) provision of emergency ablution facilities; provision of sanitation; e) provision of waste disposal and collection facilities; f) provision of vector and vermin control; g) infectious disease control; h) personal hygiene and disinfection; i) disposal of dead stock and animals; j) hazardous materials; and k) disposal of human remains.

Most of the tropical reptiles which are hydrophobic become flooded and are released into the built environment. Communities in the NDR are faced with the massive invasion of poisonous snakes notably python and anaconda in buildings. Therefore, a mixed habitation of humans and animals exist, resulting in the breeding of unknown diseases. The NDR is a natural wetland which breeds mosquitoes. The unusual collection of water bodies generated by flooding creates artificial water points which are breeding ground for mosquitoes, the carrier of malaria parasite (Alderman et al., 2012). The mixing of flood waters and chemicals from flooded exploration sites results in the formation of a dark irritating complex fluid that destroys plants and animals. Intake of contaminated water results in typhoid, vomiting and diarrhea among flood victims. The chances are that the mixed fluid system reduces the oxygen content in the water and creates a thin film of fluid on the rhizosphere and aquatic environment which inhibits the free utilization of oxygen by plants and animals (Nicolette et al., 2006). Therefore, flood victims are of the view that professional counseling should focus on the health danger of flooding during post-flood education and communication campaign. In addition, massive medical missions in refugee camps should focus on contagious and unknown diseases besides rehabilitation of the built environment inclusive fumigation of buildings.

Integrated flood management strategy in the Niger Delta Region

In context, flood victims are of the view that basic flood strategic framework is lacking in the implementation of flood and post-flood management programs. Integration, expressed simultaneously in different forms as a mix of strategies, points of interventions, types of interventions (i.e. structured), short or long-term, and a participatory and transparent approach need be adopted. Flood victims consider that flood management is short-lived without a viable institutional framework that will engineer and sustain activities of committees established by Government for the purpose of addressing flood emergencies.



Figure 6 Building constructed along flood plain in the NDR

Building constructed along flood plain in the NDR

Therefore, there should be a teaching and learning framework such as Institute of Flood, Erosion and Reclamation (IFER) as component part of secondary and tertiary education with linkages to a disaster management centre (DMC); which will formulate and implement disaster management policies (Olfert, 2007). Furthermore, a more robust procedure of local inspection, monitoring and enforcement of IFER policies will be more tolerable. IFER will do information, education and communication campaign to the public on the following:

- a. location of settlement on waterways and flood prone areas (Figure 6);
- b. excavation and creation of burrow-pits by construction companies;
- c. awareness of the flood hazard by the local communities and use of local ingenuity such as use of sand bags to mitigate flooding;
- d. use of bricks not poor building materials in housing construction in flood prone areas [Naylor et al., 2012].

However, DMC should manage all disasters including flood and erosion issues up to the local community level. DMC will formulate and implement social intervention policies especially for post-flood victims. It will establish and maintain permanent evacuation camps for flood victims; besides coordinating relief efforts from the Government and donor agencies.

The bulk of the water that threatens the existence of the NDR comes from upstream of the Rivers Niger and the Benue (Bariweni, et al., 2012, Nicholls et al., 2006). While international treaty exists among catchment nations in the use of the Nile River and the Lake Chad Basin in Africa; no notable treaty exists in the utilization of water resources of the Rivers Niger and the Benue. Therefore, the NDR have no legal right at the moment to dictate what happens upstream of these two important rivers (Pinho, 2007). It is imperative that a legal framework be instituted to enable the NDR in Nigeria dictate what happens upstream of these two rivers just as Egypt downstream dictates the utilization of water resources of the Nile River. Enactment of treaty and memorandum of understanding among catchment nations is required to regulate erection of dams upstream and careless and insensitive release of these waters by nations upstream (Nicholls et al, 2007).

In addition, sensitizing community's involvement in flood mitigation strategy is crucial to its success. The swift dissemination of good reliable information is crucial as dissemination is a key to disaster relief efficiency. The role and knowledge of flood health management agencies (HMA),

especially at a local level, may serve to assist the emergency services or counter disaster organizations. Therefore, HMA can provide updates to the relevant emergency organizations on the status of the water supply, food supplies, collection and disposal of waste, sewerage, health supplies, evacuation centers, road conditions and the general status of the community. HMA can also be of service by providing the media and therefore the public, with disaster awareness and information on the location and availability of different types of disaster relief assistance coordinated by the various organizations and relief centers. EHPs can arrange official media releases and advise the public on issues associated with a flooding such as how to clean up flood affected homes or general health queries. Dealings with the media should always be done through the flood operations manager. It is important that only consistent and up to date messages are given to the public and the media.

A good evidence of community participation is that they are willing to be part of the information, education and communication campaign (IEC) strategy of the agencies responsible for flood and post-flood management programs. In addition, communities must be trained to be custodian of engineering and social intervention projects. This means that IEC must be community driven to ensure sustainability of intervention programs (Olfert, 2007). An effective flood and post-flood mitigation strategy is about focused policies and firm implementation. The initiative for any action plan should rest squarely on the environment protection agencies (Zevenbergen et al., 2012). Also, an integrated flood mitigation strategy should be based on the concept of incorporating land and water resources. Mandatory specifics in action plan should entail:

a). channelization of all known Creeks in the NDR for easy passage of potential flood waters, b). canalization of the mouth of specific natural water points to ease the flow of potential flood water into Creeks and Rivers; c). decongestion of all blocked drains in urban centers and linking them to constructed canals and d). shoreline protection of communities prone to flooding and erosion.

The implementation of social and engineering interventions require substantial financial resources obtainable from MDGs fund, oil companies, environment tax, private sectors, ecological fund and a budgetary allocation from Government. An implementation timeline of not exceeding six to nine months is adequate to give room for a proper review cycle. This will provide basis for making improvements on activities and interventions before the budget year expires (MDGs, 2000). Therefore, an integrated flood mitigation strategy should stipulate short-term and long term goals, objectives and action plans to reduce the vulnerability of communities to the engineering, social and health effects of flood and post disasters (Brenden *et al.*, 2012).

CONCLUSIONS

The majority of flood victims in the Niger Delta Region have recognized the relevance of professional counseling in the implementation of flood and post-flood management programs. However, it is true that professional counseling has not really created any impact on implementation of these programs. This may be attributed to the fact that there are not enough professional counselors or professional counseling is not regarded by government. Therefore, those who practice

professional counseling as it affects flood and post-flood management are discouraged. It could also mean that professional counselors have not made themselves available to flood victims. This paper suggests that more middle level professional counselors be trained to promote the administration of flood and post-flood management programs. They should also be provided with some government incentives and be advised to make themselves available to flood victims. The implementation of flood and post-flood management programs should be community driven; aimed at addressing engineering, socio-economic and health needs of victims. In addition, international treaty and memorandum of understanding among catchment nations to the River Niger are required for the formulation of an effective flood management strategy.

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